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ROUND 2

COVID-19 MED POLICY BRIEFS

COVID-19 IMPLICATIONS IN THE MEDITERRANEAN

Promoting data-driven processes in the response and recovery from the pandemic through regional collaboration and peer learning

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COVID-19 IMPLICATIONS IN THE MEDITERRANEAN



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Summary:

This policy brief investigates the vital role of data-driven decision making in the response to the Covid-19 pandemic.

It begins with setting the context by elaborating on existing practices and challenges towards data-driven approach in decision making.

The brief cites regional examples from the South Mediterranean, sub-Saharan Africa and Germany on how governments and municipalities developed data dashboards and platforms and employed them in the pandemic response.

The policy brief concludes with an elaborate discussion on the implications and recommendations on how the current crisis can be turned into an opportunity for regional collaboration and promoting data-driven processes in the recovery from the pandemic.

Recommended policy actions include mapping the population that is in urgent need for vaccination, strengthening public health preparedness through bilateral and multilateral cooperation and creating Communities of Practice that contribute to promoting health equity.

Recommendations to promote data sets and data analytics in municipalities are also proposed, including the suggestion to integrate User-Friendly GIS software that is customized specifically for municipal use and written in the country’s native language, which could allow unlocking the geospatial system’s full potential.

1. Introduction

Development of data dashboards was a key driver to successful and timely emergency response to the pandemic in many countries across the globe. With the aim of curbing the impacts of the current crisis, remarkable advancements were achieved by many governments and cities. Critical real-time data about infection cases, their geographic and demographic distribution among other information can be retrieved via data dashboards. Nevertheless, existing major challenges hinder the deployment of data and evidence in pandemic response at its full capacity. Several countries in the South Mediterranean have successfully established data dashboards to serve at the national level, however, progress at the municipal level lagged behind. Municipal capacity to build data sets and integrate data analytics in response measures was largely determined by three fundamental elements: (1) strategic preparedness in terms of accurate spatial/non-spatial information that is crucial for better decision making, (2) in-house expertise and awareness and (3) the availability of financial resources. The following section discusses and elaborates on these challenges, which are largely influenced by shortcomings in the existing operational processes.

1.1 Setting the Context: Challenges to the deployment of data and evidence in decision making in the pandemic response

Lack of accurate spatial/non-spatial information is one of the prominent challenges hampering the deployment of data in response planning. Non-digital administrative processes are widespread and deeply rooted in the bureaucratic culture of local public administrations in several countries of the South Mediterranean (Lebanon, Iraq, Egypt, Tunisia). This resulted in a substantial lack of digital information and maps, preventing governments and municipalities from possessing a rich database and updating it continuously. Despite advancement in the provision of spatial data, many municipalities in the region do not have the capacity to collect and maintain their own geographic-information system (GIS) or to share this information properly with other stakeholders or partners (partner agencies, local governments and citizens). Limited field access can quickly cause GIS information to become outdated and consequently irrelevant. Conversely, collecting real-time information from the field and storing spatiotemporal data as historical records allows to identify patterns, detect virus spreading hotspots and predict where outbreaks may occur in the future. This enhances capacities at the national and municipal levels in spatial analysis, risk assessment and disaster risk management.

Lack of in-house expertise is another major challenge limiting the usage of geospatial data in planning of the pandemic response measures. Although GIS is an important tool allowing proper response to the covid-19 pandemic, its implementation can take many forms, depending on the nature of the organization. Integrating GIS in local governments calls for strategic decisions due to the fact that GIS software cannot be bought ‘off the shelf’. It needs to be pre-programmed and fed with specific data to become effective. It has been observed that the majority of municipalities in Lebanon, Egypt, Jordan and Tunisia procure expensive commercial GIS software despite their lack of in-house expertise. Municipal personnel in particular require significant support to gain the skills to operate and manage GIS database, which would otherwise become outdated and unreliable. Nevertheless, conducting long capacity building programs for the existing employees during a crisis is a waste of financial resources and valuable time.¹

