

2021

REGIONAL POLICY BRIEF

ON HEALTH SYSTEM RESILIENCE AND BUILDING
BACK BETTER FROM DISASTERS POST-COVID-19
IN THE ARAB REGION



UNDRR
UN Office for Disaster Risk Reduction



World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean



From
the People of Japan

Table of Contents

About the Document	3
Executive Summary	3
1. Introduction	5
2. The Bangkok Principles on Health Aspects in the Sendai Framework for DRR and the Health Emergency and Disaster Risk Management Framework	8
3. Towards Building Back Better Post-COVID-19	11
4. Policy Alternatives on Health System Resilience for Building Back Better from Disasters Post-COVID-19	15
5. The Way Forward: A Call for Action	22
6. References	25



About the Document

Description & Aim

This document represents a policy brief that was developed based on an intensive literature review of regional reports on the implementation of the Bangkok Principles on Health Aspects in the Sendai Framework for Disaster Risk Reduction (DRR) and the Health Emergency and Disaster Risk Management Framework, as well as a review of global and regional policy briefs developed on COVID-19 impact and recovery with a special focus on the Health resilience and recovery. The policy brief is offered to highlight COVID-19 existing response measures within the Arab region and presents a set of concrete actions to guide the Arab governments on ways to enhance health system resilience and recovery post-COVID-19. Furthermore, it provides supplemental actions to support the Integration of Biological Hazards in Disaster Risk Reduction (DRR) Action and planning in the Arab Region.

Target Audience

The policy brief targets recovery decision-makers and policymakers in national & local governments, line ministries, ministries of health, Disaster Risk Reduction & Emergency Management agencies in Arab countries, non-governmental organizations (NGOs), academia, and members of the private sector.

Executive Summary

The growing impact of disasters, gravely affecting people and property, has brought to light the need for improving disaster preparedness, response, and recovery in advance of a disaster as opposed to after occurrence management. The recovery, rehabilitation, and reconstruction phase represent an important opportunity to «Build Back Better,» particularly through the incorporation of disaster risk reduction into all development strategies. Lessons learned from previous disaster response and recovery efforts point out the need for institutionalizing post-disaster assessments and recovery planning to improve risk governance and strengthen coordination among governments, civil society, and other stakeholders, using both structural and non-structural measures.

To adequately bridge current operational and management gaps in DRR, the Sendai Framework global targets, lay out specific goals and milestones that must be met for the world to mitigate disaster, loss, and risk whilst also increasing the resilience. Priority 4 of the

Sendai Framework, in particular, advocates for the accomplishment of these goals by focusing on improving readiness for adequate response and «Building Back Better (BBB) in recovery.»

The Sendai Framework for Disaster Risk Reduction 2030-2015 goal targets include health as a vital component. It stresses disaster risk management by broadening the scope and definition of risks that goes beyond natural hazards related disasters while emphasizing the importance of building a resilient health system to boost countries' disaster risk management capabilities.

The COVID-19 pandemic, as the deadliest biological hazard in recent memory, demonstrates that biological hazards such as pandemics and epidemics are one of the top risk management priorities. It has outstandingly demonstrated during the last couple of years that multi-hazard management coupled with multi-sectoral activities is crucial to ensure development's long-term viability at all different levels across all sectors.

During the COVID-19 crisis, the Arab countries had significant socio-economic consequences, as well as public health and health systems repercussions. These effects have overburdened countries' capacities in numerous ways, impeding their ability to achieve the SDGs. It also identified several capacity gaps that must be addressed immediately to strengthen governments' response to and recovery from the current COVID-19 outbreaks, laying a special focus on the concept of "Building Back Better". (BBB). Breakdown of the health system is yet another example that is associated with the negative impact of COVID-19 pandemic worldwide. This scenario was prominent in some Arab countries and drove most of the COVID-19 overall response policies in these countries.

Managing risks associated with natural or man-made hazards, especially those related to disease outbreaks, necessitates a thorough understanding of risk in all of its dimensions including vulnerability, exposure, and hazards without excluding biological hazards. To lower mortality rates and minimize the effects on population well-being, concentrated efforts must be made to boost health system resilience and improve multi-hazard early warning systems, with a particular focus on biological hazards and disease outbreaks. Furthermore, efforts should be aimed toward the implementation of multi-hazards systemic approaches that harness risk management by improving collaboration between health authorities and key stakeholders. These efforts should be organized while keeping in mind key operational principles such as country contexts, "whole-of-society approaches," and "whole-of-government approaches."

Considering the current COVID-19 situation, there is need for a more efficient utilization, management, and coordination of resources to consolidate practice and contemporary approaches through the concept of "Disaster Risk Management & Health Emergency". Although the process of recovery could vary according to the type of emergency, but its management is totally dependent on the willingness and the capacity of the government, in addition to the local settings and context (Relief Web, 2020a).

This policy brief discusses the key actions required to build back better and enhance the health resilience from all hazards amid COVID-19 by introducing the theoretical concepts of health system recovery; highlighting the global efforts, goals, and commitment in disaster and health context; addressing the COVID-19 pandemic impacts on different dimensions with an emphasis on the health system infrastructure and the need for building back better; exploring global and regional policy alternatives for health system resilience and building back better from disasters post-COVID-19. The policy brief then concludes by offering recommended actions for the way forward at regional, national, and sub-national levels.

1. Introduction

The Sendai Framework is a landmark framework that demands stakeholders' involvement at all levels including global, regional, national, and local, along with commitment and strong leadership. The framework identifies the primary role of the states with shared responsibilities of the civil society organizations, local governments, and the private sectors to achieve the goals of preventing new - and reducing - hazardous' exposure and vulnerability to disasters. This is done while increasing recovery and response preparedness and resilience strengthening by implementing inclusive and integrated measures in health, structural, economic, legal, cultural, environmental, social, political, institutional, and technological dimensions, to reduce and prevent related risks (Aitsi-Selmi and Murray, 2016) (Carabine, 2015). In this regard, the United Nations (UN) member countries passed an agreement on the coherence and encompassment of 2030 Sustainable Development Agenda in 2015.

All these efforts stemmed from the fact that disasters are major stressors of health systems. The health system is often affected by the disruption and damage of health facilities infrastructure, loss of critical functions, and essential medical services. The impact also extends to the disruptions of routine public health programs, such as vaccination, which add another risk and stressor to the overall health system in case of biological hazards. Healthcare workers are another dimension in the health system that are often vulnerable to different threats ranging from the direct effect of specific disasters to the mental health issues and fatigue that is commonly observed in protracted disasters such as the COVID-19 pandemic.

In this context, realizing the necessity for comprehensive disaster recovery requires attention to the health system recovery by maintaining the health system standard levels similar to pre-disasters levels, and by providing opportunities to build back better a more resilient health system. This basic opportunity provided towards the health system recovery is at the core of the "Building Back Better" principle (Saya et al., 2017). The Building back better principle is the basic phenomenon of emergency recovery to decrease the susceptibility of future disasters and to build the health system resilience by managing social, physical, climatic, economic, and environmental shocks and susceptibilities (World Health Organization, 2013).

This principle is not limited to managing the recovery processes of specific hazards-related emergencies, whereas it considers all the typologies of emergencies by adapting better healthcare models to address the future needs of existing system distortions and the population.

By adopting the approach of Building Back Better principle in health system recovery, governments will ensure that the rebuilt system becomes safer, more resilient, stronger, and smarter. Thereby, it is an important element of the health system recovery that governments identify and rectify its inherent weaknesses in previous health systems. For instance, health service delivery could be improved during the health system recovery process by addressing the neglected areas of the previous health system such as strengthening the primary and secondary health service linkages, focusing on non-communicable diseases and mental health issues, and constructing new health facilities based on the demographic change (Epping-Jordan et al., 2015, Kamara et al., 2017). Stepping forward, the window of opportunity also opens in the post-emergency period by creating health reforms in new areas such as gender equity and health financing (Percival et al., 2014, Bertone et al., 2014, Rutherford and Saleh, 2019, Martineau et al., 2017).

Health system sustainable recovery aims to respond to the health needs and demands of the population by designing a system that is efficient, effective, and could mitigate the risk of future health hazards and increase the resilience of the health system. The achievement of this goal is dependent on the main components of the health system as recommended by WHO.

This includes health workforce, service delivery, financing, access to essential medicines, governance, and health information system. Furthermore, the health system recovery actions should also be conducted on four main public health functions including (1) the monitoring and surveillance of morbidity and mortality ratios, health determinants, and their associated risks; (2) public health preparedness and responses to natural disasters, disease outbreaks, and other emergencies; (3) environmental health and safety; and (4) disease prevention and health promotion through personalized and population interventions that include actions to monitor and assess the social determinants of the disease and also the health inequity. Additionally, the type of emergency influences and determines the health system recovery approach and strategies that are usually derived from countries' contingency plans and related processes.

