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Beirut Rapid Damage and Needs Assessment

August 2020

Prepared by the World Bank Group
in cooperation with
the European Union and the United Nations



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This is a summary report of the Beirut Rapid Damage and Needs Assessment (RDNA). Sector studies undertaken as part of the RDNA will be published separately as background papers to support the operationalization of the RDNA findings and recommendations.



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This report summarizes the findings of the Rapid Damage and Needs Assessment that took place in Beirut, Lebanon, between August 5 and 31, 2020. Although all efforts have been made to improve the accuracy of the information that was collected and analyzed, the assessment was produced in a quick timeframe to ensure the relevance of the estimations. *This is a living document and will be updated as new information becomes available.* It provides an overall picture of the effects of the explosion on the population, physical assets, infrastructure and service delivery, but is not a replacement of in-depth sector-specific assessments.

Foreword

On August 4, 2020, back-to-back explosions rocked the port of Beirut, bringing sorrow to a nation, causing widespread destruction to homes, businesses, infrastructure, and disrupting economic activity. We share the shock and sadness of the Lebanese people, and would like to extend our heartfelt condolences and sympathies to the families of the victims. We also extend our wishes to the many injured for a speedy and full recovery.

This tragedy comes at a terrible time as Lebanon battles deep economic and social crises, exacerbated by the COVID-19 pandemic. During these challenging times, we stand in resolute solidarity with the people of Lebanon and are ready to provide support and extend assistance that is consistent with their needs.

To this end, the World Bank Group (WBG) in cooperation with the United Nations (UN) and the European Union (EU) launched a Rapid Damage and Needs Assessment (RDNA) immediately after the explosions, to estimate the impact on the population, physical assets, infrastructure and service delivery in Beirut, utilizing ground data and cutting-edge remote tools and technology.

In order to ensure that this assessment is grounded and representative of the whole of Lebanon, the World Bank Group team engaged in an intense series of feedback meetings with a multitude of stakeholders — spanning government organizations and municipalities, diplomatic and donor community, civil society, youth groups, the private sector, think tanks, and academia. We worked with stakeholders present on the ground in Beirut, as well as virtually across the world to produce this report only weeks after the tragic explosions. Due to the rapid nature of the assessment, the RDNA estimations are preliminary. Nonetheless, they provide an initial foundation and a critical step to guide the identification of priority interventions in Lebanon's immediate-and-short-term recovery and reconstruction phase.

As the investigation into the background and responsibilities for the catastrophe is ongoing, we would like to express our sincere appreciation to our Lebanese friends and partners, the multi-sector team of national and international experts, and to everyone who has contributed to this report. Our special thanks also to the State and Peacebuilding Fund (SPF), which provided valuable financial support to this important assessment.

We are confident that the Lebanese people will once again demonstrate their strength and resilience in overcoming difficult times. We remain committed to standing by them at all times with support for rebuilding their lives and livelihoods.

Ralph Tarraf

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Head of the Delegation of the
European Union to Lebanon

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Acronyms

3RF	Reform, Recovery and Reconstruction Framework
BBB	Build Back Better
BCTC	Beirut Container Terminal Consortium
BdL	Banque du Liban (Bank of Lebanon)
BMLWE	Beirut and Mount Lebanon Water Establishment
CCI	Creative and Cultural Industries
CEDRE	Conférence économique pour le développement, par les réformes et avec les entreprises (Economic Conference for Development through Reforms and with Businesses)
CGE	Computable General Equilibrium
CIP	Capital Investment Plan
CNRS	National Council for Scientific Research
CSO	Civil Society Organization
CY	Calendar Year
DALYs	Disability-Adjusted Life Years
EDL	Electricité du Liban
EU	European Union
FDI	Foreign Direct Investments
FX	Foreign Exchange
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GoL	Government of Lebanon
IBRD	International Bank for Reconstruction and Development
ILO	International Labour Organization
INGO	International Non-governmental Organization
IMF	International Monetary Fund
IT	Information Technology
KM(S)	Kilometer(s)
LAF	Lebanese Armed Forces
LBP	Lebanese Pound
LEM	Lebanon Economic Monitor
LV	Low Voltage
MEHE	Ministry of Education and Higher Education
MENA	Middle East and North Africa
MEW	Ministry of Energy and Water
MFI	Microfinance Institution
MOA	Ministry of Agriculture
MV	Medium Voltage
NCC	National Control Center
NGO	Non-governmental Organization
OCHA	Office for the Coordination of Humanitarian Affairs
PDNA	Post-Disaster Needs Assessment
PHCC	Primary Health Care Centers
PoB	Port of Beirut
POS	Point of Sale
PPE	Personal Protective Equipment
pp(s)	percentage point(s)
RDNA	Rapid Damage and Needs Assessment
RPTA	Railways and Public Transport Authority
RRR	Repairs, Rehabilitation and Replacement
SCD	Systematic Country Diagnostics
SPF	State and Peacebuilding Fund

UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for West Asia
UNFPA	United Nations Population Fund
UN-Habitat	United Nations Human Settlements Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency
VAT	Value-Added Tax
WB	World Bank
WBG	World Bank Group
WFP	World Food Programme
WHO	World Health Organization
WSS	Water Supply and Sanitation
YLL	Years of Life Lost

Acknowledgments

The Beirut Rapid Damage and Needs Assessment was conducted by the World Bank Group in cooperation with the European Union and the United Nations, and in close partnership with Lebanese ministries, institutions, and civil society organizations.

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Adversity in Context

On August 4, 2020, a massive explosion rocked the Port of Beirut (PoB), destroying much of the port and severely damaging dense residential and commercial areas within five kilometers of the site of the explosion. The disaster left more than 200 people dead, thousands injured, and many homeless. Shocking pictures and videos from the Lebanese capital were shared widely across the planet, showing a city in ruins and the suffering of those affected.

Beyond the human tragedy, the economic impact of the explosion is notable at the national level despite the geographic concentration of the destruction. This reflects: (i) the demographic clustering of the Lebanese population in Beirut and its suburbs; (ii) the prominence of economic activity in the affected areas, especially in regard to commerce, real estate and tourism; and (iii) the fact that the PoB is the main point of entry/exit for the small open economy, channeling 68 percent (2011-2018 average) of the country's total external trade.¹

Even prior to the explosion, Lebanon was already reeling from multiple crises since 2011. These included: (i) spillovers from the conflict in Syria, which led Lebanon to host the largest refugee per capita population in the world; (ii) a financial and economic crisis that has induced systemic macro-financial failures, including, impairment of the banking sector and risk of deposits; an exchange rate collapse; a default on sovereign debt; triple digit inflation rates; and a severe economic contraction; and (iii) impacts from the COVID-19 pandemic; Lebanon, not unlike other countries, responded with lockdowns that further exacerbated economic and financial stresses.

The above add to long-term structural vulnerabilities that include low-grade infrastructure—a dysfunctional electricity sector, water supply shortages, inadequate solid waste and wastewater management—public financial mismanagement, large macroeconomic imbalances, and deteriorating social indicators. These vulnerabilities are taking place against the backdrop of high levels of corruption, political turmoil, and weak governance. Internationally, Lebanon was sub-optimally integrated into the global economy and global value chains, and the sizeable and persistent migration of highly educated human resources to foreign labor markets (brain drain) further contributed to poor productivity.

As a result, the economy has struggled to reduce poverty and to generate inclusive growth, with job creation remaining weak and poorly distributed even during periods of high GDP growth. The long-run employment-growth elasticity is estimated to be 0.2,² much lower than an estimated MENA average of 0.5.³ Meanwhile, the generated employment has been concentrated in low productivity activities as those involving higher productivity have not grown proportionally. Since foreign labor dominated low skilled (less productive) activities, high GDP growth rates have not translated into significant job creation for the Lebanese.

The eruption of the conflict in Syria exposed Lebanon's economic vulnerabilities. Since 2011, real GDP growth averaged 1.2 percent annually (pre-financial crisis), down from an average of 4-5 percent prior. Under a fixed exchange rate regime, lower capital inflows, combined with larger internal and external imbalances, led to heightened macro-financial risks that were mitigated at increasingly high costs (i.e. the Central Bank's financial engineering). By 2019, systemic failures rippled through the macro-financial system, inducing one of the strongest economic contractions the country has ever experienced, accompanied by a surge in poverty rates. According to pre-explosion estimates, growth in 2020 featured negative double digits, while general and extreme poverty rates

1 Source: Customs.

2 World Bank (2012), "Republic of Lebanon—Good Jobs Needed: The Role of Macro, Investment, Education, Labor and Social Protection Policies", December, Washington DC.

3 IMF (2014), Article IV Consultation and Selected Issues, July, Washington DC.

were estimated at 45 and 22 percent respectively. In fact, as early as Spring 2016, the Lebanon Economic Monitor (LEM) declared Lebanon's socio-economic model bankrupt.⁴

Lebanon's Systematic Country Diagnostic (SCD)⁵ identified elite capture – hidden behind the veil of confessionalism and confessional governance – as one of two overarching constraints for the country's economic development.⁶ Under the guise of preserving confessional balances, a post-war elite emerged to command the main economic resources, both private and public, generating large rents and dividing the spoils of uncompetitive markets and a dysfunctional and hollowed out state.

In the face of heightened risks, a series of analytical reports and policy notes prepared by the World Bank (WB) identified specific structural and sectoral reforms that could help mitigate risks and boost growth. In December 2016, following two and a half years of Presidential vacancy and institutional paralysis, the WB published a White Paper⁷ on needed reforms for the then-new Government. The White Paper presented a menu of priority reforms over two-time horizons—the first 100 days of the new Government, where 10 priority reforms were listed, in addition to medium-term reforms. This list was later developed and attuned in the WB Strategic Assessment of the Capital Investment Plan (CIP) for Lebanon⁸ that was presented at the CEDRE conference in Paris in April 2018. The Assessment listed specific structural and sectoral reforms that can enable the CIP, which the Government adopted at the conference. In return, donors pledged about US\$11 billion in concessional financing for Phase 1 of the CIP. The Government has subsequently failed to implement its commitments.

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Photo: Fadel Itani/World Bank

- 4 World Bank (2016), *A Geo-Economy of Risks and Rewards*, the Lebanon Economic Monitor, Spring 2016 Issue.
- 5 Le Borgne, Eric and Jacob, Thomas (2016), *Promoting Poverty Reduction and Shared Prosperity: A Systematic Country Diagnostic*, World Bank Group, Report No. 103201, January 2016.
- 6 The other overarching constraint being conflict and violence, stemming, in part, from the broader dynamics of conflict in the Middle East.
- 7 World Bank (2016), *Priority Reforms for the Government of Lebanon*, December 2016.
- 8 Harake, Wissam and Christos Kostopoulos (2018), *Strategic Assessment: A Capital Investment Plan for Lebanon*, World Bank Group, Washington DC.

The port explosion occurred as Lebanon was struggling with the convergence of the above-described difficulties—some being endogenous to the system and a clear manifestation of systemic failures in governance and economic policy, but others resulting from being a frontier country in one of the world’s most volatile geopolitical fault lines.

Building Back a Better Lebanon

The Lebanese people – and especially the most vulnerable among them – are paying a high price for these crises and have become increasingly distrustful of the current political and economic system. In the aftermath of the port explosion, Lebanon is likely to witness an increase in poverty, unemployment, and insecurity. The impact will be felt most severely by the vulnerable segments of the population, including the poor, economic migrants, and refugees. While it could take years to fully restore damaged infrastructure, it will be even more challenging to repair the sense of hopelessness and resignation that many Lebanese feel towards a political and economic system whose legitimacy is increasingly questioned.

The explosion must therefore serve as a wake-up call for rapid and systemic change. At this critical junction, swift and decisive action is necessary. This sense of urgency is shared by many Lebanese, as evidenced by the widespread protests in the aftermath of the disaster calling for systemic institutional, economic, and social change.

In this context, the current crisis provides a critical opportunity to build back a better Lebanon, guided by principles of transparency, inclusion, and accountability. This process would need to follow a “Whole of Lebanon” approach, bringing together government, civil society, the private sector, activist groups, youth groups, think tanks, academia, and the international community around a common vision and strategic objectives. It would need to ensure representation of all segments of Lebanese society, including women and other vulnerable groups, and take into account the voices and interests of refugees and migrants. The diaspora remains a strategic resource for the economy, not only for portfolio and other short-term investments, but more importantly, for long-term foreign direct and productive investments. Over the coming weeks, stakeholder feedback and consensus building will be necessary to inform the scope, design, institutional arrangements as well as the monitoring and accountability framework of a comprehensive build back better program. Such a program should directly address the urgent needs of the affected population while ensuring that results are delivered in an efficient, equitable and transparent manner.

Towards a Framework for Reform, Recovery and Reconstruction

The building back better approach should be based on a Framework for Reform, Recovery and Reconstruction (3RF). Ignoring the underlying drivers that have contributed to the tragedy would lead to continued crises and lost momentum towards meaningful change. It is therefore important that such a Framework is structured around strategic pillars that could include: (i) Reforms towards Promoting Citizen Trust and Improving Governance; (ii) People-Centered Recovery, and (iii) Reconstruction of Critical Assets, Services and Infrastructure. These elements could be integrated into a crisis recovery vision, which would need to be agreed upon by all stakeholders in a participatory process. In line with these strategic pillars, the Framework could be based on four strategic objectives: (i) Improving governance and accountability to help restore trust in the state; (ii) Restoring access to jobs and economic opportunities, and reviving the local and national economy; (iii) Strengthening social cohesion and ensuring social inclusion; and (iv) Restoring and improving basic services and physical infrastructure.



Four sets of policy and institutional reforms are critical to build back a better Lebanon. These reforms should aim to regain economic stability, to ensure a dignified livelihood for the Lebanese, to improve governance and to break the hold of elite capture, all of which can help re-establish people's trust in their government. While not all of the reforms will need to be accomplished immediately, they need to be launched in a credible, irreversible, and participatory manner:

- **Macroeconomic stabilization.** The disaster adds to the exigency for a credible, comprehensive and coordinated macro-financial stability strategy, within a medium-term macro-fiscal framework. Regaining confidence and functionality of Lebanon's financial, monetary, and fiscal institutions and ensuring macroeconomic stability are critical prior actions. The adoption and implementation of such a strategy would merit financial support from international financial institutions and the international community at large.
- **Governance reforms.** These include an independent and transparent judiciary, adoption of a modern public procurement law, and enacting the anti-corruption commission and implementing the anti-corruption strategy and the electricity sector reform. These reforms should signal a clear break from business as usual addressing the systematic challenges of impunity and lack of accountability linked to the patronage systems. This has been fertile grounds for corruption, nepotism, and inequality.⁹
- **Private sector operating environment.** Reforms that reduce operating costs, enhance the competition framework, render markets more contestable, and promote fair and transparent public procurement practices will be crucial. Here too, the focus should be on breaking the hold of elite capture, which has monopolized both private and public resources.
- **Ensuring human security.** These reforms among others, would include empowering youth and women, a comprehensive social protection system, ensuring safety nets for the poor and vulnerable, and improved learning and health outcomes.