Lack of fiscal resources is another major problem impacting national and municipal capacities to implement pandemic response operations. Tax evasion is one of the factors limiting efforts to control debts at both national and municipal levels. In Lebanon, uncollected taxes are equivalent to about \$5 billion dollars annually, 10% of the GDP in 2017 according to Bank Audi.² As many citizens restrain from paying taxes due to the immense economic impacts of the pandemic on their livelihoods, this problem is gaining magnitude. Due to the restrained support from central governments, municipalities in the South Mediterranean are more likely to fall into extreme fiscal deficit. This challenge varies in its severity across the South Mediterranean countries as the budget allocated to municipalities by central governments varies in its size.³ Lebanon is an extreme example where central government support is almost non-existing which has prompted some municipalities to seek increasing their revenue via optimized tax collection operations. Using GIS to implement a specific and pre-defined action plan to monitor tax evasion, the municipality of Hazmieh increased its revenues from tax collection by 30% in one year. In this case, the additional municipal revenue was utilized in the pandemic response.

Following the previous overview, the next section delves into the empirical part of this brief which discusses examples from Lebanon, Tunisia, Uganda and Germany on how data and evidence can be leveraged to ensure responsive governance during the pandemic.⁴

¹ These observations were recorded by Accumapping as part of their work with more than 70 major municipalities in Lebanon and other countries in the South Mediterranean, in the development, implementation and maintenance of user-friendly, local government targeted “GIS Solution”.

² Tax evasion close to \$4.2B annually: economist | Business , Local | THE DAILY STAR

³ Tunisian municipalities have lower resources, compared to the situation in Algeria and Morocco. In these two countries, the budget allocated to municipalities exceeds 12% of the state budget. In the case of Tunisia, this figure is less than 3%. Source: [Tunisia: Twenty-Three Municipalities Benefit From Municipal Capacity Support Programme - allAfrica.com](#)

⁴ The empirical data was derived from discussions with practitioners that took place as part of Connective Cities Virtual Global Exchange on municipal response to the pandemic. The Virtual Global Exchange incorporated webinars and dialogue events that were held on 23rd November – 3rd December 2020.

2. Showcasing good practice examples from the South Mediterranean

Creating a data-driven culture in the public sector of the southern Mediterranean countries begs for structural reforms related to the existing legal and regulatory framework regarding public information and data management. Existing frameworks do not reflect the new digital reality and are still at the very early stages of establishing the necessary enablers to integrate data analytics in decision-making processes. A survey conducted in several countries in this region revealed that weak data governance has contributed to the lack of interoperability, the duplication of efforts, the overall fragmentation of the public sector and resulted in significant untapped opportunities.⁵ Despite these structural challenges, some countries in this region have achieved breakthroughs with this regard. The following are good practice examples that demonstrate two different approaches to promoting data integration in planning the pandemic response: a municipal-led approach in Lebanon and a nation-wide initiative in Tunisia.

2.1 The Lebanese case: insights from the municipality of Hazmieh

The municipality of Hazmieh⁶ has been working continuously since 2015 to establish an advanced GIS operations room inside its headquarters to plan, monitor and execute daily operations. The system consists of up-to-date high-resolution aerial imagery taken with advanced UAVs to produce detailed maps and database that are of multiple-use including emergency response. The strategic preparedness allowed the immediate planning and execution of an emergency plan to combat the pandemic consisting of a disaster risk management unit cooperating regularly with the GIS operations room.

Six objectives were taken into consideration:

1- Regular inspection for food and health industries to ensure safety requirements are met:

A GPS data collector app showing from the existing database, the exact location of all the bakeries, restaurants, supermarkets, butcher shops, pharmacies and local health centers, was installed on the phones of the municipal police and health inspectors allowing them to collect daily information from the field and fill predefined forms. This data is synced in real time to the main server and daily reports are generated.