For instance, the baseline and situations post-natural hazards related disasters might be relatively easily evaluated, by quantifying the damage, developing a recovery plan for restoring the system to its natural state, making finances for recovery, and also preparing for future hazards. The recovery span in cases of epidemics or natural disasters is relatively short because once the recovery process has started, related activities will be cascaded consequently to the subnational levels. Whereas man-made emergencies such as conflicts and disputes are prolonged typically and are influenced by political factors at multiple

levels with varying degrees of legitimacy. Moreover, such types of emergencies have fragile recovery with a high risk of relapse. The only thing which can oscillate the natural recovery process of these emergencies is the advancement of peace and stabilization in the country.

The health system resilience could also be improved through the introduction of proper measures for reducing disaster risks such as planning regulations of land use and building codes. Additionally, the assets could be replaced, and damaged facilities could be right-sized and modernized through technology updates to make them climate-friendly and environmentally sensitive.

This is on top of the application of green hospital settings to reduce the use of water and renewable energy. Additionally, conflict-sensitive programming and the increase in state legitimacy through cooperation between health professionals in post-conflict emergency settings, could contribute towards state building, peace sustainability, and efforts of conflict prevention (Rubenstein, 2009, Mcloughlin, 2015). Thus, the desired result of health system recovery and the Building Back Better approach is a health system that can advance universal health coverage and thereby provide access, equity, quality, and affordable health services to all the population (Kobe: International Recovery Platform, 2017).

To ensure that the opportunity to implement the Building Back Better principles is not missed and that all partners work together at the governance level to achieve this overarching goal; the analysis for the identification of risks, vulnerabilities, key barriers of the health system; health service delivery impediments and also the opportunities of the health system recovery, should begin at the planning stage. It should also include the assessment of different resources and options required to overcome the identified challenges.

A stable health system responds to population's needs and expectations in a balanced manner by: improving the health status of individuals, families, and communities; defending the population against health threats; protecting people from the financial consequences of illness and providing equitable access to person-centered care. Without solid policies and leadership, health systems cannot respond to these challenges in a balanced manner or make the most efficient use of their resources.

Given the magnitude of the consequences, reconstruction and recovery remain two main critical components of the overall management process to reverse the detrimental effects. It generally requires enormous efforts and resources that are optimally conveyed through various significant pillars including: planning, coordination, needs assessment, health system assessment, financial support, monitoring, and evaluation.

2. The Bangkok Principles on Health Aspects in the Sendai Framework for DRR and the Health Emergency and Disaster Risk Management Framework and Tools

In March 2016, an international conference was held in Bangkok, Thailand. Recommendations were made in this conference to help countries implement the health-related principles mentioned in the Sendai Framework for Disaster Risk Reduction 2030–2015. The recommended measures included: health incorporation into national disaster risk reduction policies and sub-national plans; the integration of the Emergency and Disaster Risk Management in health strategies at national and sub-national levels; increasing cooperation between the health sector and other sectors to strengthen health authority for disaster risk management; enhancing resilient health systems and applying International Health Regulations (2005). It also recommended the introduction of private and public investment in the health sector including in emergency and disaster risk management, and the incorporation of disaster risk in health education to enhance the capacity of health workers in disaster risk reduction. Other measures included: the development of early warning systems of multi-hazards, national risk assessments, and health core indicators, trans-boundary and cross-sectoral collaboration, and enhanced development and coherence of national and local strategies, policies, regulations, legal frameworks, and institutional arrangements.

To raise awareness about disaster risk reduction and resilience, “Making Cities Resilient (MCR)” was launched in 2010, among the local government and more than 4350 cities around the globe. Since 2010, the MCR got its midway through the implementation of Hyogo Framework for Action (2015–2005). Since 2015, it has been one of the key methods for delivering the Sendai Framework for Disaster Risk Reduction 2030–2015 (Sendai Framework) Target E (World Health Organization, 2019b). Furthermore, the MCR is guided by means that are important for making cities resilient termed as the “Ten Essentials” (UNDRR, 2020b).

With the increased complexity of natural systems including all land, air, and marine; and economic, political, and human systems which include communications, urbanization, supply chains, and trade, along with the international financial systems, disaster risks have become systematic and are reflected now in all sectors of governance and life. Thereby, it is now imperative to adopt a holistic approach for reducing the risks. The MCR campaign provided several tools that help in reducing risk and making the cities resilient, among which the key tool was the “Disaster Resilience Scorecard for Cities” (“the Scorecard”) (UNDRR, 2020c). The creation of Ten Essentials by the MCR campaign simplifies the Sendai Framework message by breaking it down into ten points’ checklist containing issues related to governance, planning, and response, which could easily be followed at the local government level and thereby could help them achieve the Sendai Framework objectives. However, there is a limitation of this scorecard given by MCR as it does not adequately emphasize the public health issues, and does not include the most important factors of health, such as the non-structural and structural safety, hospital capacities,

and services are not part of the scorecard given by the MCR. In addition, other public health issues that are related to disaster risk management were also not addressed well. To fill in this gap, the disaster resilience scorecard for cities was designed by the MCR campaign members and UNDRR, namely, “Public Health System Resilience Addendum” with the support of WHO and other partners. The addendum was propagated by United Nations Office for Disaster Risk Reduction (UNDRR), with the support of WHO and partners. The addendum is used in conjunction with the framework of WHO’s Health Emergency, UNDRR Scorecard, and Disaster Risk Management (Health EDRM). The scorecard helps the identification of the less strengthened areas by the local government in accordance with the issues related to public health that were not emphasized adequately in the disaster resilience scorecard original version. The Addendum uses the same structure as the original scorecard “Ten Essentials” (UNDRR, 2019a, UNDRR, 2019b) to address health-related emergencies and focuses on the wider issues of health recovery and management. The structure of the addendum is compiled in sections around the “Ten Essentials for Making Cities Resilient” scorecard. It gathers information concerning food distribution and hospitals and can be referred to as the amplified version (Relief Web, 2020b, Relief Web, 2020c).

It has been emphasized that Public Health System Resilience Addendum should be used for better results in conjunction with the Health Emergency and Disaster Risk Management (Health EDRM) Framework developed by WHO (UNDRR, 2017). The key components of Health EDRM functions include policies, strategies, and legislation, planning, risk communications, health infrastructure and logistics, human resources, health and related services, information and knowledge management, community capacity for health EDRM, financial resources, monitoring and evaluation.

In light of the above, it is increasingly clear that additional efforts are required in the Arab region to adopt such frameworks. This can be achieved by incorporating biological hazards in plans, strategies, and the national DRR policies, to assess the interplay between multi-hazard risks and the health sector, this is to be combined with the enhancement of coordination at the working level between DRR institutions and the national health at national and local levels.

Different ethical challenges arise regarding the Health EDRM. The decisions regarding preferences in risk response and minimization to emergency events should include ensuring that human rights and ethical aspects are given due consideration. Moreover, it is important to consider political, pragmatic, economic, ethical, and other factors that are relevant. Keeping the current situations and the upcoming public health risks in mind, there is an emerging need for more efficient utilization, management, and coordination of resources, to consolidate practice and contemporary approaches through the concept of “Disaster Risk Management & Health Emergency”.

Effective health emergency and disaster risk management policies, related programs, strategies, and practice are led by different approaches and core principles (WHO, 2019) that include a risk-based approach. Risks on the community due to healthcare emergencies depend on three factors i.e. exposure to health hazard threats, vulnerabilities to the threat, and the risk management capabilities of the community before and after the emergencies.

Governments and individuals can minimize the risk of health emergencies by reducing their exposure and by comprehensive emergency management, consideration of different health hazards, inclusive, people- and community-centered approach, multi-sectoral and multidisciplinary collaboration, whole-of-health system-based and ethical considerations. In the context of resilience, the community-centered approach is supported by many global efforts as it requires synergy between humanitarian response, sustainable development strategies and peacebuilding. An example of such efforts is the humanitarian-development-peace nexus, which represents a long-term strategic approach to building resilience facing various disasters and conflicts by bringing about structural transformations across the aid system (The Humanitarian-Development-Peace Nexus, n.d.).



3. Towards Building Back Better Post-COVID-19

3.1 The Global Context

The pandemic impact scaled to several dimensions and the recovery needs were required from all the sectors. For instance:

1. **Education:** Almost 190 countries closed their schools nationwide, thereby impacting the education of more than 1.9 billion students (UNESCO, 2020).
2. **Health:** COVID-19 has impacted the ability of the health sector to maintain the balance between the effects of the infection and the essential health services delivery. For instance, outpatients clinics were mostly suspended and patients were re-scheduled; non-urgent surgical procedures were stopped as part of surge capacity strategies through staff repurposing; and the distribution and shifts of surgical teams were modified, as emergency surgical care continued (Spenelli, 2020).
Furthermore, millions of vaccines were not administered due to response measures of infection, thereby creating an environment of increased mortality more than that caused by other chronic or infectious diseases (UNICEF, 2020a). The public health was concerned due to the rise in COVID-19 infection and thus the decrease in the capacity of health systems to address the curable conditions, leading to potential maternal deaths in Yemen up to 50,000, 500,000 HIV-related deaths in Africa (Ott, 2020, Kenny, 2020) and more than 1.2 million preventable deaths of children under five years old (UNICEF, 2020b, Samuel, 2020). Another demotion of the global implications of the pandemic is the mental health crisis that exacerbated during the pandemic due to the disruptions in mental health, and neurological and substance use (MNS) services (Abbas, 2021).
The pandemic has also cast a shadow over the supply chain for medicines, medical supplies, and critical equipment (Akande, 2020).
3. **Finance:** The global economy was decreased by 3.2% contributing to 8.5 trillion USD losses (UN-News, 2020a). The risk of increased protracted recession was developed due to distinct constraints in developing countries (UN, 2020).
4. **Housing:** Before COVID-19, 150 million people were homeless and 1 billion lived in informal housing. This number greatly increased due to the income losses caused by the pandemic (Nnoko-Mewanu, 2020).