The implementation of a credible reform agenda will be key to accessing international development assistance. Given Lebanon's dire macroeconomic conditions, a non-existing fiscal space, and an impaired local financial sector, combined with an investment climate that is not conducive to foreign direct investment, financing is subject to binding constraints. In the short-term, external (donor) financing will provide an indispensable source for financing recovery and small-scale reconstruction efforts. Whereas humanitarian assistance has been mobilized rapidly, international development assistance will be contingent upon a credible reform agenda, particularly given that donor budgets are currently strained. Grant financing is unlikely to be sufficient by itself to address large-scale reconstruction needs; still, it can play a catalyzing role in jumpstarting programs that address the critical recovery needs of the most vulnerable groups. International financing can also be provided in the form of concessional loans and guarantees to mobilize other sources of finance. For example, in the medium-term, the strategic use of development assistance, philanthropic funds, guarantees and de-risking facilities could help mobilize private capital. This would require, however, a strengthened business and investment climate. Going forward, time bound implementation of a credible reform plan and an associated financing strategy will be needed to help unlock external and private sector sources of financing.

Development resources could be channeled through a new financing facility, administered by international partners. The objective of the facility would be to: (i) channel donor grant resources through a pooled mechanism, and (ii) serve as a platform for policy dialogue and coordination of funds. The scope of the facility would be ring-fenced to immediate- and short-term recovery and reconstruction activities. Given public discontent with the government, the facility could pilot an innovative operational model that channels resources to vetted non-governmental organizations

⁹ Transparency International's Corruption Perception Index 2019 ranked Lebanon 138 out of 180 countries worldwide in 2019.

(NGOs) to design and implement recovery and reconstruction projects, combined with strong fiduciary oversight by the fund administrator. In all events, donor coordination must be ensured.

Quickly establishing appropriate institutional and implementation arrangements, based on good governance and transparency, will be critical for an effective building back better (BBB) approach. These arrangements will need to include special provisions for strategic oversight and decision-making; the coordination, management, and monitoring of operations; ensuring full transparency, accountability and equity in the allocation of resources; and the provision of financing through modalities and instruments tailored to the urgent priorities of the recovery effort. Institutional arrangements will therefore need to entail strong citizen engagement and ensure participation by civil society stakeholders in key governance bodies and in decision-making related to resource allocation, implementation, financing, and monitoring.

Lessons from other post-crisis contexts offer several options for effective institutional and implementation arrangements. These could include the designation or creation of a lead implementation agency, sectoral implementation by line ministries, or a hybrid model in which a temporary agency provides overarching guidance and programmatic oversight while implementation remains decentralized at the sector and local levels, with a key role of local public agencies and civil society organizations. In the Lebanese context, a non-traditional model that relies more heavily on NGOs and civil society could be envisioned also bearing in mind the need in the long-term to strengthen Lebanese State capacities and roll back elite State capture.

Building back better also requires strong accountability and transparency mechanisms for reform, recovery and reconstruction activities, and institutional strengthening for environmental governance. Based on experience in other countries, these mechanisms could take the form of a detailed results framework, dedicated monitoring and evaluation arrangements with strong citizen engagement, a transparent aid monitoring system, effective audit and financial oversight of reconstruction projects, and the use of social media and citizen engagement tools to strengthen transparency. Ensuring strong accountability and transparency will be particularly important given the high levels of public concern about the management of the reconstruction process.

The international community is committed to contribute to building back a better Lebanon, with the clear understanding that this process needs to be led by the Lebanese people. The Beirut Rapid Damage and Needs Assessment (RDNA), prepared by the World Bank Group in cooperation with the United Nations and the European Union, and in consultation with representatives and stakeholders from diverse segments of Lebanese society,¹⁰ is a first step in that direction. The assessment provides a preliminary estimate of critical physical infrastructure reconstruction and service delivery restoration needs in the immediate (Calendar Year 2020) and short-term (Calendar Year 2021). The assessment also includes recommendations for the immediate-term, i.e., up to end-CY2020 recovery and reconstruction interventions as well as priority reform areas to ensure scaling up recovery in the short-term and beyond. The RDNA will be followed by the preparation of a 3RF, which will provide a roadmap to operationalize the RDNA and should include recommendations from other assessments. Based on detailed sector assessments, this Framework will set the ground for a comprehensive, medium-term reform, recovery and reconstruction program. Besides technical assistance and financing, the international community is also willing to support the important consultation process. This could include organizing an International Roundtable for Reform, Recovery and Reconstruction, which would bring together all stakeholders to identify elements for decisive action to build back a better Lebanon.

10 The annex provides a brief overview of stakeholder engagement and feedback meetings.



I. Rapid Damage and Needs Assessment¹¹

¹¹ The RDNA needs are only for the time period until December 2021. The RDNA does not provide the needs for the entire recovery and reconstruction program that would be needed after the explosion disaster. Needs presented in the RDNA report are the priority needs in various sectors of the economy for service delivery and critical infrastructure reconstruction. A comprehensive damage and needs assessment usually takes time (usually 2-3 months), therefore, the RDNA is recommended as a first step to make sure that immediate- and short-term needs of the population are promptly identified and met.

Key Facts

On the onset of the massive explosion that rocked Beirut on August 4, 2020, the World Bank Group (WBG) in cooperation with the United Nations (UN) and the European Union (EU) launched a Rapid Damage and Needs Assessment (RDNA).

Duration August 5-31, 2020

Figure 1. Beirut RDNA Timeline



Objectives

- Assess the impact on the population, physical assets, infrastructure and service delivery
- Conduct a preliminary estimate of infrastructure reconstruction and service delivery restoration needs in the immediate (CY2020) and short-term (CY2021)
- Contribute to a coordinated national and international effort for *building back better*

Geographic Scope

Impact zone in Greater Beirut with emphasis on the worst affected areas within a **five-kilometer radius** of the explosion site.

Scope of the Assessment – 16 Sectors

- **Macroeconomic Impact**
- **5 Social Sectors:** Housing; Health; Education; Culture; and Social Protection and Jobs
- **4 Infrastructure Sectors:** Transport and Port; Energy; Water Supply and Sanitation; and Municipal Services
- **3 Productive and Financial Sectors:** Commerce and Industry; Financial; and Tourism
- **3 Cross-cutting Sectors:** Governance; Social Sustainability and Inclusion; and Environment

Data Sources and Methodology

Ground-based and remotely collected data: High resolution satellite imagery, drone imagery, ground surveys, residents' perception survey, data from ministries and government organizations, UN agencies and donors, civil society organizations (CSOs), professional associations and syndicates, private sector organizations, academia, etc., collected via a series of multi-stakeholder engagement and feedback meetings. These various sources were used to triangulate and improve the veracity of the data. The RDNA adapts from the Post-Disaster Needs Assessment methodology jointly developed by the European Union, the World Bank Group, and the United Nations.

Key Findings

- **Physical damages¹²: US\$ 3.8-4.6 billion,¹³** with housing and culture sectors most severely affected.
- **Losses in economic flows¹⁴: US\$ 2.9-3.5 billion,** with housing being the most hit followed by transport and port and culture.
- **Priority recovery and reconstruction needs for CY2020 and CY2021: US\$ 1.8-2.2 billion,** with transport sector needs being the highest followed by culture and housing.

Impact on Economy

- **Losses in economic activity** due to destruction to physical capital.
 - up to 0.4 and 0.6 percentage point (pp) declines in the growth rate of real GDP in 2020 and 2021, respectively.
- **Loss of fiscal revenues.**
- **Possible trade disruptions resulting in higher transaction costs of external trade.**
 - import constraints could subtract an additional (upper limit) of 0.4 and 1.3 percentage points from growth in 2020 and 2021, respectively.
- **Higher inflation and higher poverty rates.**

12 **Damage** is estimated as the replacement value of completely, partially, or minimally damaged physical assets.

13 Given the rapid nature of this assessment, report offers low and high range for values of physical damages, economic losses and priority needs for CY2020 and CY2021.

14 **Losses** are estimated in the flows of the economy that arise from the temporary absence of the damaged assets.

Context

On August 4, 2020, a massive explosion in the Port of Beirut (PoB) rocked the city, killing more than 200¹⁵ people, wounding more than 6,000,¹⁶ and displacing around 300,000.¹⁷ The detonations all but destroyed the country's largest port, one of the busiest in the Middle East and most of Lebanon's grain reserves. The city's dense residential and commercial areas were severely damaged within five kilometers from the explosion's site. Search-and-rescue efforts were launched immediately following the explosion, which have transitioned to humanitarian and early recovery efforts. These efforts are ongoing and will continue over the immediate-term to help the people of Lebanon get back on their feet.

Objectives

The key objective of the Beirut Rapid Damage and Needs Assessment (RDNA) is to inform stakeholders—including the Government of Lebanon, as well as the local and international community—on the disaster effects (damages and direct and indirect losses) and recovery and reconstruction needs. With the aim of promoting a sustainable economic and social recovery with rapid reductions of poverty levels, the guiding principles for conducting this assessment are transparency, inclusion and good governance. More specifically, the RDNA:

- informs the reform, recovery and reconstruction process by considering a critical opportunity to build back a better Lebanon, guided by principles of transparency, inclusion, and accountability;
- provides a preliminary estimate of critical physical infrastructure reconstruction and service delivery restoration needs in the immediate (CY2020) and short-term (CY2021);
- contributes to a more coordinated and coherent national and international effort for building back better; and
- recommends assessments and analyses that will be critical to an exhaustive understanding of the impact of the crisis and developing a medium- and longer-term recovery program.

Approach and scope

Temporal scope: The RDNA's analyses and recommendations only focus on the impact as well as the recovery and reconstruction needs as a result of the explosion. Therefore, damages, losses, and needs calculations were made relative to a pre-explosion baseline of physical assets. Baseline data was collected from the Government of Lebanon, the Beirut Municipality, and other stakeholders, and supplemented for corroboration and triangulation by publicly available and ground-based data.

Geographic scope: The Beirut RDNA is limited to the impact zone in the Greater Beirut area with a major focus on the worst affected areas within a five-kilometer radius of the explosion's site.

Sectoral scope: The Beirut RDNA covers the damage and needs in the following 16 sectors:

- **Macroeconomic Impact**
- **Social Sectors:** Housing; Health; Education; Culture; and Social Protection and Jobs

15 Beirut blast death toll includes dozens of refugees, emergency response ramps up, UNHCR, August 2020.

16 *Lebanon Flash Appeal*. United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 2020.

17 *Beirut Explosion: Red Cross Treating the Wounded*. American Red Cross, 2020.

- **Infrastructure Sectors:** Transport and Port; Energy; Water Supply and Sanitation; and Municipal Services
- **Productive and Financial Sectors:** Commerce and Industry; Financial; and Tourism
- **Cross-cutting Sectors:** Governance; Social Sustainability and Inclusion; and Environment

Stakeholder Engagement (see Annex)

Working closely with the United Nations and the European Union, the RDNA adopted a “Whole of Lebanon” approach in which the World Bank Group closely engaged with representatives and stakeholders from distinct spheres and segments of Lebanese society.¹⁸ These engagements included a variety of individuals from national and local government authorities, the United Nations (UN) agencies, local and international non-governmental organizations (NGOs), civil society organizations (CSOs), the private sector, youth organizations, academia, and donor agencies. This approach has helped to inform RDNA findings, analyses, and recommendations on emerging needs and priorities of the affected population. Special attention was made to include stakeholders actively involved in the process of assessing damages, providing aid, and reconstructing Beirut. To stimulate discussion, virtual meetings were held with large focus groups and smaller, in-person and virtual, meetings with experts to discuss technical details. This feedback and engagement process will continue throughout the development and implementation of the Reform, Recovery and Reconstruction Framework (3RF).

Methodology

The RDNA assesses (i) damages to physical assets; (ii) ensuing economic losses; and (iii) the recovery and reconstruction needs. The damages, economic losses and recovery and reconstruction needs have been separated between public and private as far as possible. This has been done by combining and triangulating ground-based data and remotely collected data, obtained through high resolution satellite and drone imagery. **Damage** is estimated as the replacement value of totally, partially, or minimally damaged physical assets. **Losses** are estimated in the flows of the economy that arise from the temporary absence of the damaged assets. **Recovery and reconstruction needs** are divided into two broad categories: infrastructure reconstruction and service delivery restoration and are costed in the immediate (CY2020) and short-term (CY2021).

Damage

For the damage estimation, the average was calculated based on the number of damaged facilities, their physical status (minimally damaged, partially damaged, or completely destroyed), and the estimated pre-disaster unit cost associated with each asset class. These unit costs were estimated by the sector specialists, local contacts, and others. Hence, damages is a stock variable.

Losses

The assessment largely also estimated losses, that is, changes in economic flows arising from the disaster, that occur until full recovery is achieved. Typical losses included the decline in output in productive sectors (for example, Commerce and Industry and Finance), as well as lower revenues and higher operational costs in the provision of services (for example, Education, Health, and Water Supply and Sanitation sectors). Losses are expressed in current values. Hence, losses is a flow variable.

18 See Annex: Stakeholder Feedback and Engagement Meetings

Public Sector Recovery and Reconstruction Needs

The Beirut RDNA also presents an estimation of public sector recovery and reconstruction needs in the immediate-term (up to end-CY2020) required for urgent priority needs. Short-term needs (up to end-CY2021) have also been assessed along with identification of needed reforms to scale up recovery based on principles of transparency, inclusion, and accountability. Reconstruction needs across the various sectors convert the damages to current prices, considering inflation, security, and insurance premiums, as well as a “build back better” factor. Recovery needs also take into account the “softer” and non-infrastructure-related aspects, such as staffing, equipment and/or material, which are necessary to provide services at par with pre-disaster levels. Once calculated, both recovery and reconstruction needs are prioritized and distributed over the immediate and short-term.¹⁹ Based on the estimation of damages as well as qualitative impacts, each sector has specified recovery needs and suggested sequenced priority interventions. This includes the cost of reconstruction of destroyed assets, the provision of services, improved specifications, and risk reduction measures.