2- Monitoring COVID-19 cases:

The map-based app (fig. 1) also installed in hospitals and clinics shows the location of the people infected with corona virus and people in confinement with detailed information about their age, gender, and how many people are living in the same households and their status (infected/deceased/In Isolation, etc.). This helps in

⁵ Benchmarking Digital Government Strategies in MENA Countries. Available at: [digital-governance-mena.pdf \(oecd.org\)](https://www.oecd.org/digital-governance-mena.pdf)

⁶ The municipality of Hazmieh is located in the southern suburbs of the capital Beirut, with a population of around 50,000 inhabitants.

locating hotspots of the virus and intensify the disinfection operations for near POIs (supermarkets, pharmacies, etc.) In addition, heat-maps were produced to illustrate the pattern of spreading and detect areas with a high contamination potential. Protection of personal data is ensured by the municipality, where personal data is stored on municipal servers as classified information.



Figure 1: The map-based app used to track Covid-19 infections

3- Improving access to health care and services, food shops and pharmacies:

An online map portal⁷ was launched allowing the residents to self-locate on the map and find the nearest food shops, Red Cross clinics, health care centers, pharmacies and more in order to minimize the citizen's transportation distances to the maximum.

4- Managing and monitoring the distribution of social care packages:

The increase in financial resources also allowed the municipality of Hazmieh to establish a team of social helpers amid the economic crisis and the corona virus outbreak, cooperating with the GIS operations room. The main purpose is to distribute regularly social care packages and food boxes to the indigent families registered in the GIS database.

5- Monitoring in real time the spatial distribution of available beds and oxygen masks in relation with the emergency team's current location:

A monitoring system was implemented to inform the municipality and emergency response teams in the field of the number of available beds in each of the surrounding hospitals in real time. This was rendered particularly relevant when the ministry of health announced that there is a 95% saturation in hospital beds. In order to help the Red Cross respond quickly and hospitalize a critical case, the GIS locates the patient, the closest hospitals in his surrounding, the actual number of available beds, and the shortest path to get there.

6- Managing and monitoring of the disinfection operations:

The interactive mapping app also shows all the buildings footprints in green/red colors allowing the municipality to distinguish the disinfected buildings and avoid missing places without disinfection.

⁷ The online map portal can be accessed via this link: <http://navigsurleb.com/webmap/#19/33.86010/35.53550>

As a prominent example on good practice, the municipality of Hazmieh has been engaged in promoting this model of data-driven response processes to the pandemic. The model was well-received by several municipalities as well as the Lebanese Ministry of health. Nevertheless, the lack of fiscal resources given the current economic crisis the country is suffering from has hindered the replication of this model. To this end, the good practice of Hazmieh municipality is among the very few success stories in a country that is witnessing disastrous impacts of the pandemic.

2.2 Reaping the benefits of pre-pandemic initiatives to promote data-driven processes in Tunisia

Data-driven processes has been promoted to the forefront of the Tunisian policymaking scene, where government officials are increasingly recognizing that enhanced data analytics is of essence to achieving improved outcomes of public policies. Even prior to the pandemic, the Tunisian government has paved the way for this transformation in decision making which can enable improved coordination, more informed and evidence-based decisions, and simplified administrative procedures and processes.⁸ Against this background, several good practice examples were registered in Tunisia that demonstrate the positive impact of data-driven processes in the pandemic response.

A prominent example is the Primary Health Care (PHC) Monitoring Initiative by Mourakiboun, a local Tunisian civil society organisation.⁹ Prior to the pandemic, this initiative has aimed at gathering data to assess the quality of healthcare centers. This information was utilised in decision making to improve the quality of health care services at a national level. In addition, the gathered information was the basis of nationwide debates between health sector professionals, including representatives from the Ministry of Health (MoH), on the topic of the public health sector in Tunisia. Most importantly, the outcomes of the initiative have helped identify areas of intervention that are in dire need for governmental technical support.

Outcomes of this initiative have proven highly relevant in national policymaking related to the pandemic response. During the pandemic, the initiative's data sets were utilized in different action areas such as providing medication to the elderly, sanitizing public spaces, and enforcing social distance parameters in public gatherings. The datasets were effectively employed in assessing the use of health infrastructure during the emergency response

⁸ An example is the ongoing project 'Digital Municipalities' between the National Federation of Tunisian Municipalities (FNCT), the Government of Tunisia's e-governance department and the GIZ on supporting digitalisation in 12 partner municipalities to develop municipal services (e-services) and digital participation formats (e-participation).