5. Psychosocial: Millions of people have threatened the well-being of the society due to their mental health crisis caused by life disruption and loss of livelihood (Kelland, 2020).
6. Environmental: COVID-19 has also affected the Gretchen Daily's Natural Capital Project all over the world by clearly risking long-term challenges of the product in terms of climatic changes and in turn economic rebuilding. Also, the natural environment destruction has been directly linked to the COVID-19 pandemic and has a major impact on the conservation policies that are practiced at multiple scales which include the protected and conserved areas (PCAs) (Tan and Fulford, 2020) .

3.2 The Regional Context

Aggressive measures were taken and lockdown was declared in many parts of the Arab region in response to the pandemic causing severe socioeconomic demolition, which in turn has exacerbated the vulnerability of the region to a number of natural and man-made hazards, such as floods in Sudan and Yemen, and the devastating explosion at the Beirut Port.

It has shown how exposures to different hazards are connected and can produce a cascade of effects across the affected regions resulting in potential systemic crises. Additionally, COVID-19 infection had its negative impact on the healthcare systems worldwide, resulting even in their breakdown. This scenario was prominent in some countries of Arab states which warranted establishing and implementing different policies for facing such pandemic. Similar to the international community, the pandemic has repercussions on different sectors in the region.



Figure 1. Arab Region's COVID-19 Pandemic Estimated Impact (based on ESCWA calculations and estimates as per July 2020)

Along with structural issues in the region's health-care systems, the conflicts have their repercussions on vital healthcare systems, depriving many populations of even the most basic care. The conflict has also placed an unexpected additional strain on national health systems as they provide services to the region's 11.5 million refugees, including Palestine refugees and 14.5 million internally displaced persons (IDPs), many of whom have been separated repeatedly. Today, millions of people live in camps, informal settlements, and underserved communities, which frequently lack access to essential services. They live in densely populated areas where social distancing is difficult. Host communities are increasingly seeing the burden of caring for refugees and migrants as uneconomic because of what they perceive to be insufficient international support (The UN Refugee Agency - Global Trends 2020).

Analyzing the COVID-19 repercussions on the health system in the region, for instance, in Lebanon and especially following the explosion in the port of Beirut - which put most of the healthcare facilities out of function - the overall COVID status deteriorated. This added more challenges to the healthcare system's capacity to deal with the pandemic's waves. The challenges included the capacities of hospitals and intensive care units, laboratory and testing capacities, and the shortage of personal protective equipment (UNDRR, 2021).

Taking a view on other fragile and conflict-affected countries, the pandemic with other health stressors such as the scarcity of water, and sanitation and hygiene (WASH) services, throw more challenges to health system due to the lack of coping capacity for such crisis in terms of medical facilities, equipment, and personnel (OECD, 2020a). In Syria, 64% of the hospitals and only 52% primary healthcare facilities remain fully operational. This explains the initial low number of COVID-19 cases reported in these countries as a direct reflection of access to care challenges (OECD, 2020b).

On the other hand, some developing countries, for example, Egypt and Morocco show lower average rates for healthcare expenditures compared to other developing countries. In addition, Morocco and Egypt's health personnel range between 0.72 and 0.79 per 1,000 people respectively, which is lower than the WHO recommendation on health personnel which is 4.45 per 1,000 people. Furthermore, both countries also experience shortages of medical equipment (WHO, 2021).

The limited capacity has been faced by a surge in cases especially in large, densely populated cities (such as Cairo). This was usually due to social and religious events (OECD, 2020). Re-opening the international borders is yet an additional stress factor. Gulf Cooperation Council (GCC) countries on the other hand have invested in healthcare systems and infrastructure, increasing healthcare expenditure and budget allocations alongside the healthcare workers' capacity. This has been reflected in the quality of service and in bringing the outbreak under control with significantly higher recovery rates than the global average (Arab News, 2020). Furthermore, these countries

strategy based on prevention, allocation of case detection and tracking means, significant financial and material resources for COVID 19 treatment, and strict control measures (OCED, 2020). The UAE and Bahrain for example in September 2020 ranked first and third respectively for the number of new tests per 1,000 people (Our World in Data, 2020).

These repercussions and other challenges that have emerged during the pandemic in the region have been supported by reports issued through the United Nations Disaster Risk Reduction Consultation Reports in these countries.

In summary, the health system barriers can be summarized in the following figure.

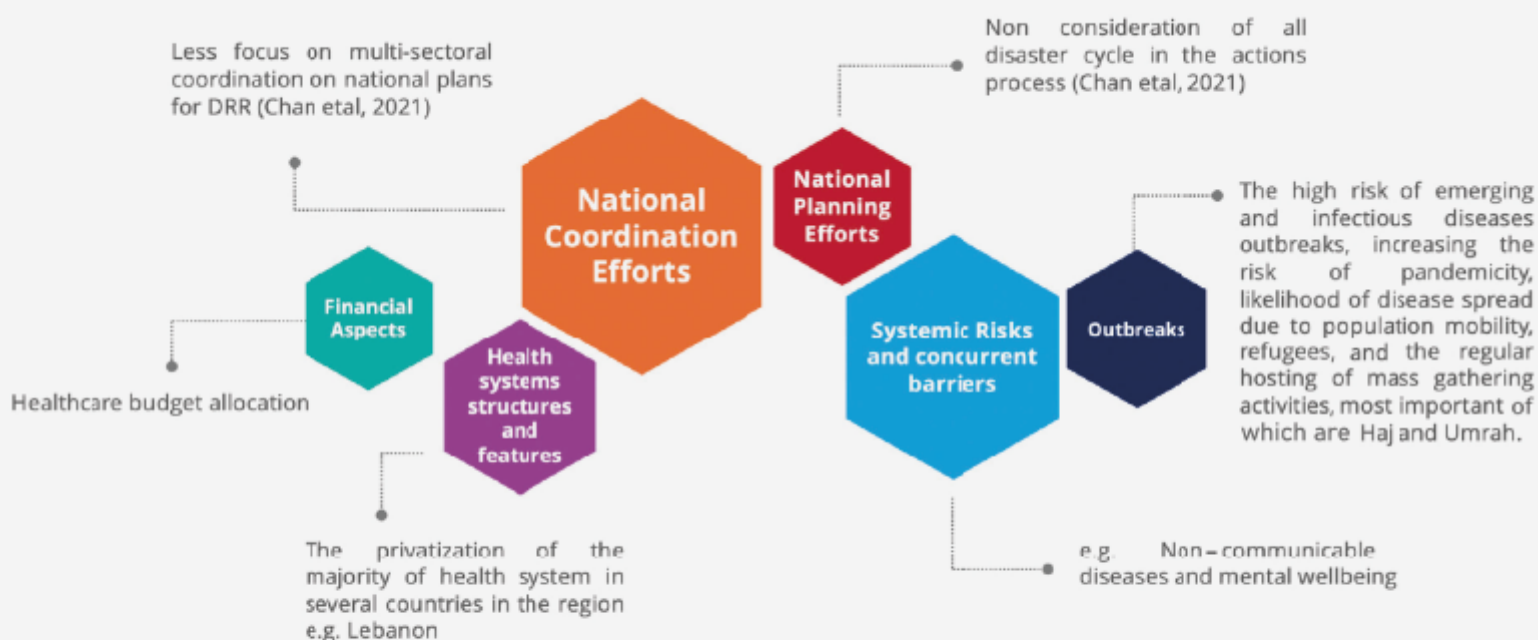


Figure 2. Barriers for Health Resilience and Building Back Better from Disasters Post-COVID-19

4. Policy Alternatives on Health System Resilience for Building Back Better from Disasters Post-COVID-19

4.1 The Global Approach

The consequences of the pandemic expand beyond the economies involving the societies and public health and the virus spreads despite the mitigation and response strategies applied. These strategies are likely to persist and shape practices, and communities, generating questions on how to similarly anticipate such systemic risks, recover, and adapt “the new norm” and the associated changes (Linkov, 2021).

Local government authorities have responsibilities in policy making and governance as they play a key role in the emergency management cycle which is the base for strategic preparedness and eventual response (World Health Organization, 2021). The local governments role is also key in updating strategies (Kelland, 2020), and in all critical actions related to the preparedness, readiness, and the response (World Health Organization, 2020a). This will ultimately provide the significant considerations and actions that every country needs to take during the pandemic.