Building Back Better and Smarter

The needs and proposed interventions include a “**build back better**” component, which incorporates actions that promote greater inclusion, enhanced transparency and accountability, and ensures the sustainability of the recovery process. It reduces vulnerability and increases the resilience of physical infrastructure, societal systems, livelihoods, economies, and the environment by integrating resilience-building measures during the recovery and reconstruction phase. The assessment adapts from the Post-Disaster Needs Assessment (PDNA) methodology,²⁰ which was jointly developed by the European Union, the World Bank Group, and the United Nations, and has been utilized in numerous rapid assessments around the world.

This disaster can also be utilized as an opportunity to not only *build back better*, but to “*build back smarter*.” Building back smarter, incorporates notions of proper “sizing” and “siting.” If an asset is damaged or destroyed, the rehabilitation process should consider if rebuilding the asset to the same size and in the same location as before the disaster is still appropriate, or if these disparities can be addressed during the rehabilitation process, thereby increasing the resilience of the asset.

Limitations and Key Challenges of the Assessment

Challenging Situation

On August 5, 2020, the Government of Lebanon declared a two-week state of national emergency, therein instructing the Lebanese Armed Forces (LAF) to take overall control of the security situation in Beirut and assume the lead role in the disaster response. Soon thereafter, Prime Minister Hassan Diab and his cabinet resigned on August 10, 2020. The capacity challenges as a result of the explosion, renewed COVID-19 lockdowns, and pre-existing socio-economic conditions, further exacerbate the already challenging environment in which the assessment was conducted.

Data Limitation

Severe damage to the infrastructure limited ground-based data collection for the assessment which began on the day after the explosion. With the use of remote data tools such as drone and high-resolution satellite imagery, the RDNA team was able to overcome the data challenges. While this

19 For the purposes of this assessment, the immediate-term is the remaining months of Calendar Year 2020 (September – December 2020) while the short-term is Calendar Year 2021 (January – December 2021).

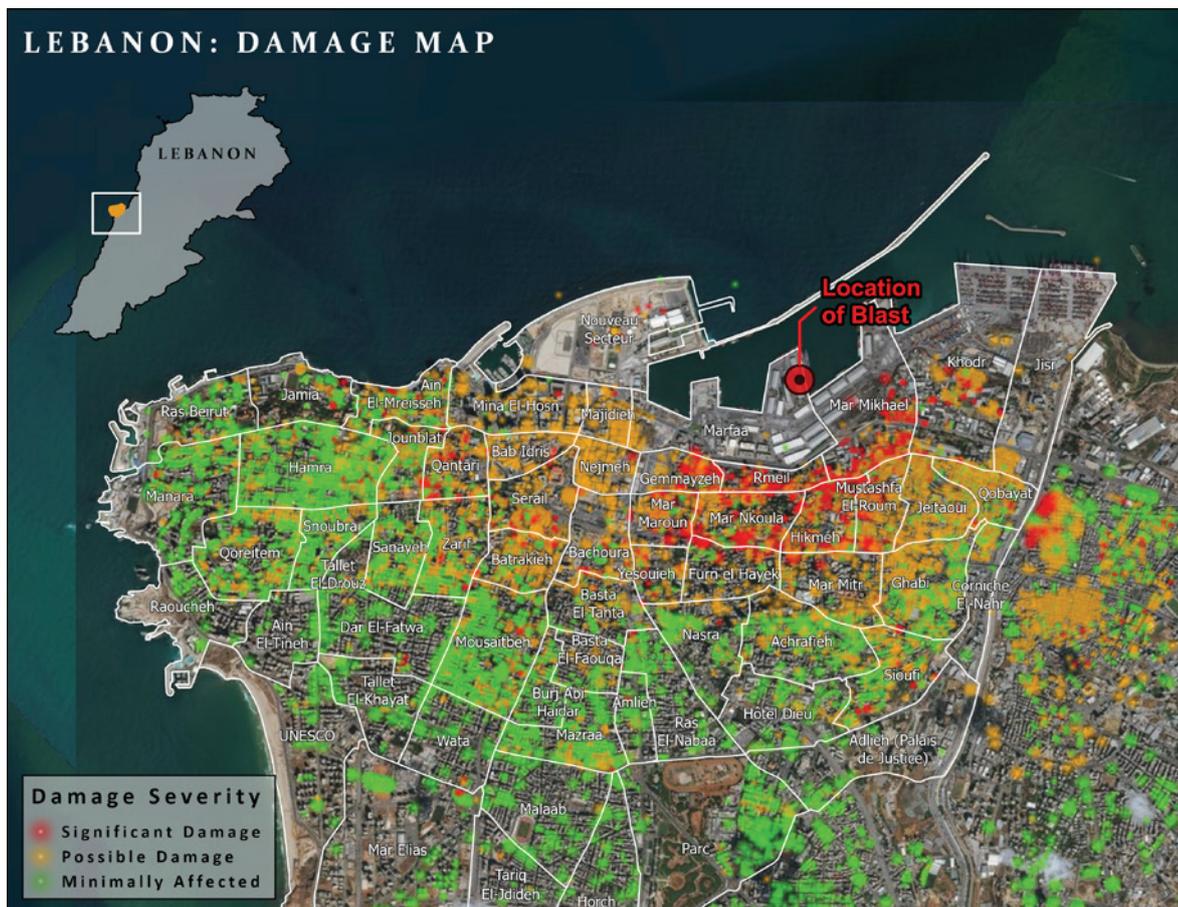
20 *PDNA methodology*.

RDNA will feed into a comprehensive recovery strategy, further assessments are necessary to generate more disaggregated data. Additionally, each sector made reasonable assumptions in line with their data gaps to estimate costs.

COVID-19

Government measures to prevent the spread of COVID-19 did not allow for most team members to travel to the disaster location, limiting the number of in-person exchanges, and minimizing the number of in-person validation meetings. This was mitigated by relying on staff already based in Beirut and utilizing virtual communication.

Figure 2. Beirut: Damage Map



Ipsos Risk Analytics/World Bank (August 2020)



II. Assessment Results at a Glance

*Disaster Damages*²¹

The overall damage incurred as a result of the explosion is in the range of US\$ 3.8 and 4.6 billion. In the Social Sectors, Housing and Culture are the most affected, enduring substantial damage totaling between US\$ 1.9 – 2.3 billion and US\$ 1.0 – 1.2 billion, respectively. Tourism, and Commerce and Industry incurred most of the damage among the Productive and Financial Sectors with damages between US\$ 170 – 205 million and US\$ 105 – 125 million respectively. Damage to Infrastructure sectors was concentrated on the Transport and Port sector, ranging between US\$ 280 – 345 million. In the Cross-cutting sectors, Governance suffered the most damage, between US\$ 65 – 80 million.

*Disaster Losses*²²

The RDNA also estimates economic losses ranging between US\$ 2.9 and 3.5 billion. Broken down by sector, estimated losses in the housing sector were highest, between US\$ 1.0 – 1.2 billion, the transport sector and port between US\$ 580 – 710 million, culture sector between US\$ 400 – 490 million. The commerce and industry sector is estimated to have incurred between US\$ 285 – 345 million in losses followed by the Tourism sector, between US\$ 190 – 235 million.

*Recovery and Reconstruction Needs*²³

The public sector reconstruction and recovery needs for CY2020-2021 are estimated in the range of US\$ 1.8 and 2.2 billion, with between US\$ 605 – 760 million needed in the immediate-term (September-December 2020) and between US\$ 1.18 – 1.46 billion in the short-term (CY2021). Housing sector recovery and reconstruction needs are estimated between US\$ 220 – 265 million. Other social sectors with high recovery needs include culture and health, which are estimated between US\$ 250 – 310 million and between US\$ 65 – 80 million, respectively. Tourism, and Commerce and Industry have the highest estimates for recovery and reconstruction needs among the Productive and Financial Sectors, between US\$ 170 – 210 million and between US\$ 165 – 205 million, respectively. Transport tops Infrastructure Sectors, with needs in the range of US\$ 425 – 520 million. Meanwhile, recovery and reconstruction needs for the Governance Sector are estimated between US\$ 180 – 215 million.

21 **Damage** is estimated as the replacement value of completely, partially, or minimally damaged physical assets.

22 **Losses** are estimated in the flows of the economy that arise from the temporary absence of the damaged assets.

23 **Recovery and reconstruction needs** are divided into two broad categories: infrastructure reconstruction and service delivery restoration and are costed in the immediate- and short-term. The needs and proposed interventions include a “**build back better**” component which incorporates actions that promote greater inclusion, enhanced transparency and accountability, and ensures the sustainability of the recovery process.

Table 1. Damage, Losses, and Public Sector Needs by Sector (in US\$ million)

Sector	Damages		Losses		Total Needs	
	Low	High	Low	High	Low	High
Productive and Financial Sectors						
Commerce and Industry	105	125	285	345	165	205
Tourism	170	205	190	235	170	210
Financial	10	15	-	-	35	45
Productive and Financial Sectors Total	285	345	475	580	370	460
Social Sectors						
Social Protection and Jobs	-	-	-	-	35	40
Housing	1,875	2,290	945	1,155	220	265
Education	15	20	70	85	-	10
Culture	1,010	1,235	400	490	250	310
Health	95	115	200	245	65	80
Social Sectors Total	2,995	3,660	1,615	1,975	570	705
Infrastructure Sectors						
Water Supply and Sanitation	40	45	-	5	45	60
Energy	40	50	55	70	55	70
Transport and Port	280	345	580	710	425	520
Municipal Services	30	35	75	90	40	50
Infrastructure Sectors Total	390	475	710	875	565	700
Cross-Cutting Sectors						
Governance	65	80	65	80	180	215
Environment	20	25	-	-	75	100
Social Sustainability and Inclusion	-	-	-	-	25	35
Cross-Cutting Sectors Total	85	105	65	80	280	350
Grand Total	3,755	4,585	2,865	3,510	1,785	2,215

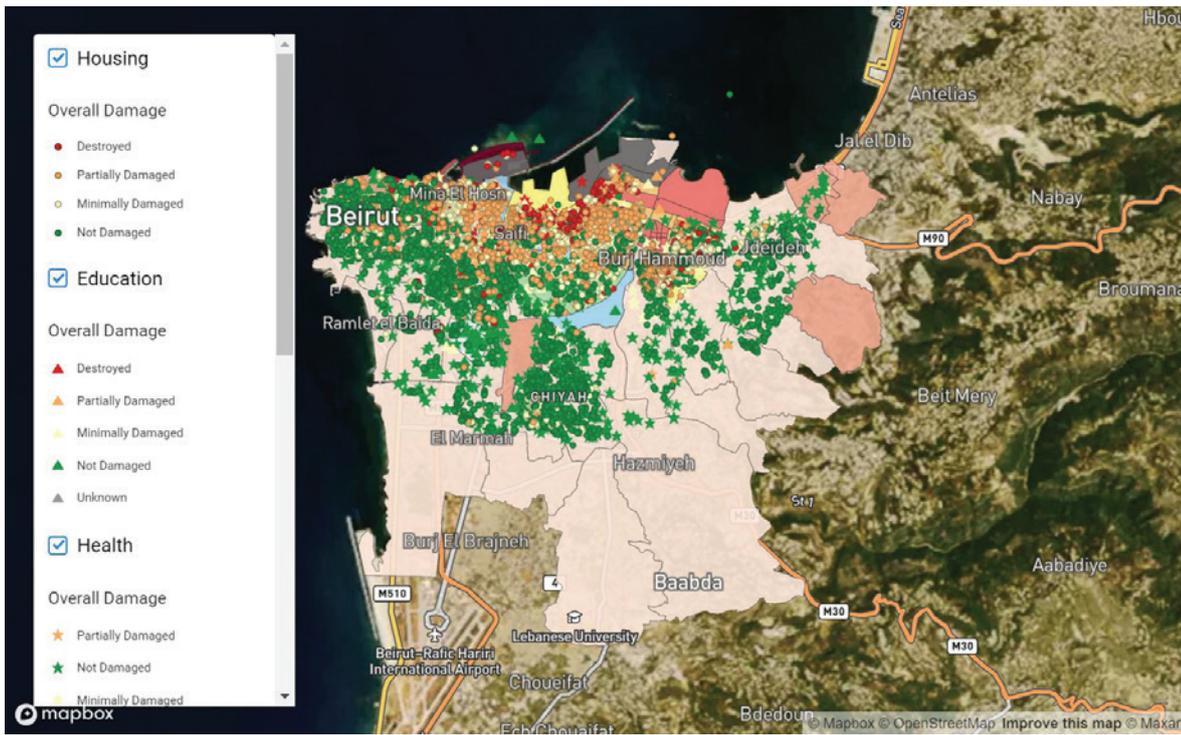
** The dash (-) in the table above signifies a negligible amount

Table 2. Prioritized and Sequenced Public Sector Needs by Sector (in US\$ million)

Sector	Total Needs		Immediate-Term (CY 2020)		Short-Term (CY 2021)	
	Low	High	Low	High	Low	High
Productive and Financial Sectors						
Commerce and Industry	165	205	150	185	15	20
Tourism	170	210	75	90	95	120
Financial	35	45	15	20	20	25
Productive and Financial Sectors Total	370	460	240	295	130	165
Social Sectors						
Social Protection and Jobs	35	40	35	40	-	-
Housing	220	265	30	35	190	230
Education	-	10	-	5	-	5
Culture	250	310	75	95	175	215
Health	65	80	20	25	45	55
Social Sectors Total	570	705	160	200	410	505
Infrastructure Sectors						
Water Supply and Sanitation	45	60	-	5	45	55
Energy	55	70	5	10	50	60
Transport and Port	425	520	40	50	385	470
Municipal Services	40	50	25	30	15	20
Infrastructure Sectors Total	565	700	70	95	495	605
Cross-Cutting Sectors						
Governance	180	215	55	65	125	150
Environment	75	100	75	95	-	5
Social Sustainability and Inclusion	25	35	5	19	20	25
Cross-Cutting Sectors Total	280	350	135	170	145	180
Grand Total	1,785	2,215	605	760	1,180	1,455

** The dash (-) in the table above signifies a negligible amount

Figure 3. Damage to Housing, Education, and Health Sectors – Greater Beirut Area



Assessment
Results
at a Glance

Ipsos Risk Analytics/World Bank (August 2020)



III. Macroeconomic Impact Assessment



Beyond the human tragedy, the economic impact of the explosion is notable at the national level despite its geographical concentration. This reflects: (i) the demographic clustering in Beirut and its suburbs; (ii) the prominence of economic activity in the afflicted areas, especially in regard to commerce, real estate, and tourism; and (iii) the fact that the PoB is the main point of entry/exit for the small open economy, channeling 68 percent (2011-2018 average) of the country's total external trade.²⁴

The main economy-wide effects include: (i) losses in economic activity caused by the destruction of physical capital; (ii) trade disruptions resulting in higher transaction costs of external trade; and (iii) the loss of fiscal revenues due to the first two effects, and due to tax exemptions introduced by the Government.