⁹ [Data-driven Responses to COVID-19: Tunisian CSO offers healthcare experience to inform policy | National Democratic Institute \(ndi.org\)](https://www.ndi.org/en/news/data-driven-responses-to-covid-19-tunisian-cso-offers-healthcare-experience-to-inform-policy)

particularly in remote and rural areas of the country where public healthcare infrastructure was not well-mapped.

The high engagement of stakeholders in utilising the data sets was outstanding. Besides the Ministry of Health, several stakeholders have utilised the data sets including the Tunisian Ministry of Human Rights and the Sehaty (“My Health”) consortium, a group of national and international organizations that aim at improving access to quality front-line health services in Tunisia. Accordingly, the data sets will serve as basis for analysing current pressing issues related to public health, children’s wellbeing, and women’s health. This initiative has highlighted the key role of data availability in informing emergency response during the time of crisis and beyond. To this end, the World Bank is supporting the establishment of a Smart Portal (CNAM) in Tunisia, which utilises artificial intelligence to identify areas lacking health coverage and thus deploy the necessary healthcare providers to them. The CNAM smart Portal is planned to enhance response to pressing needs, as well as monitor pathologies to take preventive measures.¹⁰

The previous examples demonstrate that the need for evidence-based policy is particularly high given the current crisis. Making key data available to decision-makers has proven to be a great resource to public officials as well as various stakeholders by informing decision making on policy responses to the crisis. Unlocking the full potential of data sets, however, requires the development of procedures, systems and frameworks that maximise the impact of data analytics in decision-making in the pandemic response. The following section elaborates on an example from Uganda that represent a case in point on how data analytics can be integrated into local framework and action plan to ensure data interoperability across the different sectors during the pandemic response. Another example from Germany highlights the role of centralized management of data in steering response operations by local crisis management teams.

3. Beyond the South Mediterranean: Good practice examples from Uganda and Germany

3.1 Good practice examples from sub-Saharan Africa

The public health agency for the African Union, AKA the Africa Centre for Disease Control and Prevention, has promoted accessibility to open data by incorporating an ArcGIS dashboard app on its website (fig. 2). Besides displaying real-time information about COVID-19 cases collected from the African Union member states, the site promoted information sharing by including best health practices, scientific and public policy health updates.

¹⁰ [Tunisia’s first ever open data hackathon taps into digitalization’s potential for greater development impact \(worldbank.org\)](https://www.worldbank.org)

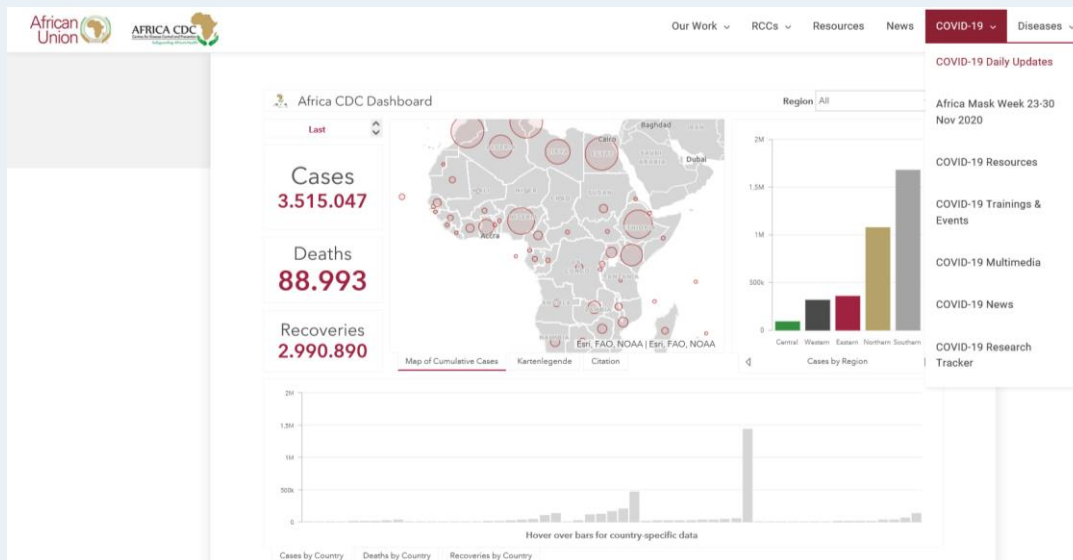


Figure 2: Screenshot from the [Africa CDC dashboard](#)