Several actions were taken by the urban settlement all around the world for COVID-19 to help them achieve sustainable capacity development and increase the preparedness of future health emergencies. Special consideration was given to the readiness and preparedness phase, and particularly towards recovery between the peaks of COVID-19 pandemic. Thus, four key areas were emphasised on COVID-19 spread prevention and resilience development to prepare for future health emergencies (Gibb et al., 2020, Shah et al., 2018).

1. Development of coordinated local plans to effectively respond to health risk and its impact. For example; (1) a mutual aid cell was established by London, UK to address the capacity needs of health systems (Mayor of London, 2) .(2020) Kano, Lagos, and Abuja in Nigeria took a multisectoral approach through COVID-19 Presidential Task Force (Di Caro, 3) .(2020) Learning about the local experiences and COVID-19 responses was allowed through Webinars in UN habitat.

2. Compliance with measures was encouraged through crisis and risk communication and community engagement. For example; (1) In Singapore, government messages were transmitted regularly through the WhatsApp system in four official languages (Campbell E, 2) .(2020) Religious leaders in some cities of Africa provided worshipers with information about protection from COVID-19 (World Health Organization, 2020b). (3) Municipal

police in Turkey delivered food to the elderly people (M, 4) .(2020) In Tunisia, municipality officers delivered food to the vulnerable population (Tunisie, 5) .(2020) In Kerala, India, community kitchens were established to supply food at very low prices (Swamy, 6) .(2020) A website was launched by New York City to involve residents for self-reporting of Coronavirus symptoms (Freed, 2020). (7)

3. Appropriate public health measures like physical distancing, respiratory etiquette, and hand hygiene. For example; (1) In Ethiopia and Kenya, antimicrobial fabric (White et al., 2019), and low cost foaming soaps (Whinnery et al., 2016) had been tested. (2) Sao Paulo City Hall in Brazil installed potable water sinks in streets. (3) In Latvia, number of on-board passengers were reduced. (4) Morocco introduced measures for working in informal sector (Kasraoui and Hekking, 2020).

4. Access to COVID-19 healthcare services and proper continuation of essential services. For example; (1) In Islamabad, Pakistan, private hospitals offered beds and isolation rooms for the management of COVID-19 (Dawn, 2) .(2020) The Jawaharlal Nehru stadium in India was made available for quarantine facility (India-Today, 3) .(2020) Madrid in Spain converted its ice rink into a morgue (Goodman et al., 4) .(2020) The Convention center was converted to hospital in London, UK. Drive through COVID-19 sites were rolled out in USA (Yancey-Bragg, 2020).

In light of the above, it is increasingly clear that the health system demonstrates the core of public health in disasters which necessitates fostering resilience within health system components (Rangachari and Woods 2020). Therefore, real-time anticipatory responses are essential by the frontliners and policymakers, which need to be carried out during different disasters.

Taking COVID-19 as an example, important information was needed during the first phase of the crisis life cycle, such as hospitalization rates, case fatality rates, and transmission rates, to enhance the decision-making process during the second phase with respect to resources mobilization and allocation.

Specific recommendations were drafted to enhance the health system resilience from biological hazards and other systemic risks; as follows:

1. Ensuring that systems are designed in a recoverable and adaptable manner (Resilient) that includes health system, social, economic etc.
2. Establishing methods that support resilience quantification to enhance efficient resilience and directs investments.

3. Minimizing cascading failures by control system complexity.
4. Managing and decoupling connections that are unnecessary in the infrastructure from the necessary that needs to be controllable.
5. Ensuring system sustainability by managing resources and essential components.
6. Establishing tools for real time decision-making, based on explicit policy trade-offs in real-time (Hynes et al. 2020a, b).

Achieving health system resilience will be fulfilled striking a balance between the health delivery components, healthcare workers, necessary equipments, and required protocols. This balance will directly buffer the demand and services during crisis. For instance, the healthcare system of the Lombardia Region-Italy in the COVID-19 pandemic, had applied several management strategies as mentioned above and fulfilled efficiency on healthcare provision. However, the hospitals capacity differences between central and outskirts was a clear challenge where 5-10 surge in ICU patients overwhelmed the small hospitals.

Another dimension is the difference between the public and private sectors hospitals. Regardless of the location of the resources, when it comes to emergency response, quick decision-making that includes resources mobilization is key. However, that is not the usual case due to the bureaucratic steps that draw some challenges in the overall response. To overcome this, adopting the concept of all-hazards approach, multi-sectorial coordination and systemic approach that support efficient strategic and proactive allocation of resources required for emergency response including hospital resources e.g., bed capacity, can aid in an overall effort to increase the resilience of the healthcare system to systemic shocks (Hynes et al. 2020).

In an attempt to share lessons learnt on recovery by different countries during the COVID-19 pandemic, IRP summarizes practical lessons for recovery from the COVID-19 pandemic in the following principles.



Figure 3. Main principles and lessons learnt described in Practical Lessons for Recovery from the COVID-19 Pandemic developed by the International Recovery Platform Secretariat

4.2 The Regional Approach (The Arab States)

Arab region's countries have taken several actions in response to the COVID-19 pandemic that can be summarized in the following table.

Table 1: Overview of the health system initial responses in Arab countries
Source: COVID-19 crisis response in MENA countries – OECD.

Note: The table demonstrated initial countries' response and the information in the table may not be comprehensive or fully up to date

Country	Movement Restrictions	Physical Distancing Measures	Barriers Gestures	Health Screening & Tracking
Algeria	Complete lockdown for Blida province and partial in the remaining provinces (march-April 2020)	Prohibition of all public gatherings	Mandatory masks in all public venues and outdoor public spaces	
Bahrain	Curfews during the night times (March-May 2020)	Prohibition of >5 Gatherings		
Egypt	Curfews during the night times (March-June 2020) and opening hours restriction for public venues			Mandatory incoming passengers screening and quarantine for +ve patients
Iraq	Curfews during the night times			
Jordan	Full lockdown (March) and night-time curfew Restrictions on opening hours of public venues	Public gatherings restricted to 20 people		Mandatory incoming passengers screening and quarantine for +ve patients Health tracking App mandatory Mandatory Quarantine for all incoming passengers
Kuwait	Partial lockdown (March-May), Full lockdown (May) Full lockdown (May), Night-time curfew			Random testing of population, Mandatory Covid-19 test for incoming passengers, Mandatory quarantine for all incoming passengers
Libya	Partial lockdown (curfew on weekdays, full lockdown on weekends) Restrictions on re-opening of certain public venues			
Lebanon	Full lockdown (March, May) Night-time curfew			Mandatory Covid-19 test for incoming passengers
Morocco	Night-time curfew, Restrictions on opening hours of public venue and Movement restrictions on certain cities/areas	Public gatherings restricted to 50 people		Mandatory Covid-19 test (PCR and serology) for incoming passengers
Oman	Night-time curfew (ended August 15)	Prohibition of all public gatherings		Screening of all incoming passengers Mandatory quarantine for incoming passengers
Palestinian Authority	Localized night-time curfew, Restrictions on re-opening of certain public venues	Prohibition of all public gatherings		
Qatar		Gatherings limited to 15 people indoors / 30 people outdoors		Health tracking app mandatory Thermal screening in all public venues
Saudi Arabia	Full lockdown or night-time curfew depending on areas (ended end of June)	Umrah pilgrimage suspended Public gatherings limited to 50 people		Mandatory Covid-19 test for incoming passengers Mandatory quarantine (2 days) for incoming passengers Health tracking app available and mandatory
Syria	Partial curfew Restrictions on re-opening of certain public venues	Prohibition of large public gatherings		
Tunisia	Full lockdown (March-May) Night-time curfew (May-June)		Masks mandatory in all public venues Thermal cameras for fever screening in airports and at border crossings with neighboring countries	Mandatory Covid-19 test for incoming passengers Strict quarantine programme for 18.000 repatriated Tunisians Mandatory self-quarantine for incoming passengers from medium- to high-risk countries
United Arab Emirates	Night-time curfew (March-July) 2-week full lockdown (April) Travel restrictions in and out of Abu Dhabi	Social gatherings limited to 10 people	Masks mandatory in all public venues and public transportation	
Yemen	Night-time curfew (April-July) Localised, short-term full lockdowns in certain areas Travel restrictions between provinces			

Arab countries boosted humanitarian outreach and medical diplomacy amidst the crisis. The UAE provided medical assistance and delivered aid supplies in March 2020, positioning itself as a major medical assistance provider (OECD, Country Policy Tracker, 2020). Qatar and Kuwait also followed suit. Morocco proved to be especially active, dispatching gloves, sanitary equipment, and medical supplies via national airlines to various African countries.

The national governments in Arab countries strengthened institutional coordination by creating inter-ministerial structures soon after the confirmation of the first COVID-19 cases.