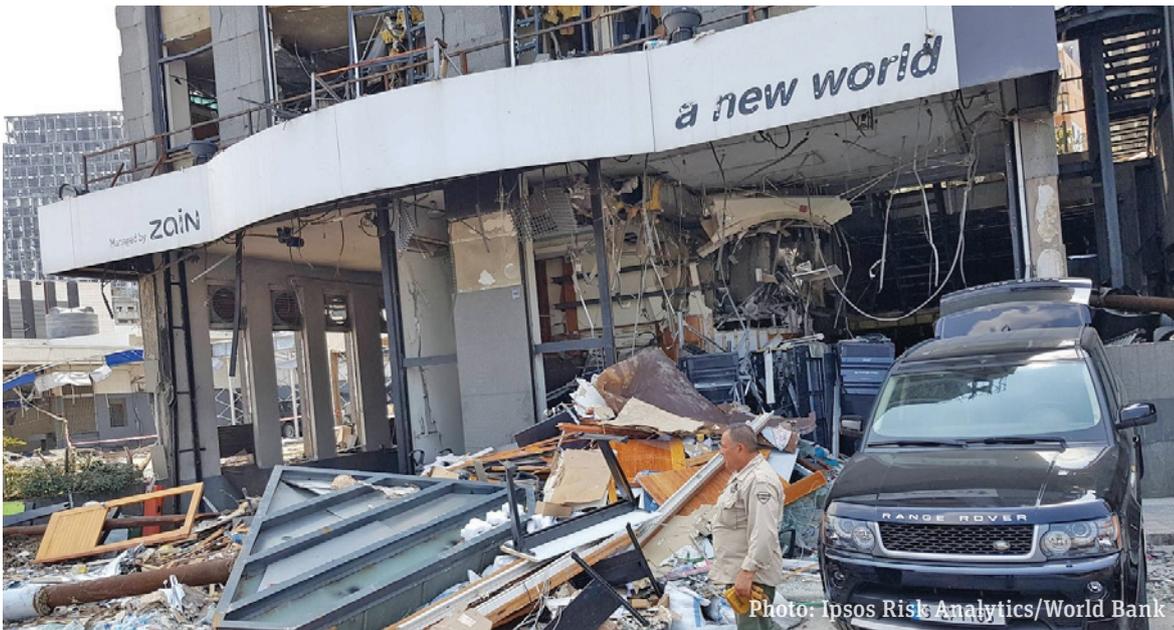
Even prior to the explosion, Lebanon was facing compounded crises. In conjunction with large scale protests starting in October 2019, the Lebanese economy plunged into a financial crisis brought about by a sudden stop in capital inflows, which precipitated banking, debt, and exchange rate crises. Subsequently, on March 7, 2020, the Government defaulted on a \$1.2 billion Eurobond redemption, marking the first-ever sovereign default for Lebanon. Further, on March 18, 2020, the Government declared a State of General Mobilization giving authorities a legal mandate to impose special measures to counter COVID-19, including the closure of the borders (airport, sea and land), and public and private institutions. As a result, the pre-explosion economy was already in a severe contraction, with real GDP growth in 2020 expected to be well into the negative double digits.

The disaster adds to the urgency for a credible, comprehensive, and coordinated macro-financial stability strategy, within a medium-term macro-fiscal framework. This strategy would be based on: (i) a debt restructuring program to achieve debt sustainability over the medium-term; (ii) a comprehensive financial sector restructuring to restore solvency of the banking sector; (iii) a new monetary policy framework to rebuild confidence and stability in the exchange rate and control prices; (iv) a phased fiscal adjustment to regain confidence in fiscal policy; (v) growth enhancing reforms; and (vi) social protection measures.

A Crisis Context

Lebanon's financial and economic crisis was a culmination of long-term deficiencies in economic fundamentals. The post-civil war economy in Lebanon (post-1994) can be characterized as a highly deficit economy that depended on short-term capital inflows, in the form of bank deposits, to finance long-term, sizable twin (current account and fiscal) deficits. This generated a frail macro-fiscal framework underpinned by unsustainable debt ratios and persistent and sizable fiscal and current account deficits, exposing the country to significant refinancing risks. Gross public debt reached over 170 percent of GDP by end-2019, registering one of the highest ratios in the world. Almost 40 percent of gross public debt is denominated in foreign currency. The cost of debt amounted to approximately 10 percent of GDP annually, consuming about half of domestic revenues and driving a large overall fiscal deficit that surpassed 11 percent of GDP in 2019. Externally, a large trade deficit leads to a sizable structural current account deficit, which has averaged close to 20 percent of GDP over the 2011-2018 period.

The eruption of the conflict in Syria exposed Lebanon's economic vulnerabilities. Since 2011, traditional drivers—real estate, construction, finance and tourism—have suffered greatly from the regional turmoil. This, combined with significant interruptions in governance and near-complete absence of economic reforms in the face of large shocks, led to persistently sluggish real GDP growth that averaged 1.2 percent annually (down from an average of 4-5 percent). The regional turmoil also exacerbated already existing external imbalances increasing an already sizable current account



deficit from a pre-conflict (2002-2010) average of 16.3 percent of GDP to an average of 20.1 percent of GDP over the 2011-2017 conflict period. Simultaneously, the regional turmoil resulted in fewer sources of inflows for Lebanon's capital and financial accounts that are critical for macroeconomic stability under the fixed exchange rate regime.²⁵ Furthermore, the influx of Syrian refugees—with those registered at the United Nations High Commissioner for Refugees (UNHCR) at just under one million, and more unregistered—has placed added strain on Lebanon's infrastructure and public services. Such vulnerabilities have compounded, resulting in sluggish economic growth, elevated macro-financial risks and increased unemployment and poverty.

The Macro Assessment

Building on sector assessments of damages and losses, this preliminary report provides a macroeconomic assessment of the disaster.²⁶ A detailed macroeconomic report that will provide more in-depth analysis on the broader macroeconomy and poverty will be forthcoming.²⁷ In the RDNA, sector assessment estimates of damages present absolute losses to the capital stock of each sector of the economy. This shock to the stock of capital is then introduced into a Computable General Equilibrium (CGE) model, which is used to estimate the impact on real GDP growth. We also undertake scenario analysis to gauge the additional impact of potential disruptions to trade caused by the damage at the Port of Beirut. Results from this rapid assessment suggest the following key impact on the economy in the short- and medium-term:

25 In the pre-conflict period (2002-2010), the main inflows were sourced from net foreign direct investments (FDI) and net other investments (loans, currency and deposits), averaging 9.8 percent of GDP and 17 percent of GDP respectively. The conflict period (2011-2017) witnessed a sharp decline in net FDI and other investments, averaging instead 3.4 percent of GDP and 13.8 percent of GDP, respectively.

26 This builds on World Bank (2020), *A Disaster Event in Beirut, A Preliminary Assessment*, published on August 9, 2020.

27 The Lebanon Economic Monitor (LEM) is the World Bank's main publication on the Lebanese economy, informing on recent economic developments and policies, updating macroeconomic projections and examining poverty incidence. In the forthcoming issue, the LEM will provide an assessment of the broader economic context, which necessarily includes the ongoing financial and economic crisis as well as COVID-19 effects. It will also include a Special Focus section focused on critical reform needs for the country as it faces compounded crises.

In the short-term

The disaster is estimated to cause: (i) up to 0.4 and 0.6 percentage point (pp) declines in the growth rate of real GDP in 2020 and 2021, respectively, due to losses in the stock of physical capital; and potentially; (ii) import constraints that could subtract an additional 0.4 to 1.3 pps from growth in 2020 and 2021, respectively. These impacts are beyond the double-digit contractions in real GDP growth stemming from the pre-existing economic and financial crisis and COVID-19 effects; moreover, the latter impact is specifically dependent on the extent of import constraints caused by the explosion, which remain uncertain. The explosion is expected to cause a further loss in output due to discontinued economic activity resulting from physical damage to the country's main port, and to the busy retail and commercial centers of Beirut.

Increased poverty incidence is expected due to: (i) the direct loss of livelihood; (ii) the decline in aggregate output; (iii) higher inflation rates; (iv) the loss in quantity and quality of essential services; and (v) deteriorating social indicators (especially health and education). Pre-disaster event estimates of general and extreme poverty rates were 45 and 22 percent respectively.²⁸

To the extent that imports are constrained, there will be an increase in transactions costs of external trade. This will push up the cost of imports and domestic inflation, further impoverishing the Lebanese who are already reeling from very high inflation rates, sovereign default, and the broader economic crisis.

To the extent that imports are constrained, the forced improvement in the trade balance would stem from the reduced possibility of trading in goods with the outside world. While this affects both imports and exports, the disaster will predominantly curtail the former (in absolute terms), since merchandise imports average 4.5 times merchandise exports in value. Simultaneously, remittances inflows are projected to increase due to the well documented "insurance" behavior observed in countries with large diasporas (i.e., diaspora increases remittances back home in case of natural disasters).²⁹ Hence, a reduced current account deficit, owing to a combination of an improved trade balance and increased remittances, can provide some temporary relief to balance of payments pressures.

A notable loss in Government revenues, dragged down by falling revenues from VAT and custom taxes and fees, is also expected.

Over the medium-term

To build back better, Lebanon will have to prioritize building better institutions, good governance, and a better business environment alongside physical reconstruction. However, given Lebanon's state of insolvency (sovereign, banking system) and its lack of sufficient foreign exchange reserves, international aid and private investment will be essential for comprehensive recovery and reconstruction. The extent and speed to which aid and investments are mobilized will depend on whether the authorities and the Parliament can swiftly act on much needed fiscal, financial, social, and governance reforms. Without reforms, there can be no sustainable recovery and reconstruction, and the social and economic situation will continue to worsen.

28 Given the gender inequity within Lebanon's economy, more analysis needs to be done on the gendered macroeconomic impact.

29 The "insurance" behavior is expected to be reinforced by a change in policy by the central bank following the disaster event, allowing transfers via non-banking financial institutions (money transfer companies) to be paid out in dollars. Just prior to the disaster event, the central bank mandated that these transfers were to be disbursed in LL after being converted at a below market exchange rate, in effect, imposing a large tax on remittances. Remittances accounted for 6 percent of GDP in 2019.

Table 3. Provisional Estimates³⁰ of Selected Macroeconomic Indicators prior to the PoB Explosion, and hence Non-inclusive of it

	2015	2016	2017	2018	2019	2020	2021
	Act.	Act.	Act.	Act.	Est.	Proj.	
Real sector							
	(annual percentage change, unless otherwise specified)						
Real GDP	0.2	1.5	0.9	-1.9	-6.0	-18.6	-12.1
Real GDP per Capita ¹	-3.9	-1.2	-0.6	-2.5	-6.5	-19.0	-12.5
Money and prices							
CPI Inflation (p.a)	-3.7	-0.8	4.5	6.1	2.9	90.0	64.0
Money ²	5.1	7.3	4.2	3.0	-6.7	150.0	75.0
Central Government Finance							
	(percent of GDP, unless otherwise specified)						
Revenue (including grants)	19.2	19.4	21.9	21.0	20.8	10.7	12.7
o/w. tax revenues	13.7	13.7	15.5	15.4	15.6	7.6	8.6
Total expenditure and net lending	26.9	28.6	28.6	32.0	31.4	20.9	22.2
Current	25.5	27.3	27.1	30.3	30.1	19.7	20.7
o/w Interest Payment	8.9	9.3	9.4	9.8	10.1	6.5	5.3
Capital & Net Lending (excluding foreign financed)	1.4	1.4	1.5	1.7	1.3	1.2	1.5
Overall balance (deficit (-))	-7.7	-9.3	-6.7	-11.0	-10.6	-10.2	-9.5
Primary Balance (deficit (-))	1.2	0.0	2.7	-1.2	-0.5	-3.7	-4.2
External sector							
	(percent of GDP, unless otherwise specified)						
Current Account Balance	-17.0	-20.5	-22.9	-24.4	-22.4	-8.1	-0.3
Trade Balance	-22.9	-23.6	-24.7	-24.8	-25.5	-16.2	-9.8
Net private current transfers:	6.8	4.8	2.3	2.5	5.6	6.1	7.6
Net Remittances	7.2	6.6	5.2	4.2	6.1	11.3	13.9
Net Income receipts	-0.9	-1.7	-0.5	-2.1	-2.5	2.0	2.0
Capital Accounts	0	0	0	0	0	0	0
Gross Reserves (months of imports GNFS) ^{3,4}	13.8	15.2	15.6	14.3	14.2	19.3	15.8
Total Public Debt							
Total Debt Stock (in million US\$) ⁵	70,325	74,900	79,530	85,139	88,900	51,244	42,863
Debt-to-GDP ratio (percent)	140.8	146.3	149.7	154.9	172.4	171.3	176.6
Memorandum Items:							
Nominal GDP (in billion LBP)	75,284	77,192	80,110	82,854	80,141	123,968	178,707
Average Exchange Rate (LBP/US\$) ⁶	1,508	1,508	1,508	1,508	1,554	4,144	7,364
GDP (in million US\$)	49,939	51,205	53,141	54,961	51,571	29,915	24,268

Source: Government data, and World Bank staff estimates and projections.