In many occasions, statistics have shown that impacts of the pandemic at the country level mirrors the status quo at the city level. Response planning is often formulated at regional or national levels, nevertheless, it should ideally be contextualized to each locality. While there remains a debate between the efficacy of a decentralized versus centralized response, maintaining a flow of data between local and national levels is a prerequisite to mitigate the impacts of the pandemic. Equipping city administration and local governments with the relevant data and resources facilitates the implementation of local data-driven processes amidst of the crisis. A good practice example on that is the response approach adopted in Kampala-Uganda, where the Joint Kampala Metropolitan Covid Command was established to lead the response operations. This entity has served as a common platform for experts from the sectors of public health, economy, education, finance to discuss and deliberate response policy and operational measures. As such, there was no monopoly over knowledge, where competent parties conducted unbiased and reliable risk assessment of the implemented response measures. Innovative mapping of collected data was among the employed tools for the interpretation and creation of a common language among experts representing different sectors. An example on that was the mapping of collected data to create the **City Vulnerability Index**. This mapping exercise was built on two indices, namely the Adaptive **Capacity Index** and the **Exposure Index**. Cross-examining the maps was key in determining which part of the population possesses the least adaptive capacity yet highest exposure index to the pandemic. These findings have helped decision makers implement swift decisions to shield and provide support for this part of the population. Besides emergency response, monitoring city data is also crucial in determine the agility of a city to recover from the impacts of the pandemic. Therefore, data collection, monitoring and analysis are continuous particularly as lockdown measures are being gradually lifted. Moreover, mapping of urban data can reveal strengths and weakness of the response measures including the adaptive economic recovery. This is particularly relevant to countries of the South Mediterranean, where post-pandemic economic recovery plan

should ideally link decision making to the assessment of real-time data from the field. Adopting an area-based approach that enables the development of context-specific interventions will trickle down to invigorate recovery at the local municipal level. Such an approach would have spared some countries in the South Mediterranean severe losses incurred due to the lockdown and the failure of implementing localised data-driven response processes amidst of the crisis. The so-called incident of Jaber crossing in Jordan is an example of how the lack of monitoring of real-time data on infection cases can have devastating impacts particularly to strategically-located border cities. In this case, the city of Ramtha in Jordan, in which the crossing is located, was isolated and the crossing itself was closed leading to severe disruption of the movement of goods from Lebanon and Syria. According to officials, the spike of infections in the city was linked to un-monitored infection cases of truck drivers moving goods from these two neighbouring countries.¹¹

3.2 An overview of how data dashboards were deployed in pandemic response in Germany

While a decentralized pandemic response was applied in Germany, a central approach to managing and sharing data was adopted. A collaboration between Robert Koch Institute (RKI) and Esri Germany has resulted in developing a dashboard and hub site that tracks COVID-19 case data on a daily basis (fig.3).¹² As a central source of information, the platform has provided local crisis management teams with credible information that is relevant to the local response plans. This includes monitoring the transport of masks and other medical equipment to health facilities. Nevertheless, efforts to promote location intelligence to control the Covid-19 outbreak in Germany were hindered by the advanced data-privacy regulations, with which the country abides.