Technical and scientific communities were also created for monitoring, progress evaluation, and anticipation of direct/indirect COVID-19 effects during the crisis. For example, the Tunisian Government's COVID-19 Monitoring Authority, which includes senior ministerial officials, focuses on the imposition of safety measures to fight the virus, coordination between the National and Regional Committees, monitoring and regulating the supply of basic products, distribution of social assistance to those living in poverty, and providing recommendations to the National Committee.

It is pertinent to mention that several countries used a centralized approach, which proves to be a sensible choice and showcases the crucial role of Centers of Government during the crisis (OECD, Building resilience to the Covid-19 pandemic: the role of centres of government, 2020). However, the role of the local level in providing tailored and operational solutions has also created tension between the central and decentralized levels in countries like Tunisia (Nawaat).

Countries imposing confinement measures also adopted policies to support uninterrupted public services. Ongoing public administration is also being facilitated through the development of teleworking arrangements and online tools. Practical teleworking manuals outlining advice and tips to support its use were also developed in Jordan and Morocco (Court, 2020), (l'Administration). Paperwork-based processes, the maturity level of digitalized services, and the inadequate skills of civil servants made teleworking in public administration complicated. To reduce COVID-19 transmissions, Morocco also created a series of new digital services. In contrast, Tunisia created a digital wallet to eliminate long queues for the first payment of disbursements at post offices (Manager, 2020).

Important hygiene rules and preventative measures for COVID-19 were also communicated through public Service Announcements (PSA's) using TV, radio, and social media platforms in several countries. Jordan's Ministry of Culture enlisted several Jordanian actors and influencers to launch an awareness campaign video during the crisis. The actors and influencers also provided tips for children to spend their time in quarantine efficiently (Ministry of Culture). Governments also developed websites sharing COVID-19-related updates and information. The websites include FAQs, health and safety tips, and address the spread of misinformation.

The Arab countries also coped with the crisis by facilitating the prompt procurement of essential and sanitary goods to meet the fast-evolving needs. For example, the Tunisian National Authority for Public Procurement (HAICOP) published a circular highlighting the importance of established provisions to avoid force majeure and loosen public procurement procedures for public buyers. To decrease crisis impact and encourage future long-term durability and resilience, efforts are being made to build up critical infrastructures such as healthcare and essential suppliers' facilities. Economic and social recoveries in such cases will depend on public governance responses. These infrastructures will be important in building a strong, coordinated, responsive, reliable, open, inclusive, transparent, and accountable public sector. As a result, the countries will be able to anticipate and respond to future shocks efficiently.

COVID-19 vaccine developments are expected to boost the supply and infrastructure of the healthcare industry in several Arab countries. In particular, the partnerships between UAE, Saudi Arabia, Morocco and foreign countries and private companies to support vaccine research and advanced trial phases are likely to affect the industry dynamics. UAE started phase III trials in July 2020 (Bardsley, 2020). In contrast, Saudi Arabia started the trials in August 2020 for two Chinese companies, Sinopharm and CanSino Biologics. Egypt has also partnered with China to develop and distribute two COVID-19 vaccines developed by Sinopharm, all leading to reinforced industry collaboration between China and Arab countries (Burton). This happened in parallel to global efforts in the same context such as COVAX that aims to offer doses for at least 20% of countries' populations through the active management of vaccines portfolio and led to the introduction of the vaccines in all countries in the region by April 2021 (Abubakar, 2021).

The private sector's support for the development of the health system will increase with more public and private investments in healthcare provision (Ghalia Al Bajali, 2020). The healthcare industry in Gulf countries is seeing an increase in private investments due to new government strategies, regulatory reforms, and demand, which is driven by the countries' aging population, mandatory health insurance, and lifestyle-related diseases. In particular, COVID-19 has boosted investments in digitization and telehealth. The annual investments in digital infrastructure in GCC are expected to grow by 10% to 20% in two years, and teleconsultations were expected to quadruple by Q2020 4 (MEABUSINESS, 2020). In Morocco, a startup, MASclR, has the capacity to produce one million RT-PCR tests per month. Additionally, the public-private partnerships between the Ministry of Industry in Morocco and several private sector actors have helped develop a local ICU bed- much cost-friendly than the imported ones.

Different regional examples can also be considered from the regional literature in this context from another angle. In the crisis of Palestine refugees in Syria and United Nations, Relief and Works Agency (UNRWA) and its delivery of services set a good example where different approaches were carried out with regard to resilience capabilities (UNRWA, 2017), including:

1. Absorption: The over-service utilization was managed by multi-tasking and task-shifting behaviours to sustain service delivery.
 2. Adaptation: This was achieved by adjusting resources operation without changing system structures.
 3. Transformation: Establishing necessary non-existent services before the shock
- UNHCR partner agencies have created policies to build resilience in crisis-affected regions such as Turkey, Jordan, Egypt, and Iraq that hold a sizeable refugee population (UNDP, 2018). Strong leadership, enhanced economic opportunities, and continued international partnership and outreach are important factors to create strong resiliency in the face of crisis that will help in overcoming risks related to national systems and capacities (UNDP, 2018).

5. The Way Forward: A Call for Action

Taking into consideration the national and regional consequences of the pandemic and of other emergencies on health systems, a special focus should be directed towards adopting comprehensive and sustainable recovery solutions.

This could be achieved through inter-regional vertical and horizontal cooperations and by advancing complementarities between existing DRR measures and efforts. Such harmonized solutions shall reduce the risk of disasters and enable the health system's recovery now and beyond.

A set of recommendations and priority actions can provide cascadable and adoptable options for short- and long-term roadmaps at regional, national, and local levels.

5.1 Regional Recommendations

1. Support and advocate regional solidarity for health system resilience and recovery.
2. Expand the collaborative efforts to support the most vulnerable LDCs, SIDS and fragile states expand their capacities and narrow the existing developmental divides and gaps with a focus on health aspects.
3. Expand the use of existing regional platforms and partnerships for all critical aspects, like understanding existing and emerging risks, early warning and alert generation, sharing of data and information, collaborative learning, strategic planning, research and innovation, pooling of resources and finances, as well as building back better for a sustainable future.
4. Encouraging continuous dialogue, cooperation, and effective communication among

the countries of the region by activating channels for support and investment in the aspects of health system recovery and disaster risk reduction.

5. Supporting and facilitating joint investments and cooperation in the field of technology and health in all its components.

5.2 National and Sub-national Recommendations

1. Implementing comprehensive set of measures, calibrated against the national and local capacity and context, to slow down transmission and reduce mortality associated with COVID-19, ultimately with the aim of reaching and/or maintaining a steady state of low-level or no transmission.

2. Appropriate strategies at the national and sub-national level must balance measures that address the direct mortality attributable to COVID-19, the indirect mortality caused by the overwhelming of health systems and the interruption of other essential health and social services, and the acute and long-term detrimental effects on health and wellbeing of the socioeconomic consequences of certain response measures (COVID-19 Strategy Update, 2020).

3. Improving National DRR Governance and following the principles of good governance including transparency, rights-based decision-making, and equitable distribution.

4. Maintaining essential supply of critical functions and services.

5. Establishing a funding mechanism to support the implementation of the Sendai Framework, DRR activities and health system resilience and recovery actions.

6. Maintaining an institutional continuity between preparedness, response, recovery, mitigation, and sustainable development measures with the establishment and upgrade of existing preparedness protocols, emergency SOPs, business continuity planning, health recovery procedures and capacities to include specific, actionable measures for the national and local contexts.

7. Assessing of the economic consequences of biological hazards on various sectors of the economy as a helpful starting point for integrating biological hazards management into disaster risk reduction and development planning (Shaw, 2021).

8. Ensuring universal health coverage (UHC), including all children and adolescents, and that health systems can meet the needs of youth in the modern era. During the COVID-19 recovery

phase, promoting public health, testing, mental health diagnosis, treatment, and provision of mental health services.

9. Educating the public about the importance of accurate public health information in various modes of communication and empowering youth to make evidence-based decisions about their health, while also taking a proactive role in avoidance and mitigation.

10. Boosting national capacity for data collection and analysis and distributing data de-identified by age, gender, race, and other demographic characteristics, particularly addressing youth organizations during and after the pandemic.

11. Empowering evidence-based research through the development of research agenda that supports advancing evidence-based knowledge and practices in addition to innovation in the context of disaster recovery.

12. Using and rebuilding the health system in such a way that it ensures better health service delivery than the pre-emergency situation and ensuring that the health system recovery actions are conducted on the four main functions of public health including (a) the monitoring and surveillance of morbidity and mortality ratios, health determinants and their risks; (b) public health preparedness and its responses to natural hazards related disasters, disease outbreaks and other emergencies; (c) environmental health and safety ; and (d) disease prevention and health promotion and population interventions that include actions to monitor and assess the social determinants of the disease and also the health inequity.

13. Using the Building Back Better principle to prepare emergency recovery programs to decrease the susceptibility of future disasters and to build the health system resilience by managing social, physical, climatic, economic, and environmental shocks and susceptibilities and building systems that are safer, more resilient, stronger, and smarter.