¹ Population figures, which include Syrian refugees registered with the UNHCR, are taken from the United Nations Population Division

² Prior to 2020 we use M3, including non-resident deposits; 2020 and after, we use M0 (currency in circulation)

³ Gross Reserves (months of imports GNFS) = (Imports of Goods & Services / Gross Res. excl. Gold)*12

⁴ Total Imports using the BOP data from the Quarterly Bulletin of BDL

⁵ An assumption of a 25% cut in facevalue of outstanding Eurobonds was made.

⁶ Prior to 2019 we use the official exchange rate; 2019 onward we use WB staff estimates.

30 Projections for CY2020 and CY2021 are based on a low case scenario of no major policy reforms and inadequate investments in recovery and reconstruction.

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IV. Summary of Sector Reports



Social Sectors

Housing

Damage: US\$ 1.9 – 2.3 billion

Losses: US\$ 1.0– 1.2 billion

The explosion is estimated to have caused between US\$ 1.9 – 2.3 billion in damage to the Housing sector, adversely affecting an estimated 351,000 residents of Beirut.³¹ Of 171,887 housing units assessed, 8 percent were deemed completely destroyed, 15 percent partially damaged, and 28 percent minimally damaged. About 49 percent of the total assessed stock remains undamaged. Of all asset classes, low-income housing units³² sustained the most damage, with 64 percent of these units having sustained some form of damage. This amounts to at least 22,000 low income residential units. Losses in the housing sector are estimated between US\$ 1.0 – 1.2 billion, which reflects particularly the high proportion of renters in the Beirut population, and the city's high rental costs.

Recovery and Reconstruction Needs: US\$ 220.0 – 265.0 million

The provision of needs for temporary rental and winterization repair of residential buildings for the vulnerable, low income, and middle income³³ households is estimated between US\$ 30.0 – 35.0 million in the immediate-term (CY2020). The short-term (CY2021) needs are estimated between US\$ 190.0 – 230.0 million. In the **immediate-term**, priority should be given to: (i) the repair of minimally and partially damaged housing for the lower income households; (ii) provision of shelter for the poor and most vulnerable including refugees and migrant workers; and (iii) developing a

31 This estimate assumes an average 4-person household. This is based on an *estimate by ILO* of a 3.4household, adjusted to include refugee households, which are generally larger in size (~6).

32 Combined low-income apartment buildings and low-income, single-family housing asset typologies.

33 The country is witnessing a massive increase in poverty (28 to 55 percent) and extreme poverty (8 to 23 percent) 2019–2020, with the middle class shrinking from 57 percent to 40 percent (2019–2020). Property insurance penetration is extremely low at all income levels and will not be a major factor for reconstruction.

comprehensive urban housing recovery strategy including organizational and implementation arrangements and assistance schemes.

In the **short-term**, priority should be given to: (i) stabilizing residential buildings at risk of collapse (especially heritage housing); (ii) housing value chain monitoring and key indicators; (iii) historic asset repair, reconstruction and stabilization; (iv) developing support systems to facilitate longer-term repair and reconstruction; and (v) addressing key regulatory impediments such as construction permits.

The implementation of the recovery and reconstruction strategy at the city and neighborhood level will require technical and financial support, and capacity-building in addition to strengthening the enabling regulatory environment for both housing stock owners and contractors, including for instance reconstruction permits issued by governmental agencies. Such a strategy would outline the organizational approach, including roles of all governmental and non-governmental stakeholders; present the financing plan; identify target beneficiaries; and propose a sequencing of interventions to ensure transparent and efficient implementation of housing recovery.

In developing the strategy, care should be taken to incorporate all those affected, whether they are owners or renters, or live in formal and informal tenure situations, and to consider a range of options and targets in setting recovery priorities. These priorities should be disaggregated at the neighborhood level and be in line with the overall urban economic recovery. Lebanon's reform agenda would have to be strongly aligned with the institutional and regulatory requirements outlined in the reconstruction strategy.

Health

Damage: US\$ 95.0 – 115.0 million

Losses: US\$ 200.0 – 245.0 million

As a result of the explosion in Beirut, the health sector incurred significant damages in the range of US\$ 95.0 – 115.0 million. About 36 percent of health facilities (292 of 813 facilities) were affected, including public and private hospital buildings, primary healthcare centers (PHCCs) and dispensaries, private clinics, pharmacies, and stand-alone laboratories/radiology centers. Damages to hospital buildings are estimated in the range of US\$ 75.0 – 90.0 million.

In addition to the physical damages to the health infrastructure and equipment, the health sector also experienced severe losses due to the radical increase in utilization of healthcare services after the explosion, depletion of medical supplies (especially Personal Protective Equipment (PPE) that were already in severe shortage), and indirect economic losses due to decreases in revenues at medical facilities. The losses also acknowledge the compounded vulnerability due to the COVID-19 pandemic, projecting a surge in the number of cases in the weeks following the explosion. Total losses in the health sector are estimated between US\$ 200 – 245 million. The Years of Life Lost (YLL) and Disability-Adjusted Life Years (DALYs) associated with the explosion is beyond the scope of this rapid assessment. Further studies may be required to assess the impact of the explosion on human capital.

Recovery and Reconstruction Needs: US\$ 65.0 – 80.0 million

In CY2020 and CY2021, recovery should focus on the continuity of quality, accessible and affordable health services. In the **immediate-term**, priority should be given to: (i) rehabilitating moderately and minimally damaged health facilities, including primary health care centers and key public facilities such as the public Karantina hospital and central drug warehouse; (ii) restoring depleted medical supplies and procurement of essential commodities, especially for COVID-19 response; and

(iii) ensuring access to mental health and psychosocial support for all the affected communities and essential primary and secondary healthcare services for the uninsured.

In the **short-term**, recovery should focus on ensuring the continuity of health service provision and availability of financing for essential health services, including a specific focus on reproductive health services (maternity, infant care). This along with the associated reforms, includes: (i) establishing a sustainable flow of supplies, vaccines and vaccination commodities, and medications; (ii) the reconstruction of the more damaged public health facilities; (iii) mapping out the service delivery model to ensure access to, and coverage for health services for the uninsured and low-income groups at both primary as well as secondary level; (iv) clearing government hospital arrears and injecting resources to increase their liquidity and maintain their operations including medical staff; (v) engaging with the private sector and put a system in place for hospital coverage including mechanisms for identifying the uninsured, revising the pricing and reimbursement structure and establishing financing and monitoring mitigation measures; and (vi) integrating digital technology in service delivery, especially to support the COVID-19 response. Public sector needs for CY2021 are estimated in the range of US\$ 45.0 – 55.0 million.

Education

Damage: US\$ 15.0 – 20.0 million
Losses: US\$ 70.0 – 85.0 million

The data available from remote means assessed 241 education facilities within a five km radius from the site of the explosion in Beirut and Mount Lebanon³⁴ (comprised of schools, early childhood development (ECD) institutions, universities, and education administrative offices) for damages. Losses are substantial as more students are expected to shift from private to public school, and dropouts are expected to increase. The Ministry of Education and Higher Education (MEHE) estimates more than 170,000 students at the national level are expected to transition from private schools to public school, with an estimate transition of about 30,000 students (40 percent of those in private schools in Beirut and Mount Lebanon) expected to withdraw from private schools causing significant revenue losses and greater intake in public schools. In addition, with 10 facilities completely destroyed, students would need to be transferred to rented buildings. This will present additional pressure on a system already weak in absorption capacity.

Recovery and Reconstruction Needs: US\$ 10.0 million

The most important requirement of the education system is to reopen schools on time for the new academic year at all levels. To that end, reconstruction and rehabilitation of damaged schools and educational facilities will be most urgently needed. Priorities in the **immediate-term** include: (i) coordinated reconstruction, rehabilitation and recovery efforts; (ii) integrating psychosocial wellbeing into scholastic programming and beyond including training of teachers and referrals of the severe cases; and (iii) remote learning support to institutions and/or to families with children affected by the PoB explosion.

In the **short-term**, priorities include: (i) localizing the back to school plan; (ii) addressing and supporting the lowest performing schools, some of which are within the explosion site; (iii) improving the quality of learning, notably under remote learning scenarios; (iv) regulating the private sector for quality delivery of services; and (v) improving the relevance and effectiveness of higher education. These are immense challenges, particularly for public schools as prior to the explosion, there was

34 Out of the 241 facilities mapped, 201 facilities were located in Beirut and 40 facilities were located in Mount Lebanon.

already a need for construction, expansion, rehabilitation, provision of furniture and equipment to schools, and improving learning.

Given the length of time it may take to recover physical infrastructure, some schools will need to rely on alternatives, including remote learning. Therefore, there is an immediate need for the training of teachers on both remote quality learning and psychosocial support. Both public and private education systems will need to ensure the appropriate health and safety measures due to the COVID-19 pandemic, to be equipped with appropriate remote learning equipment to reach out to the most vulnerable children and support communities as they recover physically, psychologically and financially from the effects of the explosion. Furthermore, this crisis offers key reform opportunities to “build back better” that could ensure better learning at all schools, both private and public, and access to the most vulnerable, including refugee children, to school. For instance, MEHE needs to bring together stakeholders and create a platform (e.g. Education forum) that would use evidence from recent studies in the sector to launch a consultative preparation of a 5-year reform plan.



Photo: Mohamad Azakir/World Bank

Culture

Damage: US\$ 1.0 – 1.2 Billion

Losses: US\$ 400.0 – 490.0 Million

The explosion impacted the most historic neighborhoods of Beirut, with a high concentration of heritage assets and Creative and Cultural Industry (CCI) businesses. 240 assets of religious significance out of 381 in the assessed areas have been impacted, as well as 11 out of 25 national monuments, 9 out of 16 theaters and cinemas, 6 out of 8 museums, 24 out of 25 libraries and archives, and 652 out of 755 heritage buildings (public and private), in addition to historic housing. Beside damage to tangible cultural heritage, the sector has also experienced severe loss of cultural production and intangible heritage, with impacts on associated livelihoods, and risk of permanent exodus from the sector of those affected. The explosion damaged 713 CCI businesses, out of 850 in the affected areas, and 64 galleries and cultural spaces out of 88. Each CCI business, gallery, and cultural space provided on average five full-time jobs, mostly to youth.

Recovery and Reconstruction Needs: US\$ 250.0 – 310.0 million

These figures represent the immediate and short-term needs for CY2020-2021 related to publicly owned assets and public goods. The overall needs are estimated to be about four to five times this amount, based on initial data and assessment. Detailed assessments will need to be carried out in the coming months. There is need to ensure transparency and oversight of decisions on planning/rehabilitation/destruction of damaged assets and a mechanism to avoid speculation. In the **immediate-term**, priorities include: (i) implementing shoring, propping, and protection measures; (ii) enforcing adequate legal measures to prevent demolition; and (iii) supporting cultural activities and CCI businesses. Short-term activities would include implementing and enforcing the suggestions above.

Moreover, **short-term** priorities include: (i) carrying out emergency management measures, inventories, and immediate conservation to avoid loss; and (ii) repairing and rehabilitating assets as feasible to bring them back to their function. Depending on assets, these measures can be sustained by the public sector through direct financing or incentives.

Social Protection and Jobs

The Port of Beirut (PoB) disaster constitutes a significant shock to the country which was already dealing with compounded economic, public health, and social crises. While the current situation would put at risk hard-won gains in human capital investment from a broader perspective, impacts on poverty and inequality cannot be ruled out. Therefore, such impacts will have to be further analyzed. From a social protection and jobs perspective, the indirect effects of the disaster is widening the gaps of unmet needs. Prior to the crisis, poor households affected by this disaster had to adapt their expenditures and consumption patterns to prioritize their most urgent and emerging needs. This may have led to the use of negative coping strategies, thereby delaying needed expenditures for education, nutrition, and healthcare needs.

Recovery Needs: US\$ 35.0 – 40.0 million

In the absence of a national cash transfer program or a national social protection strategy, the disaster underscores the need to provide a complementary package of services, including immediate, emergency social safety net support and interventions to the poorest, most vulnerable and affected households. Affected households in the PoB disaster area require immediate humanitarian assistance in terms of shelter, livelihoods, food security, water and sanitation, as well as protection.

Thus, **immediate-term** priorities include: (i) a social safety net to cushion vulnerable households from longer-term implications; (ii) identifying linkages and complementarity in support provided to families across different interventions and ensuring coordination with stakeholders; and (iii) standardizing and harmonizing support instruments – mainly cash based interventions targeting affected households.

In the **short-term**, priorities include: (i) scaling up investments in social assistance and safety net infrastructure to expand coverage, referrals, grievance redress mechanisms, and targeting systems; and (ii) working with relevant stakeholders to advance reforms that target structural challenges to the existing social protection framework—in the area of social insurance, pensions, improving the quality and access to basic services, and labor market policies. An estimated US\$ 35.0 – 40.0 million is needed for an immediate- to short-term large-scale cash transfer intervention to meet the basic needs of 90,000 affected individuals, create short-term jobs, and decelerate worsening socioeconomic vulnerabilities across different population groups, such as affected day laborers, women and youth, over the remainder of CY2020.

Longer-term recovery requires the completion of the National Social Protection Response Strategy that was under development, as well as a coordinated implementation of its action plan under clear institutional mechanisms. Furthermore, recovery plans should focus on addressing key structural challenges to various social protection related areas such as social insurance, pensions, improving the quality and access to basic services, and labor market policies by advancing the needed reforms. Building on the urgency to deal with compounded crisis and deceleration of poverty, reforms on the above-mentioned areas are critical to create a fiscal space for an expanded coverage.





Infrastructure Sectors

Transport and Port

Damage: US\$ 280.0 – 345.0 million

Losses: US\$ 580.0 – 710.0 million

The explosion caused many fatalities and injuries at the Port of Beirut (PoB), as well as seven shipwrecks and significant damages to the general cargo terminal. These damages include: (i) the 120,000-ton silo that contained 15,000 tons of grains at the time of the explosion; (ii) 200 meters of quays; (iii) the waterside, including navigation channels and berths; (iv) several buildings, including the customs' and the Ministry of Agriculture (MoA) buildings, affecting their ability to undertake samplings and inspections; (v) warehouses with a total area of approximately 157,000 square meters; (vi) cargo handling equipment; (vii) 373 full containers under inspection and to be auctioned; and (viii) sanitary-phytosanitary facilities. The silos were used to store grain reserves and their destruction has resulted in increased food security risks. These risks, which had increased in recent months, were already significant given the protracted economic and financial crises. While the general cargo terminal has been heavily damaged, the container terminal has only been slightly damaged and is already back in operation, and two vessels were received just one week after the incident.