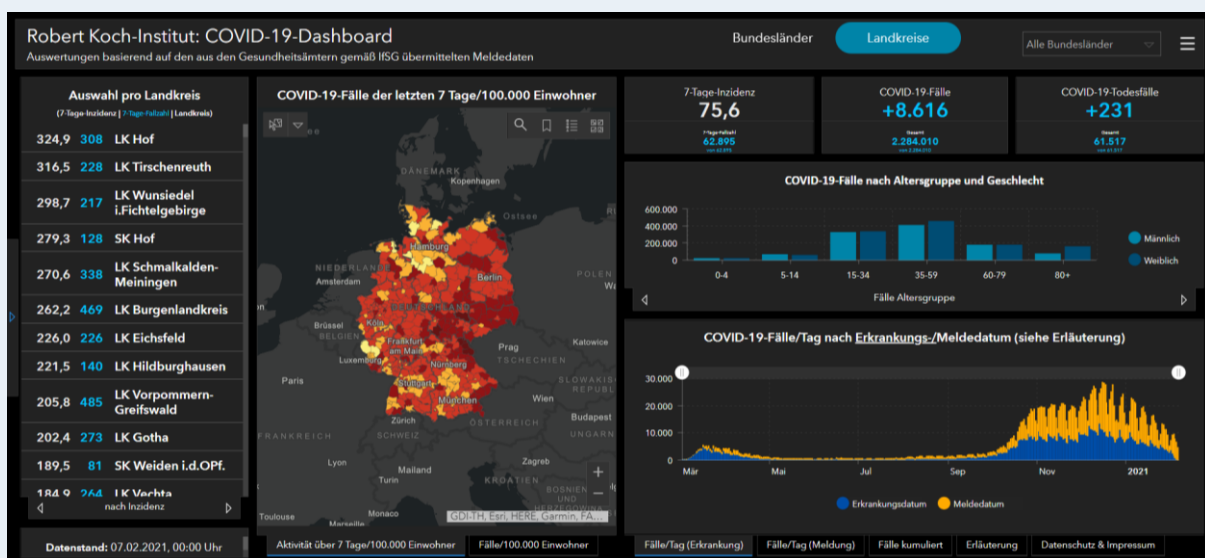


Figure 3: Static screenshot of the dashboard created by RKI taken on 7.2.2020

¹¹ [Jordan reopens trade gateway with Syria after month-long COVID closure | Reuters](#)

¹² The dashboard is accessible through this link: [RKI COVID-19 Germany \(arcgis.com\)](#)

Examining the context reveals that it varies widely from that of the South Mediterranean in terms of the available capacities versus the impacts of the pandemic. Nevertheless, it is possible to draw conclusions that are relevant and in particular with regards to the role of the central management of Covid-related data in steering localised response. This approach to managing and sharing data can resolve the lack of availability of critical data for local crisis management teams in municipalities, which do not invest in data collection or the creation of data dashboards. However, reaping the benefits of the data availability requires capacitating the local municipal teams for the analysis and interpretation of the data in addition to the provision of resources needed to conduct local pandemic response interventions.

4. Lessons learned

As large parts of the world step into the post-lockdown phase, the question of how to transition into adaptation and recovery while mitigating the risks of pandemic remains prominent. The learning slope of pandemic response was steep, and data-driven processes have proven to be highly impactful in response planning. The pandemic has led to maximizing the use of data in decision-making and has triggered the creation and usage of COVID-19 data dashboards that play a pivotal role in calibrating lockdown rules to developments on ground. Nevertheless, lack of engagement of relevant stakeholders diminishes the usability of data. This challenge is evident in the majority of countries in the South Mediterranean where national governments have either implemented a highly centralized response approach (Morocco and Jordan) or have a diminished role such as in Lebanon. Recognising that data is a strategic asset that should serve as the basis for developing strategies and interventions would maximise the impact of data and lead to the achievement of desirable outcomes. Furthermore, ensuring data interoperability calls for developing the data infrastructure for data sharing across the various sectors engaged in response planning.

Running extensive monitoring and data collection can slow down decision-making processes, however, the consequences of running response programs that lack scientific grounds is extremely precarious. Therefore, leveraging data and evidence to ensure responsive governance is pivotal in pandemic response. Data transparency and stable multi-level governance are nonetheless prerequisites for achieving impactful response and recovery from the crisis. This is of importance to the South Mediterranean context, where the pandemic response is highly centralized thus sidelining relevant stakeholders including municipalities. Investment in dedicated innovation, performance, or data-science teams particularly at the city level is crucial to contributing to the broader efforts to drive innovation and data-driven decision making in local governments. While municipalities or local governments can play the main role in data collection, engagement of stakeholder beyond the public sector ensures the credibility and the proper interpretation of the collected data. Besides capacitating the relevant public staff with the technical skills,

securing buy-in for data-driven processes as part of the response and recovery plans should ideally permeate the entire structure administering the response operations.