14. Identifying and rectifying the inherent weaknesses of the previous health system. For example, health service delivery could be improved during the health system recovery process by addressing the neglected areas of the previous health system like strengthening the primary and secondary health service linkages, health system infrastructure, focusing on non-communicable diseases and mental health issues, constructing new health facilities based on the demographic changes in addition to the distribution of health facilities.

15. Fostering community action, empowerment, and engagement in all phases of disaster risk management, including training of community health workforce for risk communication, prevention, emergency preparedness, response, and recovery that is relevant to the local context and people's specific vulnerabilities.

16. Expanding the utilization of e-governance and emerging technologies in recovery.

6. References

- Abbas, J. (2021). Crisis management, transnational healthcare challenges and opportunities: The intersection of COVID-19 pandemic and global mental health. *Research in Globalization*, 3, 100037. <https://doi.org/10.1016/J.RESGLO.2021.100037>
- Abubakar, A., Al-Mandhari, A., Brennan, R., Chaudhri, I., Elfakki, E., Fahmy, K., Ghoniem, A., Hajjeh, R., Hamam, I., Hasan, Q., Hutin, Y., Langar, H., Musa, N., Rashidian, A., & Samhour, D. (n.d.). Efforts to deploy COVID-19 vaccine in the WHO Eastern Mediterranean Region within the first 100 days of 2021. <https://doi.org/10.26719/emhj.21.024>
- Aitsi-Selmi, A., Murray, V., 2016. Protecting the Health and Well-being of Populations from Disasters: Health and Health Care in The Sendai Framework for Disaster Risk Reduction -2015 2030. *Prehosp Disaster Med* 78–74 ,31. <https://doi.org/10.1017/S1049023X15005531>
- Akande-Sholabi, W., & Adebisi, Y. A. (2020). The impact of COVID-19 pandemic on medicine security in Africa: Nigeria as a case study. *The Pan African Medical Journal*, 35(Suppl 2), 1–2. <https://doi.org/10.11604/PAMJ.SUPP.2020.35.2.23671>.
- Bardsley, D. (2020, June 24). Coronavirus: UAE and China to join forces in new vaccine trial. Retrieved from [thenationalnews.com](https://www.thenationalnews.com/uae/health/coronavirus-uae-and-china-to-join-forces-in-new-vaccine-trial1.1038163): <https://www.thenationalnews.com/uae/health/coronavirus-uae-and-china-to-join-forces-in-new-vaccine-trial1.1038163>
- Bertone, M.P., Samai, M., Edem-Hotah, J., Witter, S., 2014. A window of opportunity for reform in post-conflict settings? The case of Human Resources for Health policies in Sierra Leone, 2012–2002. *Confl Health* 8, 11. <https://doi.org/10.1186/1752-1505-8-11>
- Bolton, L. (2020) The Build Back Better agenda and COVID-19. Brighton, UK: Institute of Development Studies.
- Burton, G. (2020). China and COVID-19 in MENA. Retrieved from [pomeps.org](https://pomeps.org/china-and-covid-19-in-mena): <https://pomeps.org/china-and-covid-19-in-mena>
- Campbell, E., McGregor, L., 2020. Singapore has been held up as a model in the coronavirus fight. Here are five strategies they are using. ABC News.
- Carabine, E., 2015. Revitalising Evidence-based Policy for the Sendai Framework for Disaster Risk Reduction 2030–2015: Lessons from Existing International Science Partnerships. *PLoS Curr* 7, [ecurrents.dis.aaab45b2b4106307ae2168a485e03b8a](https://doi.org/10.1371/currents.dis.aaab45b2b4106307ae2168a485e03b8a). <https://doi.org/10.1371/currents.dis.aaab45b2b4106307ae2168a485e03b8a>

Coronavirus-solidarité: Des couffins livrés à domicile, par la municipalité de Tunis. Kapitalis. 2020. Retrieved from: <http://kapitalis.com/tunisie/04/04/2020/coronavirus-solidarite-des-couffins-livres-a-domicile-par-la-municipalite-de-tunis/>. Accessed on: 30th June, 2021.

Court, J. C. (2020, April 6). Retrieved from facebook.com: <https://www.facebook.com/CSBGOV/photospcb.1262103807540150/1262140957536435/?type=3&theater>

DAWN 2020. Private hospitals in Islamabad offer 1,000 beds, 80 ventilators for Covid-19 patients. Retrieved from: <https://www.dawn.com/news/1543497>.

DDG/P Office and OECD, 2020. The impact of the COVID-19 pandemic on jobs and incomes in G20 economies, The ILO and the G20 ILO reports for the G20. International Labor Organization.

DI CARO, B. 2020. COVID-19 in Africa: insights from our 23 April WHO media briefing, 2020. Available on <https://www.weforum.org/> Accessed, 27.

Epping-Jordan, J.E., van Ommeren, M., Ashour, H.N., Maramis, A., Marini, A., Mohanraj, A., Noori, A., Rizwan, H., Saeed, K., Silove, D., Suveendran, T., Urbina, L., Ventevogel, P., Saxena, S., 2015. Beyond the crisis: building back better mental health care in 10 emergency-affected areas using a longer-term perspective. *International Journal of Mental Health Systems* 9, 15. <https://doi.org/10.1186/s13033-015-0007-9>

FREED, B. 2020. New York City launches portal to crowdsource COVID-19 information. Statescoop.

Ghalia AlBajali, B.A. (2020, September). HEALTHCARE: GROWTH BEHIND THE MASK. Retrieved from arabiamonitor.com: <https://www.arabiamonitor.com/publication/gcc-healthcare>

GIBB, R., REDDING, D. W., CHIN, K. Q., DONNELLY, C. A., BLACKBURN, T. M., NEWBOLD, T. & JONES, K. E. 2020. Zoonotic host diversity increases in human-dominated ecosystems. *Nature*, 402-39, 584.

GOODMAN, A., MAESTRO, L., FORMANEK, I., RAMSAY, M. & KOTTASOVÁ, I. 2020. Spain turns ice rink into a morgue as coronavirus deaths pile up. CNN, 24 March 2020.

Hasan, H. F. (2021). Legal and Health Response to COVID-19 in the Arab Countries. *Risk Management and Healthcare Policy*, 1141, 14. <https://doi.org/10.2147/RMHP.S297565>

International Recovery Platform, n.d. Guidance Notes - Resources - International Recovery Platform [WWW Document]. International Recovery Platform. URL https://www.recoveryplatform.org/resources/guidance_notes_on_recovery (accessed 8.22.21).

Kamara, S., Walder, A., Duncan, J., Kabbedijk, A., Hughes, P., Muana, A., 2017. Mental health care during the Ebola virus disease outbreak in Sierra Leone. *Bull World Health Organ* 847–842 ,95. <https://doi.org/10.2471/BLT.16.190470>

KASRAOUI, S. & HEKKING, M. 2020. Morocco announces financial assistance for informal sector workers. *Morocco World News*, 27.

KELLAND, K. 2020. U.N. Warns of Global Mental Health Crisis Due To COVID-19 Pandemic. *Reuters. World News*. Retrieved from: <https://www.reuters.com/article/instant-article/idinkbn22q0b8> Accessed on: 30th June, 2021.

KENNY, P. 500,000 .2020 HIV Deaths Possible With No Pandemic Action: UN. *Anadolu Agency*. Retrieved from: <https://www.aa.com.tr/en/health/-000-500hiv-deaths-possible-with-no-pandemic-action-un/1836949>. Accessed on: 30th June, 2021.

Linkov, I., Keenan, J., Trump, B., COVID-19: Systemic Risk and Resilience
London City Hall, 2020. Coronavirus (COVID-19): Volunteering [WWW Document]. London City Hall. URL <https://www.london.gov.uk/what-we-do/volunteering/coronavirus-covid-19-volunteering> (accessed 8.22.21).

M, C. 2020. From bingo to ballet: communities connect during coronavirus lockdown – video report. *The Guardian*. Retrieved from: <https://www.theguardian.com/world/video/2020/mar/24/from-bingo-to-ballet-communities-find-ways-to-connect-during-coronavirus-lockdown-video-report>

Manager, A. (5 5 ,2020). Mobile payment: new digital wallet launched. Retrieved from [en.africanmanager.com: https://en.africanmanager.com/mobile-payment-new-digital-wallet-launched/](https://en.africanmanager.com/mobile-payment-new-digital-wallet-launched/)

Martineau, T., McPake, B., Theobald, S., Raven, J., Ensor, T., Fustukian, S., Ssengooba, F., Chirwa, Y., Vong, S., Wurie, H., Hooton, N., Witter, S., 2017. Leaving no one behind: lessons on rebuilding health systems in conflict- and crisis-affected states. *BMJ Global Health* 2, e000327. <https://doi.org/10.1136/bmjgh-2017-000327>

MAYOR OF LONDON, L. A. 2020. Coronavirus (COVID-19) Volunteering. Retrieved from: <https://www.london.gov.uk/what-we-do/volunteering/coronavirus-covid-19-volunteering>. Accessed on: 30th June, 2021.