Although thorough assessments are currently underway by the Beirut Container Terminal Consortium (BCTC), visual inspections of assets at the container terminal revealed: (i) no significant damage to the equipment; (ii) damage to the office building and information technology (IT) equipment; (iii) damage to the 140 meters x 40 meters maintenance warehouse and stored spare parts; (iv) damage to 10 to 15 percent of empty containers (860 of the 7,000 containers were damaged); and (v) damage to 3 of the 7,000 full containers identified to date, although the inspection is still ongoing. Regarding land transport, the explosion caused damage to: (i) 40 of the 50 buses operated by the Railways and Public Transport Authority (RPTA); (ii) 16,000 square meters of RPTA warehouses and hangars, preventing the access of buses to fuel and spare parts; (iii) 430 public and private vehicles inside and outside of the port; and (iv) 1.5 kilometers (km) of

roads. In total, preliminary damage to land and maritime transport, as well as physical damage to food security infrastructure, ranges between US\$ 280.0 – 345.0 million.

Recovery and Reconstruction Needs: US\$ 425.0 – 520.0 million

There is a need to balance emergency works needed for Lebanon's vital imports with the opportunity this crisis offers to "build back better" the ports system of Lebanon. This unfortunate event further highlights the overall institutional collapse of PoB operations and is a wake-up call to profound change, starting with urgent implementation of longstanding structural reforms in the port sector. The rebuilding phase must focus on building a modern, efficient, and transparent port sector that can act as the driver of much needed economic growth and creation of new opportunities for all Lebanese.

In the immediate emergency phase, the United Nations World Food Programme (WFP) has already started airlifting mobile storage units and other equipment as a temporary solution for the destroyed grain silos. Other "no regret" actions that should be prioritized in the **immediate-term** include: (i) site and rubble clearance and safe disposal, and dredging of navigation channels and berths; (ii) temporary reorganizing general cargo, bulk and grains handling in the container terminal and the Port of Tripoli to ensure food security; and (iii) temporary storage, offices and testing labs for customs and MoA to recover port operations and ensure the continuity of supply chains. The Port of Tripoli and Port of Saida could be mobilized and equipped to accept diversion of traffic and bulk handling.

In the **short-term**, priorities include: (i) building minimum infrastructure at the port of Tripoli and Beirut for handling imported grains; (ii) rehabilitating the buildings and testing labs; and (iii) preparing the long-term physical reconstruction and optimization of the ports system. Preliminary estimates for immediate-term needs are around US\$ 40.0 - 50.0 million while the estimates for short-term needs are around US\$ 385.0 - 470.0 million.

Any support for medium- to long-term reconstruction and development of the port should be preceded by a package of reforms to be adopted in the short-term. These reforms among others, are: (i) implement the structural reforms in the port sector and in customs and trade facilitation, with a sector law based on the landlord Port principles, opening up operations to the private sector while full transparency in financial management and operations from the Port Authority are explicitly spelled out, including cost accounting and tariff reforms. Port Community would be given an official role in the management and administration; and (ii) rethink the national strategy for ports and corridors in Lebanon with a funding plan to balance public and private investments.

"Building back better" could imply revisiting the siting and sizing of the Port of Beirut³⁵, and rebalancing roles and investment in Tripoli, Sidon, and in other logistics infrastructure such as dry ports and the rail network, in an economic corridor approach, to better position Lebanon to benefit from possible future opportunities in the region. This could also allow for precious public domain real estate in the Port of Beirut to be developed in a more integrated and safer way with the city. Subject to more efficient, transparent and better governance in the planning and implementation of such critical infrastructure projects, Lebanon can seize the opportunity of this crisis to change the trajectory of the country's development and substantial economic growth and public safety can be realized through such a holistic and ambitious approach.

35 At the request of the Government of Lebanon, UNESCWA is updating the master plan for the Port of Beirut.

Energy

Damage: US\$ 40.0 – 50.0 million

Losses: US\$ 55.0 – 70.0 million

The preliminary assessment of the damages caused by the explosion on the electricity sector indicates an impact mainly on transmission (the high-voltage Achrafieh substation and the National Control Center – NCC); distribution (substations, distribution lines, and a data center for the billing system); administrative assets of the state-owned power utility Electricité du Liban (EDL – headquarters, meter laboratory, vehicles and warehouses); and the headquarters of the Ministry of Energy and Water (MEW). The initial estimate of this damage is between US\$ 40.0 – 50.0 million. However, it is important to note that this estimate is based on preliminary assessments of immediately identifiable assets impacted by the explosion. It is also expected to lose revenue due to a reduction in demand in the explosion area, incurring higher losses (although partially offset by a reduction in fuel expenses) as it makes investments to repair or replace damaged assets. The net estimated financial loss ranges between US\$ 55.0 – 70.0 million.

Recovery and Reconstruction Needs: US\$ 55.0 – 70.0 million

The most **immediate-term** needs in the sector are to (i) remove rubble from damaged or destroyed assets; and (ii) restore electricity service to customers that remain connected to the electric grid, including damaged business and housing units, through temporary measures and repairs/rehabilitation of the medium voltage (MV) and low voltage (LV) networks, as well as undertake preparatory work for restoration/rebuilding of the Achrafieh substation and the National Control Center (NCC); and (iii) launch a transparent and competitive recruitment process for the commissioners of the long-delayed sector regulator required under the Law 462/2002 (as initially ratified in 2002).



Photo: Ipsos Risk Analytics/World Bank

Short-term priorities include: (i) restoring service to destroyed business and housing units; (ii) completing restoration of the Achrafieh substation and rebuilding the NCC; (iii) establishing and operationalizing an independent and autonomous sector regulator; and (iv) launching a transparent and competitive procurement process to establish Public Private Partnerships (PPP) in the distribution network, as per Law 462/2002 (as initially ratified in 2002). Reconstruction of EDL's headquarters and its related assets (e.g., laboratories, data center, billing system, etc.) may first require a discussion as to the future role of the utility in the sector to ensure that the design and rebuilding of its administrative offices reflect this future vision. The estimate of the recovery and reconstruction needs comprises mostly the replacement costs³⁶ of the Achrafieh substation, the rebuilding of the NCC, distribution assets, and EDL's headquarters, as well as vehicles and warehouses (excluding inventory).

It is important to note at the outset that, when the explosion occurred, the sector was already suffering from long-term challenges – including the absence of oversight and transparency – that were at the heart of the country's economic and fiscal crisis. Even if recovery and reconstruction efforts mitigated the impact of the explosion, thus returning the sector mostly to its pre-explosion state, the sector still highly needs significant and urgent structural reforms. A vision for the sector, to be discussed with representatives from the civil society, the private sector and the international community, is also still missing. Independent from the recovery and reconstruction efforts, which are essential, adopting long-known reforms to improve the sector's long-term performance and address longstanding weaknesses remains the main priority.

Water Supply and Sanitation

Damage: US\$ 40.0 – 45.0 million

Losses: US\$ 5.0 million

The water supply and sanitation (WSS) facilities in Greater Beirut and Beirut were impacted, but the facilities are still functioning to some extent and further ground assessment is needed. The WSS infrastructure covered under this assessment includes wells, storage reservoirs, pumping stations, distribution networks, sewerage networks, sewerage pumping stations, and WSS treatment plants. The administrative buildings of the water sector institutions were partially damaged. The main water transmission lines inside the Port of Beirut have likely been destroyed, and a ground assessment is needed to confirm the level of damage. The water supply distribution and sewerage networks are partially functional, which allows the water utility to maintain or restore emergency access. In areas where there is combined sewer networks (i.e. sewerage and rainwater) incoming autumn/winter rains may lead to inundations and subsequent health problems. Estimated losses including from drop in revenue from disruptions in operations are approximately US\$ 5 million.

Recovery and Reconstruction Needs: US\$ 45.0 – 60.0 million

The water supply and sanitation sector recovery needs are estimated in the range of US\$ 45.0 – 60.0 million. In the immediate- and short-term, recovery and reconstruction should ensure that impacted households receive WSS services at the pre-explosion levels and funding should be provided for the operational costs of the water utility. In the **immediate-term**, priority should be given to: (i) funding operation and maintenance costs (staffing, equipment, material, etc.) for the Beirut and Mount Lebanon Water Establishment (BMLWE) for the impacted area; (ii) interim service arrangements for the utility to put emergency repairs to provide one water connection at least per building, or if needed, supply tankers for emergency use; and (iii) conducting an in-depth ground assessment of the WSS infrastructure.

36 These include building back better and greener.

In the **short-term**, priority should be given to: (i) continuing funding of operation and maintenance cost for the BMLWE for the impacted area; (ii) continuing in-depth ground assessments of WSS infrastructure; (iii) repairing water assets to restore function to pre-explosion level, and introduce BBB; and (iv) engaging with civil society and the private sector on rehabilitation planning, improving design through BBB, continue rehabilitation and restoration of services to pre-explosion level. The recovery strategy will comprise the following key elements: (i) the provision of immediate relief through repairs, rehabilitation and replacement (RRR) of partially and completely damaged WSS; (ii) building back better and smarter by ensuring that the most appropriate and adaptive technology options (including disruptive technology) are used and built to standard; (iii) introducing a mix of hardware and software interventions to address the WSS challenges; and (iv) institutional and systems development support for service sustainability.

Reforms in the WSS sector need to take place concurrently with the reconstruction and rehabilitation of hard infrastructure. As donors and partners are currently supporting the WSS sector, continuous coordination of activities is crucial to ensure synergies and complementarity of these initiatives.

Municipal Services

Damage: US\$ 30.0 – 35.0 million

Losses: US\$ 75.0 – 90.0 million

Beirut and Bourj Hammoud are the most affected municipalities, where municipal infrastructure has suffered damages. Beirut suffered greater damage in the range of US\$ 20.0 - \$25.0 million. However, the Bourj Hammoud municipality houses a large number of vulnerable people in congested locations, which poses risks of increased vulnerability. About 50 percent of damaged municipal infrastructure is mainly mobility infrastructure, that is, roads, bridges and related assets, which is critical for people's living conditions and livelihoods. Public places are either partially or minimally damaged. Many local parks, playgrounds, public squares and other communal facilities and buildings are affected. This is followed by storm water drainage and sewerage infrastructure and other movable assets. In addition to damaged infrastructure, these municipalities will incur losses in the range of US\$ 75.0 - 90.0 million, due to decreased revenue because of tax exemptions for damaged properties and increased expenditure for immediate assistance.

Recovery and Reconstruction Needs: US\$ 40.0 – 50.00 million

Municipal services are critical for getting people back to their lives and livelihoods. The recovery and reconstruction of municipal infrastructure and assets will ensure safety and livability. In the **immediate-term**, the most urgent requirement of the sector is to: (i) remove rubble and rehabilitate roads, bridges, street lighting, and street furniture; (ii) rehabilitate storm water drainage and sewerage infrastructure; and (iii) establish one-stop shops at municipalities, acting as a platform for coordination and consolidation of tasks, including damage assessments, permits for rehabilitation, etc. Municipalities are on the frontlines of response and enhancing their role as coordinating agencies could help reach the affected areas and people faster, by eliminating and consolidating multiple bureaucratic steps. These immediate measures are estimated to cost between US\$ 25.0 – 30.0 million.

In the **short-term**, services will include: (i) rehabilitating and constructing parks, playgrounds, entertainment zones, and other communal places to ensure vibrant communities and neighborhoods with improved living conditions; (ii) rehabilitating damaged public housing managed by municipality; (iii) developing neighborhoods' upgrading plans, mobility plans, comprehensive waste management plan and area based regeneration plans, with an aim to build back better; and (iv) building capacity of municipalities for improved revenue and asset management. These needs

are estimated to cost between US\$ 15.0 – 20.0 million. Engaging with municipalities also offers the opportunity to enhance transparency and accountability and rebuild public trust at the local level.

Developing and implementing a mobility plan for the Greater Beirut Area while rehabilitating the damaged roads and traffic infrastructure could work on both the short-term recovery goals and longer-term goals of improved mobility, connectivity and better environmental outcomes. Similarly, waste management is a key issue in the immediate-term for removal of rubble and cleaning streets, rehabilitating damaged facilities and also increasing capacity of recycling, treatment, and disposal. Combining a longer-term view of the waste sector, with a clarity of role of various institutional actors, including municipalities, and with an aim to improve the entire value chain starting from primary collection to disposal will be critical. In addition, neighborhood upgrading projects for affected and vulnerable neighborhoods as well as area-based regeneration projects will not only ensure recovery but also promote improved quality of life and local economic development.



Photo: Fadel Itani/World Bank



Productive and Financial Sectors

Commerce and Industry

Damage: US\$ 105.0 – 125.0 million

Losses: US\$ 285.0 – 345.0 million

About 56 percent of commercial and industrial facilities were affected (that is, 100 percent privately-owned establishments), including businesses providing gas, food and beverages, construction materials, services, furniture, cars, clothes, plastics and chemicals, paper, and manufactured items (medium to large size). Fifty-two percent of all damaged facilities are either clothing or furniture and home accessories stores. In absolute terms, the highest costs were incurred by these clothing and furniture and home accessories stores. In relative terms, over 90 percent of all medium to large manufacturing industries operating within a five-kilometer radius of the explosion site have been damaged. Approximately three percent of the damaged facilities have been destroyed and will need to be rebuilt. Damage to businesses in this sector is not restricted to physical damage. Damages also include the significant loss of goods stocked in the port and onsite. Destroyed goods in the port affect a much larger number of commercial and industrial businesses in the country than those in the direct perimeter of the explosion, thus significantly impacting firms' balance sheets and adversely affecting operations across many value chains.

Recovery and Reconstruction Needs: US\$ 165.0 – 205.0 million

The core of the needs in commerce and industry will go beyond material losses. The explosion came at a time when financial conditions of firms were already heavily strained, and the livelihoods of employees threatened. The **immediate-term** needs can be addressed through the establishment of a business recovery Matching Grants scheme. The immediate- and short-term needs recommended here are for small firms. These needs include: (i) reconstructing commerce and industrial firms that are ensuring basic services and goods for the country based on a detailed assessment that prioritizes reconstruction; (ii) ensuring there is sufficient working capital to fund the replacement of lost stock and salary compensation for workers while business is disrupted; and (iii) ensuring the return of services of commercial and industrial establishments to non-disaster conditions. This will require a

mix of public and private interventions, which can help affected businesses reconstruct and bridge the gap in earnings during these months of disruptions.