Against this background, concrete policy actions are recommended in the following fields that target national and regional levels:

1. ***Mapping of population that is in urgent need for vaccination and consequently ensuring equitable vaccine distribution across countries and cities:*** besides the complicated technical requirements related to the storage and transport of vaccines, an additional challenge is achieving an equitable distribution of the vaccine across countries and cities. Since vaccine doses are far from meeting the needs of entire populations, it is important to distribute the available vaccine strategically and ethically. A potential area of collaboration across countries in the South Mediterranean region, sub-Saharan Africa and Europe is sharing transparent information with this regard. A reliable approach would ideally rely on incorporating credible data in open access dashboards that could be cross-examined. Open-access sites would be ideally set-up by national governments to promote vaccine distribution plans and build public confidence. Meanwhile, a comprehensive tabulation of indicators and metrics in terms of the geographic area and demographics would ultimately lead to maintaining situational awareness on understanding how vaccine distribution and coverage metrics vary. Accordingly, progress in vaccination can be monitored in municipalities, countries as well as regions. A regional monitoring system of vaccination leads to the most meaningful findings since immunity to the virus cannot be measured domestically.
2. ***Strengthening public health preparedness through bilateral and multilateral cooperation:*** A potential area of collaboration between countries or even cities includes providing support whether in the form of temporal lending of equipment or permanent support by upgrading health facilities in low-income countries. This entails prioritizing funding for healthcare by national governments. With the focus of strengthening public health preparedness, the support can also take the form of peer learning from good practice examples and the dissemination of the accumulated knowledge in this field.
3. ***Creation of Communities of Practice that contribute to promoting health equity and improving access to public health knowledge:*** A significant advantage of the intangible structure of a Community of Practice is that it is not bound to a specific geographic location. Thematic working groups can be formed by practitioners from countries in the South Mediterranean, sub-Saharan Africa and Europe to debate and disseminate practice-based knowledge and experience in various field related to the pandemic response and recovery. A Community of Practice with thematic focus on public health can serve as a pilot, which in the long-term would foster developing

innovative approaches and contribute to promoting health equity and improving access to public health knowledge.

In spite of the key role of national governments of the South Mediterranean in shaping pandemic response operations, the current diminished role of municipalities will hamper efforts to tailor and operationalize recovery interventions at the local level. It may be often the case that municipalities would lack the means to acquire data let alone ensuring its interoperability and standardisation. Neglecting these critical shortcomings, however, will lead to further weakening of the administrative capacities of municipalities. On the contrary, national governments should capitalize on voices brought by local municipal officials to contextualize recovery action plans and achieve impactful outcomes. Although such reform processes are long-term, first steps towards capacitating municipalities with data-dashboards are feasible. The following are recommendations to promote data sets and data analytics in municipalities:

1. To unlock the geospatial system's full potential, it is necessary to integrate User-Friendly GIS software that is customized specifically for municipal use and written in the country's native language (an Arabic version should be used in South Mediterranean countries). This allows municipal employees, regardless of their education and experience in GIS to fully operate the application and minimizes the municipality's need to employ new GIS technicians in every department. The advantages of User-friendly GIS are not limited to on-premises use. User-friendly GIS mobile application, for example, include predefined and well-designed forms covering multiple sectors (i.e. health inspection, demographic survey, emergency services monitoring, and more) allowing for real-time data collection and server-synchronization directly from the field.
2. As mentioned previously, the current crisis provided an opportunity for promoting the development of data dashboards to monitor the response operations at the local and national levels. Nevertheless, defining a clear action plan by municipalities that is tailored to the local needs is key to building a rich database of digitalized maps and relevant spatial information and attributes.
3. Promoting the use of geographic information and tools across the entire structure administering the response processes: when spatial information is accessible to Public Health staff for example, locating hospitals and healthcare facilities would be faster and timely resulting in process optimization. To this end, it also recommended to implement a system of collaboration between municipalities and hospitals, emergency teams and clinics for a better response.

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