Mcloughlin, C., 2015. When Does Service Delivery Improve the Legitimacy of a Fragile or Conflict-Affected State? *Governance* 356–341 ,28. <https://doi.org/10.1111/gove.12091>

MEABUSINESS. (2020, July 14). Mashreq and Frost & Sullivan research projects revenue GCC healthcare industry to remain resilient, with some subsectors still expected to show growth in 2020. Retrieved from mea-biz.com: <https://mea-biz.com/mashreq-and-frost-sullivan-research-projects-revenue-gcc-healthcare-industry-to-remain-resilient-with-some-subsectors-still-expected-to-show-growth-in2020-/>

Ministry of Culture, J. (2020). Retrieved from <https://bit.ly/2xhyDfc>

Mitchell Tom, n.d. Setting, measuring and monitoring targets for disaster risk reduction: recommendations for post-2015 international policy frameworks [WWW Document]. Prevention Web. URL <https://www.preventionweb.net/publication/setting-measuring-and-monitoring-targets-disaster-risk-reduction-recommendations-post> (accessed 8.22.21).

Nawaat. (2020). nawaat.org. Retrieved from <http://nawaat.org/portail/06/05/2020/covid-19-in-tunisia-tensions-arise-between-municipalities-and-centralgovernment/>

NNOKO-MEWANU, J. 2020. In the Pandemic, Millions of People Could Lose Their Homes. Human Rights Watch. Retrieved from: <https://www.hrw.org/news/2020/05/11/pandemic-millions-people-could-lose-their-homes> Accessed on: 30th June, 2021.

OECD. (2020). Country Policy Tracker. Retrieved from [oecd.org: https://www.oecd.org/coronavirus/country-policy-tracker/](https://www.oecd.org/coronavirus/country-policy-tracker/)

OECD. (2020, September 2). Building resilience to the Covid-19 pandemic: the role of centres of government. Retrieved from [oecd.org: https://www.oecd.org/coronavirus/policy-responses/building-resilience-to-the-covid-19-pandemic-the-role-of-centresof-government-883d2961/](https://www.oecd.org/coronavirus/policy-responses/building-resilience-to-the-covid-19-pandemic-the-role-of-centresof-government-883d2961/)

OTT, H. 48,000 .2020 Yemeni Women Could Die Giving Birth as UN Starts Shutting Down Maternity Services Due to funding gap. Retrieved from: <https://www.cbsnews.com/news/coronavirus-news-un-maternity-wards-in-yemen-are-out-of-money/>. Accessed on: 30th June, 2021.

Percival, V., Richards, E., MacLean, T., Theobald, S., 2014. Health systems and gender in post-conflict contexts: building back better? Conflict and Health 8 ,19. <https://doi.org/10.1186/1752-1505-8-19>

PLATFROM ON DISASTER RISK REDUCTION, P. 2018. Prioritized Action Plan 2020-2018 of the Arab Strategy for Disaster Risk Reduction 2030 to implement the Sendai Framework for Disaster Risk Reduction 2030-2015. Retrieved from: Prioritized Action Plan 2020-2018 of the Arab Strategy for Disaster Risk Reduction 2030 to implement the Sendai Framework for Disaster Risk Reduction 2030-2015.

Relief Web, n.d. Disaster Recovery Guidance Series: Health Sector Recovery - World [WWW Document]. Relief Web. URL <https://reliefweb.int/report/world/disaster-recovery-guidance-series-health-sector-recovery> (accessed 8.22.21a).

Relief Web, n.d. Global Food Security Alert, June 2020, 29 : COVID-19 pandemic drives global increase in humanitarian food assistance needs - World [WWW Document]. Relief Web. <https://reliefweb.int/report/world/global-food-security-alert-june-29-2020-covid-19-pandemic-drives-global-increase> (accessed 8.22.21b).

Relief Web, n.d. Making Cities Resilient Campaign 2030 - World [WWW Document]. Relief Web. URL <https://reliefweb.int/report/world/making-cities-resilient-campaign-2030> (accessed 8.22.21c).

Rubenstein, L.S., 2009. Post-Conflict Health Reconstruction: [WWW Document]. United States Institute of Peace. URL <https://www.usip.org/publications/2009/09/post-conflict-health-reconstruction>

Rutherford, S., Saleh, S., 2019. Rebuilding health post-conflict: case studies, reflections and a revised framework. *Health Policy Plan* 245–230 ,34. <https://doi.org/10.1093/heapol/czz018>

Saya, S., Hasan, T.M., Mimura, S., Okada, T., Roth, M., Kohler, S., Rector, I., Morgan, G., Griekspoor, A., Missal, R., Vasta, K., Takase, C., Erginthe, E., Manluta, J.I., Bhatt, M.R., Martin, N., Morgan, D., Brassard, C., Wilkinson, S., Amaratunga, D., Potutan, G., Rego, L., Torres, M.G.V., Coppola, D., 2017. Build Back Better: In recovery, rehabilitation and reconstruction.

Shah, V., Shah, A., Joshi, V., 2018. Predicting the origins of next forest-based emerging infectious disease. *Environ Monit Assess* 337 ,190. <https://doi.org/10.1007/s10661-018-6711-6>

Sharkey, P., 2007a. Survival and Death in New Orleans: An Empirical Look at the Human Impact of Katrina. *Journal of Black Studies* 37, 482–501. <https://doi.org/10.1177/0021934706296188>

Shaw, R., Chatterjee, R., & Dabral, A. (2021). INTEGRATING BIOLOGICAL HAZARDS (INCLUDING PANDEMICS) INTO DRR PLANNING. Available at: http://www.ccouc.ox.ac.uk/_asset/file/technical-advisory-report-on-biological-hazard-annex-final-rajib-report.pdf

Sigal Samuel, n.d. Covid-19's collateral damage, from hunger pandemic to poverty tsunami - Vox [WWW Document]. Vox. URL <https://www.vox.com/future-perfect/2020/5/11/21246992/coronavirus-pandemic-collateral-damage-hunger-poverty> (accessed 8.22.21).

Spinelli, A., & Pellino, G. (2020). COVID-19 pandemic: perspectives on an unfolding crisis. *British Journal of Surgery*, 787–785 ,(7)107. <https://doi.org/10.1002/BJS.11627>

SWAMY, R. 2020. This is how Kerala govt, police and residents are helping the poor and fighting Covid19-. The Print, 30.

Tan, J., Fulford, B., 2020b. Debate: COVID crisis, natural capital and clinical care – ‘building back better’ for a new values-based CAMHS. Child and Adolescent Mental Health 186–184 ,25. <https://doi.org/10.1111/camh.12410>

The Humanitarian-Development-Peace Nexus – The Movement for Community-led Development. (n.d.). <https://mclcd.org/hdpm/>

The UN Refugee Agency, n.d. UNHCR – Global Trends [WWW Document]. The UN Refugee Agency – Global Trends. URL <https://www.unhcr.org/search?comid=56b079c44&cid=49aea93aba&tags=globaltrends> (accessed 8.25.21).

UHC2030. URL <https://www.uhc2030.org/what-we-do/working-better-together/uhc2030-technical-working-groups/uhc-in-fragile-settings-technical-working-group/> (accessed 8.22.21).

UN CONFERENCE ON TRADE AND DEVELOPMENT, U. 2020. The COVID-19 Shock to Developing Countries: Towards a ‘Whatever It Takes’ Programme for the Two- Thirds of the World's Population Being Left Behind. Trade and Development Report Update. Retrieved from: https://unctad.org/system/files/official-document/gds_tdr2019_covid2_en.pdf. Accessed on: 30th June, 2021.

UN Disaster Risk Reduction (2021). INTERIM REPORT-REVISED DISASTER RISK REDUCTION GOVERNANCE STRUCTURE AND STRATEGY TO INTEGRATE BIOLOGICAL HAZARDS IN LEBANON.

UN General Assembly (46th Sess.: 1992 ,(1992-1991. Strengthening of the coordination of humanitarian emergency assistance of the United Nations :UN General Assembly (58th Sess.: 2004 ,(2004-2003. Strengthening of the coordination of emergency humanitarian assistance of the United Nations :

UNDRR 2017. A Handbook for Local Government Leaders [2017 Edition]. Retrieved from: <https://www.unisdr.org/campaign/resilientcities/toolkit/article/a-handbook-for-local-government-leaders-2017-edition>. Accessed on: 30th June, 2021.

UNDRR 2019a. The Global Assessment Report & Global Risk Atlas. Retrieved from: <https://gar.undrr.org/>. Accessed on: 30th June, 2021.

UNDRR 2019b. The Ten Essentials for making Cities Resilience. Retrieved from: <https://www.unisdr.org/campaign/resilientcities/toolkit/article/the-ten-essentials-for-making-cities-resilient> Accessed on: 30th June, 2021.