In the **short-term** priorities include: (i) reconstruction of heavily damaged small businesses based on the prioritization conducted in the immediate-term; and (ii) technical support to the firms receiving the funding. Additional assessments ought to specify the number of beneficiaries, and define proposed eligibility criteria, eligible expenses, grant and loan conditions and size, the selection process, and a mechanism for a transparent and efficient flow of funds through credible organizations.

Business environment reforms that align with efforts to support jobs and businesses in the commerce and industry sector, such as fast-tracking the processing of import/export licenses, would be important to carry out during the recovery period. Some examples of these reforms include starting a business, getting credit, trading across borders, and resolving insolvency. This would allow for the recovery of trade flows through other ports in the country and decrease the strain on the Port of Beirut. Developing sustainable financing solutions, such as a FX Line of Credit for foreign exchange-generating businesses and a supply chain financing facility, would be conditioned on financial sector reforms.

Financial

Damage: US\$ 10.0 – 15.0 million

While financial institutions, in particular banks, experienced physical damages, service delivery was not greatly affected by the explosion. Around 12 percent of bank branches in Beirut are destroyed, and another seven percent and 16 percent are partially and minimally damaged, respectively. More than two dozen ATMs and 2,300+ point-of-sale (POS) machines are destroyed or partially damaged. Banking infrastructure, including core banking systems, remains largely intact, and the impact on business continuity is manageable. A few other financial institutions (money transfer operators, insurance companies, and microfinance institutions) had minimal physical damage.



Photo: Mohamad Azakir/World Bank

Credit losses will be the main loss factor for the banking sector. For example, a five-percentage point increase in the NPL ratio and provisioning coverage of 60 percent would result in additional provisioning between US\$ 1.4 – 1.7 billion, although an accurate assessment of credit losses will only be possible after the banks and the regulatory authorities have collected relevant data. The impact of the explosion on the credit portfolio pales in comparison to (and is difficult to entirely disentangle from) the underlying losses in the context of the existing economic and financial crisis, amounting to tens of billions of dollars, and would need to be resolved under the broader reform agenda.

Recovery and Reconstruction Needs: US\$ 35.0 – 45.0 million

Existing constraints and the impaired functioning of the financial sector in channeling financing will impede reconstruction and recovery efforts if left unaddressed. While sustainable solutions for medium-term recovery will require broader stabilization, in the **immediate- to short-term**, financing support could be carefully targeted at certain households and businesses directly impacted by the explosion for: (i) rebuilding and repairing housing units and rental housing support for vulnerable groups; (ii) supporting businesses that have a prospect for survival and preserving jobs and livelihood, including SMEs; and (iii) supporting MFIs and their large client base.

Initial focus could be on grants to provide quick relief needed to jumpstart recovery, and additional liquidity will be needed to support sustained recovery. The amount for the needed external funding support is not included here, as it is captured in the needs assessment for the real economic sectors. Debt sustainability will be a constraint for financial support other than donor grants. The insurance sector will benefit from technical support and engagement in claim settlement for large assets and in claim settlement policies for more standard claims. Solvency issues need to be carefully monitored given the potential for a large number/value of claims and limited absorbing capacity of the insurance sector, and a limited direct support to most vulnerable policyholders in the event of insurer failure may be considered.

Short-term reforms would include restructuring the banking sector, in the context of a broader restructuring and reform program, which is of first order importance to support the channeling of the needed financing for reconstruction, as well as medium- to long-term recovery of the economy. This would entail a macro stabilization program, revamping of the monetary and exchange rate framework, adequate recognition of losses, recapitalization of systemically important banks and liquidation of insolvent non-systemic banks. The delay in banking sector restructuring in the past few months has unfortunately exacerbated the dire financial conditions in the country.

Tourism

Damage: US\$ 170.0 – 205.0 million

Losses: US\$ 190.0 – 235.0 million

About 49 percent of tourism facilities were affected (2,540 privately-owned establishments), including bars, hotels, restaurants, travel and tour operators, and car rental agencies. 75 percent of all damaged facilities are restaurants. In absolute terms, the highest costs are incurred by these restaurants, followed by hotels, resorts and furnished apartments. In relative terms, 80 percent of all bars, pastry shops and night clubs have been damaged. Approximately 15 percent of the damaged facilities were destroyed and will need to be rebuilt. Service delivery will be extremely hard to restore in the next three months. It is estimated that one of five employees may lose their jobs.



Photo: Fadel Itani/World Bank

Recovery and Reconstruction Needs: US\$ 170.0 – 210.0 million

The 2020 summer season has suffered a major setback in terms of tourist arrivals. Tourism recovery and reconstruction needs are assessed between US\$ 75.0 – 90.0 million for CY2020 (September-December), and in CY2021, are estimated between US\$ 95.0 – 120.0 million. The most urgent requirement for the tourism sector is to gradually reopen facilities and support information campaigns to reach out to foreign visitors and Lebanese expatriates. Over the CY2020 and CY2021, infrastructure reconstruction will range between US\$ 50.0 – 65.0 million. In addition, service delivery restoration will require between US\$ 120.0 -145.0 million. **Immediate-term** priorities for smaller businesses in the tourism sector include: (i) establishing a Matching Grants scheme for private businesses; and (ii) establishing a FX Line of Credit for foreign exchange-generating businesses.

Short-term priorities for smaller businesses would include initiatives to help restore the trust of visitors and promote Lebanon as a tourist destination. This is particularly important in a period characterized by high uncertainty regarding the outlook for global tourism. Reviving the tourism sector is a priority for the local economy to recover. Ensuring the return of services in the tourism sector to non-disaster conditions will require a mix of public and private interventions, which can help affected businesses reconstruct and bridge the gap in earnings until the 2021 high season.

Over the medium-term, business operations in tourism will need sustainable financing solutions, otherwise lack of liquidity will lead to insolvency and further destruction of jobs. While these recommendations are essential to the survival of small businesses and prevention of job losses in the tourism sector, they should be complemented by wider policy efforts, such as Investment Climate reforms that support Lebanon in addressing the COVID-19 pandemic and economic crisis, thereby enabling businesses to thrive beyond surviving the explosion.



Cross-cutting Sectors

Governance

Damage: US\$ 65.0 – 80.0 million

Losses: US\$ 65.0 – 80.0 million

Physical damage to the governance sector is in the range of US\$ 65.0 – 80.0 million. Besides the port area that is assessed in the relevant sector, around 23 percent of public institution buildings in the affected zone were damaged. Some less damaged facilities may be partially operational after rubble is removed. Damage to major administrative buildings has affected day-to-day operations and significantly compromised the services delivered not only to citizens, but also to other sectors. The losses incurred to governance facilities in the affected areas are between US\$ 65.0 – 80.0 million, covering demolition cost and removal of rubble; lost equipment, vehicles, furniture; temporary rental of premises during reconstruction or rehabilitation; indemnity paid to injured or missing staff; the cost of replacement of staff and training; and the loss of documents and records.

The data collection was a major challenge in conducting an informed damage assessment. The “Inter-Municipal Platform for Assessment, Coordination & Tracking” (IMPACT) championed by the Central Inspection and operated by different stakeholders to monitor COVID-19 cases is being further expanded to support the public administration in posting their self-assessment of damages. Such initiatives to simplify government operations need to be supported urgently to ensure recovery of governance functions.

Recovery and Reconstruction Needs: US\$ 180.0 – 215.0 million

In the immediate- and short-term, it is critical that measures are taken to ensure the continuity of public services as a disruption would further erode public trust. Priorities in the **immediate-term** include: (i) removing rubble and debris from damaged buildings and repair minimally and partially damaged buildings; (ii) restoring governance services; (iii) stabilizing governmental buildings at risk of collapse and rehabilitating other buildings; (iv) replacing lost assets such as vehicles, furniture, and equipment; (v) restoring lost documents; and (vi) replacing lost human resources.

Priorities in the **short-term** include: (i) establishing an Anti-Corruption Commission, and enacting needed budgetary and legislative measures in compliance with the new Anti-Corruption Law; (ii) enacting modern Public Procurement Law; and (iii) announcing Government commitment to join the Open Government Partnership (OGP).

The explosion has further fed public anger by highlighting a combination of negligence and corruption. As part of the broader recovery and reconstruction efforts, governance reforms highlighted earlier in this report should remain a priority. Crucial governance sector reforms include a focus on strengthening the capacities of ministries and public institutions and supporting local efforts to build a new social contract based on participation, inclusiveness, and accountability. Ensuring the participation, representation and leadership of women and women's organization in this process will help strengthen this social contract and community resilience. This also includes adopting the OGP Action Plan in conjunction with civil society stakeholders and the new law on Judicial Independence. Implementing project-specific corruption risk management plans that include citizens at the national and local levels during the reconstruction process would help address public concerns and grievances with the existing public administration. This can be facilitated by emphasizing community development and including participation of small and medium-sized enterprises in the reconstruction effort.

Moreover, developing e-Government procurement mechanisms and establishing units to manage independent policy, oversight, and complaints would be important to curb corruption. Lebanon faces a serious deficiency in enforcing its laws and effectively utilizing its institutions to curb corruption. Any envisaged reforms in combating fraud and corruption would have to be coupled with a realistic implementation mechanism with ample political commitment and support. To that end, an anti-corruption commission should be established and made functional immediately. It will also be important to ratify the public procurement law currently undergoing parliamentary revision, and to develop and implement a public procurement reform strategy. In addition, concerted action to promote the implementation of the 2017 access to information law and social accountability capacities in civil society should be foreseen. Finally, checks and balances institutions such as the Central Inspection and Court of Accounts should be strengthened.

Social Sustainability and Inclusion

The social impact of the explosion at the port of Beirut will significantly exacerbate vulnerabilities and needs among poor and vulnerable populations in the Greater Beirut area. Many of which were already on the rise due to the economic crisis and the COVID-19 pandemic, especially among children, women, that persons with disabilities, the elderly, refugees and migrant workers. It is estimated that about 100,000 children have been affected by the explosion, and persons with disabilities, the elderly and poor female-headed households have been left more vulnerable by the crisis, including as a result of trauma and the lack of shelter and caregivers. Similarly, Syrian and Palestinian refugees, as well as migrant workers - already experiencing some of the highest poverty rates - are at risk. Many individuals in these groups lack legal documents, including residency permits, and security of tenure, and will thus find it particularly difficult to retain their old residences or find new shelter.

Recovery Needs: US\$ 25.0 – 35.0 million

Immediate-term needs include: (i) strengthening the provision of social services including improving the capacity of social workers and investing in psychosocial support and referrals to specialized mental health services; and (ii) establishing data collection mechanisms to identify emerging vulnerabilities, and targeting assistance to vulnerable groups. It will be crucial to develop a systematic, inclusive and responsive approach to collaborate with a broad range of stakeholders, including, among others, civil society, humanitarian organizations, communities, private sector and academia.



Photo: Mohamad Azakir/World Bank

Short-term priorities include: (i) reinforcing the role of the social development centers to provide (primary) social services; and (ii) investing in strengthening the capacity of Social Development Centers' social workers and NGOs, especially for specialized social services provision. An effective response will require investing in recovery and reconstruction initiatives that build trust among communities and ensure that they take place in a transparent, participatory and inclusive manner.

Environment

Damage: US\$ 20.0 – 25.0 million

The infrastructural damages to the environment sector primarily include destruction of the Solid Waste Recycling and Sorting Facility at Karantina, partial damage to the Solid Waste Composting Facility at Coral, Bourj Hammoud and damages to the health care waste storage waste facilities of three hospitals in Beirut. In addition, partial damages are also noted to the solid waste collection and transportation equipment as well as environmental monitoring equipment at National Council for Scientific Research (CNRS), and the American University of Beirut.

Reconstruction and Recovery Needs: US\$ 75.0 – 100.0 million

In the **immediate-term**, the main priorities relate to: (i) the removal, treatment and safe disposal of construction and demolition wastes, hazardous wastes and medical wastes; and (ii) the risks posed by eight sunken vessels and potential for explosion due to presence of oil and gas, and possible fermentation of cereals. The intervention will be complex, in particular due to the likely presence of asbestos in the port (silos) and partially damaged buildings. A joint EU/UNDP assessment will deliver its recommendations, including budget requirements in early September 2020. Other priorities include: (i) rebuilding destroyed solid waste management infrastructure including the recycling and sorting facility at Karantina, the composting facility at Bourj Hammoud; (ii) solid waste collection and transportation equipment; and (iii) damaged health care waste storage waste facilities in Beirut.

In the **short-term**, priorities include: (i) repairing damages to the environmental monitoring equipment at National Council for Scientific Research (CNRS) and the American University of Beirut and restore the operation of the air quality monitoring network in coordination with the St. Joseph University; (ii) conducting a detailed assessment of the coastal and marine ecosystem and implementation of priority management and mitigations measures; (iii) restoring and improving the vegetative cover lost due to the explosion; (iv) institutional strengthening for environmental governance, including citizens' engagement for greening the recovery and reconstruction agenda of Beirut, as well as building capacity for managing environmental disasters; and (v) implementing short-term containment measures as well as preparing recommendations for informing policies and management measures.

The RDNA recommends mainstreaming of environmental management in the medium-term and long-term recovery and reconstruction agenda for a resilient and Green Beirut. In order to ensure the successful implementation of these interventions and to build back greener, a lean mechanism should be established between on the one hand the relevant governmental entities and on the other, donor agencies, national and international NGOs, and academia in the overall recovery and reconstruction program.



Annex



Stakeholder Feedback and Engagement Meetings August 2020

In alignment with the “Whole of Lebanon” approach adopted in the framework of Rapid Damage and Needs Assessment (RDNA) and in an effort to ensure that the assessment is grounded and representative of the immediate- and short-term needs of the Lebanese people, the RDNA team engaged with key stakeholders from all parts of Lebanese society to provide feedback on the impact of the explosion and the priority recovery and reconstruction needs in the immediate- (CY2020) and short-term (CY2021).