UNDRR 2020a. Arab States and COVID-19: Lessons Learned in Preparing for & Responding to COVID-19. Retrieved from: <https://www.undrr.org/event/arab-states-and-covid-19-lessons-learned-preparing-responding-covid-19> Accessed on: 30th June, 2021. UNDRR 2020b. Making Cities Resilient Campaign. Retrieved from: [https://reliefweb.int/report/world/making-cities-resilient-campaign-2030#:~:text=Making%20Cities%20Resilient%202030%20\(MCR2030,Disaster%20Risk%20Reduction%202015%2D2030](https://reliefweb.int/report/world/making-cities-resilient-campaign-2030#:~:text=Making%20Cities%20Resilient%202030%20(MCR2030,Disaster%20Risk%20Reduction%202015%2D2030) Accessed on: 30th June, 2021.

UNDRR 2020c. Sendai Framework for Disaster Risk Reduction 2030–2015. Retrieved from: <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>. Accessed on: 30th June, 2021.

UNESCO 2020. Education: From disruption to recovery. Retrieved from: <https://en.unesco.org/covid19/educationresponse> Accessed on: 30th June 2021.

UNICEF 2020a. As COVID-19 Devastates Already Fragile Health Systems, Over 6,000 Additional Children Under Five Could Die a Day Without Urgent Action. UNICEF Press Release. Retrieved from: <https://www.unicef.org/press-releases/covid-19-devastates-already-fragile-health-systems-over-6000-additional-children>. Accessed on: 30th June, 2021.

UNICEF 2020b. Over 13 Million Children Did Not Receive Any Vaccines At All Even Before COVID-19 Disrupted Global Immunization. UNICEF Press Release. Retrieved from: <https://www.unicef.org/press-releases/over-13-million-children-did-not-receive-any-vaccines-all-even-covid-19-disrupted>. Accessed on: 30th June, 2021.

UNISDR 2018. Arab Strategy for Disaster Risk Reduction 2030. Retrieved from: <https://www.preventionweb.net/english/professional/policies/v.php?Id=59464#:~:text=The%20main%20themes%20of%20the,Back%20Better%E2%80%9D%20in%20recovery%2C%20rehabilitation>. Accessed on: 30th June, 2021.

United Nations Development Program (2020) Syria crisis: a multipronged approach to increase resilience [Online]. Available at: <https://reliefweb.int/report/syrian-arab-republic/syria-crisis-multipronged-approach-increase-resilience> (Accessed: 22 August 2021)

United Nations Office for Disaster Risk Reduction, n.d. Arab States and COVID-19: Lessons Learned in Preparing for & Responding to COVID-19 [WWW Document]. United Nations Office for Disaster Risk Reduction. URL <https://www.undrr.org/event/arab-states-and-covid-19-lessons-learned-preparing-responding-covid-19-0> (accessed 8.22.21).

UNITED NATIONS, U. 2020. Remarks by UN Secretary General Antonio Gutierrez to the ECOSEC Forum on Financing Sustainable Development in the Context of COVID-19. Press Release. Retrieved from: <https://www.un.org/sg/en/content/sg/speeches/2020-04-23/remarks-ecosoc-forum-financing-sustainable-development-covid-19-context> Accessed on 29th June, 2021.

UN-NEWS 2020a. Testing, Tracing, and When to Lift Restrictions: WHO's Latest Advice. Health. Retrieved from: <https://news.un.org/en/story/2020/04/1061642>. Accessed on: 30th June 2021.

UNOCHA 2020. Global Humanitarian Response Plan: COVID-19. United Nations Coordinated Appeal. Retrieved from: <https://www.unocha.org/sites/unocha/files/Global-Humanitarian-Response-Plan-COVID-19.pdf>. Accessed on 29th June, 2021.

UNWTO World Tourism Barometer (English version) 18, 1–36.
<https://doi.org/10.18111/wtobarometereng.2020.18.1.5>

WHINNERY, J., PENAKALAPATI, G., STEINACHER, R., WILSON, N., NULL, C. & PICKERING, A. J. 2016. Handwashing with a water-efficient tap and low-cost foaming soap: the povu Poa “Cool Foam” system in Kenya. *Global Health: Science and Practice*, 341–336 ,4.

WHITE, S., PETZ, J. F., DESTA, K. & HOLM LARSEN, T. 2019. Could the Supertowel be used as an alternative hand cleaning product for emergencies? An acceptability and feasibility study in a refugee camp in Ethiopia. *Plos one*, 14, e0216237.
<https://doi.org/10.1371/journal.pone.0216237>

World Health Organization (2019) Coronavirus disease (COVID-19) technical guidance: Maintaining Essential Health Services and Systems [Online]. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/maintaining-essential-health-services-and-systems> (Accessed: 23 August 2021)

World Health Organization (2020) Strengthening health systems resilience [Online]. Available at: <https://apps.who.int/iris/bitstream/handle/10665/332441/Policy-brief%2036-1997-8073-eng.pdf> (Accessed: 23 August 2021)

World Health Organization (2021a) COVID-19 Strategic Preparedness and Response Plan (SPRP 2021) Available at: <https://www.who.int/publications/i/item/WHO-WHE-2021.02> (Accessed: 23 August 2021)

World Health Organization = Organisation mondiale de la Santé, 2019. Climate change in the Eastern Mediterranean Region: priorities in enhancement of health systems preparedness

– Changement climatique dans la Région de la Méditerranée orientale: priorités pour renforcer la préparation des systèmes de santé. Weekly Epidemiological Record = Relevé épidémiologique hebdomadaire 94, xviii–xxi.

World Health Organization, 2019. Health emergency and disaster risk management framework. World Health Organization, Geneva.

World Health Organization, 2021d. Strengthening Health systems to Improve Health Outcomes.

World Health Organization, n.d. BUILDING BACK BETTER: Sustainable mental health care after emergencies [WWW Document]. World Health Organization. URL <https://www.who.int/publications-detail-redirect/building-back-better-sustainable-mental-health-care-after-emergencies> (accessed 8.23.21a).

World Health Organization, n.d. Critical preparedness, readiness and response actions for COVID-19 [WWW Document]. World Health Organization. URL <https://www.who.int/publications/i/item/critical-preparedness-readiness-and-response-actions-for-covid-19> (accessed 8.23.21b).

World Health Organization, n.d. Strategic preparedness and response plan for the novel coronavirus [WWW Document]. World Health Organization. URL <https://www.who.int/publications-detail-redirect/strategic-preparedness-and-response-plan-for-the-new-coronavirus> (accessed 8.23.21c).

World Health Organization, n.d. The life-course approach: from theory to practice. Case stories from two small countries in Europe (2018) [WWW Document]. world health organization. URL <https://www.euro.who.int/en/publications/abstracts/the-life-course-approach-from-theory-to-practice.-case-stories-from-two-small-countries-in-europe-2018> (accessed 8.23.21d).

World Health Organization, Regional Office for South-East Asia, 2008. Guidelines on establishment of virology laboratory in developing countries. World Health Organization, Regional Office for South-East Asia, New Delhi, India.

WORLD HEALTH ORGANIZATION, W. 2019. Health Emergency and Disaster Risk Management Framework, WHO. Retrieved from: <https://www.who.int/hac/techguidance/preparedness/health-emergency-and-disaster-risk-management-framework-eng.pdf>. Accessed on: 30th June, 2021.

WORLD HEALTH ORGANIZATION, W. 2020a. Coronavirus Disease (COVID-19) Situation Report –

129. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200528-covid-19-sitrep-129.pdf?Sfvrsn=5b154880_2 Accessed on 29th June, 2021.

WORLD HEALTH ORGANIZATION, W. 2020a. Critical preparedness, readiness and response actions for COVID-19. Geneva, World Health Organization. Retrieved from: <https://www.who.int/publications/i/item/critical-preparedness-readiness-and-response-actions-for-covid-19> Accessed on: 30th June, 2021.

WORLD HEALTH ORGANIZATION, W. 2020b. Religious leaders join COVID-19 fight in Africa. WHO Regional Office for Africa. Retrieved from: <https://www.afro.who.int/news/religious-leaders-join-covid-19-fight-africa>.

WORLD HEALTH ORGANIZATION, W. 2021. Strategic preparedness and response plan for the new coronavirus. Geneva, World Health Organization. Retrieved from: <https://www.who.int/publications-detail-redirect/strategic-preparedness-and-response-plan-for-the-new-coronavirus>. Accessed on: 30th June, 2021.

World Health Organization. Regional Office for the Eastern Mediterranean, 2020. Implementation guide for health systems recovery in emergencies: transforming challenges into opportunities. World Health Organization. Regional Office for the Eastern Mediterranean.

WORLDBANK 2020. World Bank Group Launches First Operations for COVID-19 Emergency Health Support, Strengthening Developing Country Responses. Press Release. Retrieved from: : <https://www.worldbank.org/en/news/press-release/2020/04/02/world-bank-group-launches-first-operations-for-covid-19-coronavirus-emergency-health-support-strengthening-developing-country-responses>. Accessed on 29th June, 2021.

YANCEY-BRAGG, N. 2020. Going to a drive-thru COVID-19 testing site? Here's a step-by-step look at what to expect. USA Today, 21.