The RDNA team organized more than 40 Stakeholder Feedback and Engagement Meetings between August 17 and 21, 2020 inviting more than 300 stakeholders –including, but not limited to: relevant government entities, civil society organizations, NGOs, INGOs, professional associations, private sector organizations, think tanks, youth groups, donors, UN agencies. Special attention was made to include stakeholders actively involved in the process of assessing damages, providing aid, and reconstructing Beirut. Meetings were held virtually or in-person and included a large group of stakeholders or one-on-one discussions to adapt to the COVID-19 operational circumstances and to the strict timeframe of the RDNA.

The Stakeholder Meetings were divided into Sector Specific Meetings or Generic/Strategic Meetings. Sector Specific Meetings gathered stakeholders with expertise in one of the sectors covered by the RDNA (Social Sectors: Housing, Health, Education, Culture, Social Protection and Jobs; Infrastructure Sectors: Transport and Port, Energy, Water Supply and Sanitation, Municipal Services; Productive and Financial Sectors: Commerce and Industry, Financial, Tourism; Cross-Cutting Sectors: Governance, Social Sustainability and Inclusion, Environment). There were also other meetings that gathered stakeholders from a wide array of expertise and the input received was channeled to relevant sector teams by the RDNA core team before the finalization of the RDNA.

The RDNA team would like to sincerely thank all the entities involved in the Stakeholder Feedback and Engagement Meetings for their valuable input during these critical times. The Assessment team and participating organizations are committed to ensuring that the RDNA and future steps in the roadmap to the recovery and reconstruction of Beirut involve the widest array of stakeholders for the best interest of the people of Beirut and Lebanon.

During the meetings, stakeholders raised concerns about the need to ensure that aid is channeled through reliable, effective and efficient channels to directly reach the most affected. Stakeholders have also urged the international community to adopt innovative ways to direct their funds to address the dire need for immediate support. Another category of challenges reflected in the discussions is linked to the general macroeconomic situation and the limitations of liquidity hindering the ability of aid agencies and contractors to operate. Stakeholders have also repeatedly highlighted the need for better coordination (in relation to operations and data) between the different entities involved in the recovery and reconstruction efforts. They have unanimously highlighted the importance of immediate international support, especially in relation to housing, health, and poverty. Sector specific meetings have provided more focused input related to the respective areas of expertise (reflected in sector specific chapters).

List of Acknowledgments for the Beirut RDNA Stakeholder Feedback and Engagement Meetings³⁷

Ministries and Municipalities:

Governor of Beirut; Mayor and Municipality of Beirut; Mayor and Municipality of Burj Hammoud; Ministry of Agriculture; Ministry of Culture; Ministry of Economy and Trade; Ministry of Education and Higher Education;³⁸ Ministry of Energy and Water; Ministry of Environment;³⁹ Ministry of Public Health; Ministry of Public Works and Transport; and Ministry of Social Affairs

Public Entities and Government Affiliated Organizations:

Banking Control Commission (BCC); Banque Du Liban (BDL); Beirut Mount Lebanon Water Establishment; Council for Development and Reconstruction (CDR); Directorate General of Antiquities; Economic and Social Council; Electricité du Liban (EDL); Lebanese Armed Forces (LAF); Lebanese Customs; National Center for Scientific Research (CNRS);⁴⁰ Port of Beirut Authority; Railway and Public Transport Authority (RPTA); and Public Corporation for Housing (PCH)

Syndicates, Orders of Professionals and Professional Associations:

Association of Accountants; Association of Banks; Association of Chambers of Commerce; Association of Insurance Companies in Lebanon (ACAL); Association of Lebanese Industrialists (ALI);⁴¹ Association of Micro Finance Institutions (MFI); Association of Travel and Tourist Agents in Lebanon (ATTAL); Beirut Traders Association; Chamber of Commerce, Industry and Agriculture of Beirut and Mount Lebanon; Consumer Products and Drinks Syndicate; General Federation of Workers in Lebanon; Importers of Medical Supplies; International Chamber of Navigation; Lebanese Contractors Syndicate for Public Works and Buildings; Lebanese Federation for Tourism and Hotel Associations; Lebanese Micro-Finance Association (LMFA); Lebanese Pharmaceutical Importers Association (LPIA); National Federation of Worker and Employee Trade Unions in Lebanon (FENASOL); Order of Architects and Engineers; Order of Physicians; Syndicate of Car Rental Companies; Syndicate of Hotel Owners in Lebanon; Syndicate of Importers of Foodstuffs; Syndicate of Lawyers; Syndicate of Maritime Tourist Establishments; Syndicate of Owners of Furnished Apartments; Syndicate of Owners of Restaurants, Cafes, Nightclubs and Pastries in Lebanon (SRCNPL); Syndicate of Pharmacies; Syndicate of Private Hospitals; Syndicate of Restaurants; Syndicate of Tourism Guides; and Union of Travel and Tourism Owners Offices

Financial institutions:

Selected banks, insurance companies and microfinance institutions (MFIs)/some members of the LMFA.

37 The list is based on the compiled input received from the World Bank teams. We appreciate your understanding in case of any unintended omissions.

38 Directorate of Education and Directorate of Technical and Vocational Education

39 Service of Urban Environment and Service of Environmental Technology

40 Including Marine Research Center and Remote Sensing Center

41 Also representing the Syndicate of Paper and Packaging Industries, the Syndicate of Chemical Industries, the Syndicate of Food Industries, Syndicate of Textiles Industries, and others

Private Sector Organizations:

AECOM; Agility; Aramex; Beirut Container Terminal Consortium (BCTC); Crystol Energy; Dar Al-Handasah (Shair and Partners); ECU Worldwide; Entreprise A.R. Hourie; Erga Group; Flour Mills (Bakalian flour mill); Information International; Group of Lebanese volunteers at Google; Keyfreight; KVA SAL; MAN Enterprise; Oliver Wyman; Port of Rotterdam; Private sector hospitals (various); Private sector representatives (including private schools and private universities); SETS; Strategy& (PWC); TEAM International; TMS Consult

Think Tanks/Research Centers/Academia:

The American University of Beirut (AUB);⁴² Arab NGO Network for Development (ANND); Balamand University;⁴³ Carnegie Middle East Center; Consultation and Research Institute (CRI); Crossboundary; Health and Environment Association- Lebanon (HEAL), Issam Fares Institute for Public Policy and International Affairs; Lebanese American University (LAU); Lebanese Center for Policy Studies (LCPS); Lebanese Institute for Market Studies (LIMS); Levant Institute for Strategic Studies; Natural Resource Governance Institute; Notre Dame University (NDU) - Secular Club; Prof. Mona Fawaz; Synaps; Triangle; Université Saint-Joseph de Beyrouth (USJ)⁴⁴

Local NGOs/CSOs/Youth Groups:

Aabdel Aal; Aaad; Al Majmoua; ALEF; Amel Association; Ana Khat Ahmar; Arab Fund for Arts and Culture (AFAC); Arc en Ciel; Association for Forests Development and Conservation (AFDC); Association pour la Protection des Sites et Anciennes Demeures au Liban (APSAD); Baytna Beytak; Beirut Madinati; Caritas Lebanon; Centre Libanais des Droits Humains (CLDH); Cha3bi Mas2ouliyati; Chabeb Al Qantari; Conseil International des Monuments et des Sites (ICOMOS); Culture Resource; Daleel Al Thawra; Docomomo Lebanon; Donner Sang Compter (DSC); EDGE for Lebanon; Embrace; Environmental specialists and Journalists Habib and Amani Maalouf; Fair Trade Lebanon; FE-Male; Gherbal Initiative; Green Area; Green Globe; Green Line; Impact Lebanon; Internet Society; Kelna 3ayle; Kulluna Irada; Lebanese Association for Democratic Elections (LADE); Lebanese Association for Taxpayers' Rights (ALDIC); Lebanese Eco Movement; Lebanese Foundation for Renewable Energy (LFRE); Lebanese Oil and Gas Initiative (LOGI); Lebanese Red Cross; Lebanese Transparency Association (LTA); Lebanese Transparency Association (LTA); Lebanon Environment Forum; Legal Agenda; Live Love Lebanon; MADA; Maharat; Make your Mark; Makhzoumi Foundation; March; Masar; Meghterbine; Minteshreen; Muwatin Lebneine; NAHNOO; National Bloc; Neopreneur; Offre Joie; Organization for Petroleum and Energy Sustainability (OPES); Publish What You Pay; Rebuild Lebanon; Sakker El Dekkene; Samir Kassir Foundation; SAWA Social and Health Clinic; Sursock Foundation; Waste Management Coalition; Zero Waste Coalition; and other NGOs and CSOs who wished to be named collectively

INGOs:

Action Against Hunger; Care International in Lebanon; Danish Refugee Council; Agency for Technical Cooperation and Development (ACTED); IMPACT / REACH; International Rescue Committee (IRC); Norwegian Refugee Council; Oxfam; Premiere Urgence - Aide Medicale Internationale; Relief International; Save the Children

⁴² Including Beirut Urban Lab; Centre for Nature Conservation; Laboratories for the Environment, Agriculture, and Food (LEAF), Environmental Health; Safety and Risk Management Office; and Environmental Health Department

⁴³ Including Air quality department and Institute of the Environment

⁴⁴ Laboratory for Treatment of High-Risk Solid Waste, Air Quality and Noise Management Department; and Secular Club

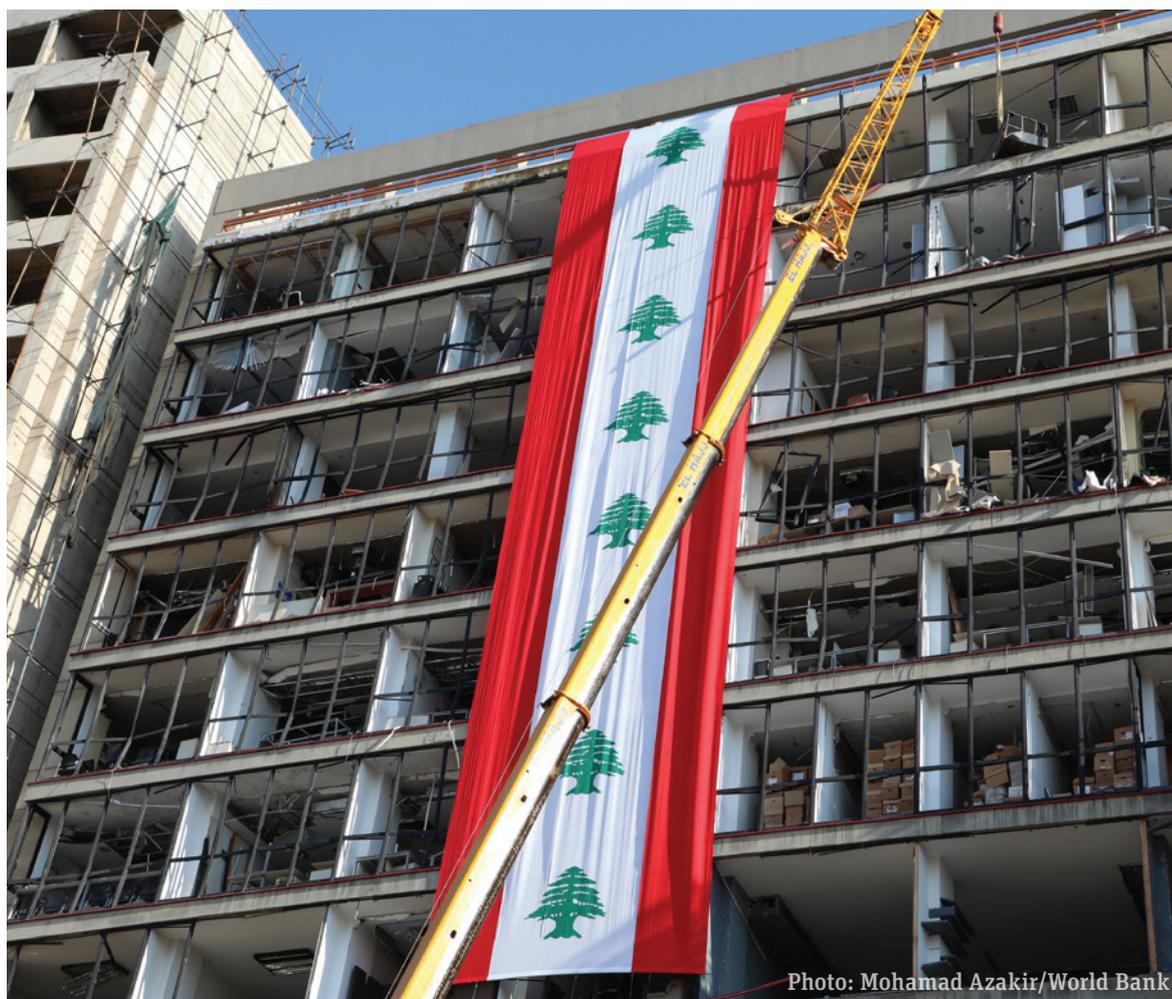


Photo: Mohamad Azakir/World Bank

UN Organizations:

International Labour Organization (ILO); United Nations Children's Fund (UNICEF); United Nations Development Programme (UNDP); United Nations Disaster Assessment and Coordination (UNDAC); United Nations Economic and Social Commission for Western Asia (UNESCWA); United Nations Educational, Scientific and Cultural Organization (UNESCO); United Nations High Commissioner for Refugees (UNHCR); United Nations Human Settlement Programme (UN-Habitat); United Nations Office for Project Services (UNOPS); United Nations Office for the Coordination of Humanitarian Affairs (OCHA); United Nations Office on Drugs and Crime (UNODC); United Nations Population Fund (UNFPA); United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA); United Nations Resident Coordinator Office (UNRCO); UN Women; World Food Programme (WFP); World Health Organization (WHO)

Other International Organizations:

Agence française de développement (AFD); Agenzia Italiana per la Cooperazione Allo Sviluppo (AICS); Delegation of the European Union to Lebanon; Department for International Development (DFID); Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ); ECHO; Embassy of Belgium; Embassy of France; Embassy of Germany; Embassy of Spain; Embassy of the United States; European Bank for Reconstruction and Development (EBRD); European Investment Bank (EIB); International Committee of the Red Cross (ICRC); International Federation of Red Cross and Red Crescent Societies (IFRC); JICA; KfW; Netherlands Enterprise Agency (RVO); Proparco; Qatar Embassy; Swedish International Development Cooperation Agency (SIDA) / Embassy of Sweden; United Kingdom Foreign and Commonwealth Office (UK-FCO); United States Agency for International Development (USAID)



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