

LEBANON RAPID DAMAGE AND NEEDS ASSESSMENT (RDNA) MARCH 2025



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Disclaimer

This report summarizes the findings of the Lebanon Rapid Damage and Needs Assessment based on data covering the period October 8, 2023, to December 20, 2024 (inclusive). 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 and is not a replacement of in-depth sector-specific assessments.



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ABBREVIATIONS & ACRONYMS

AI	artificial intelligence
CapEx	capital expenditure
CAS	Central Administration of Statistics
CDR	Council for Development and Reconstruction
cm	centimeters
CNRS-L	National Council for Scientific Research - Lebanon
DaLA	Damage and Loss Assessment
DALY	disability-adjusted life year
dNBR	differenced Normalized Burn Ratio
DSP	Distribution Service Provider
DTM	Displacement Tracking Matrix
E&S	environmental and social
EDL	Electricité du Liban
ESA	European Space Agency
EU	European Union
FAO	Food and Agriculture Organization
GDP	gross domestic product
GWh	gigawatt hours
ha	hectares
HRH	human resources for health
HV	high voltage
ICT	information and communication technology
IDP	internally displaced person
IOM	International Organization for Migration
IPC	Integrated Food Security Phase Classification
KII	key informant interview
km	kilometers
L	liters
LV	low voltage
m	meters
m²	square meters
MEHE	Ministry of Education and Higher Education
MIDAS	mixed data sampling



ML	.....machine learning
MoE	.....Ministry of Environment
MoPH	.....Ministry of Public Health
MV	.....medium voltage
MW	.....megawatt
NCNE	.....National Center for Natural Hazards and Early Warning
NGO	.....non-governmental organization
OCHA	.....United Nations Office for the Coordination of Humanitarian Affairs
OEA	.....Order of Engineers and Architects
OSM	.....Open Street Map
PAI	.....publicly available information
PDNA	.....Post-Disaster Needs Assessment
PHEOC	.....Public Health Emergency Operation Center
PISA	.....Program for International Student Assessment
PoB	.....Port of Beirut
PV	.....photovoltaic
Q1-Q2-Q3-Q4	.....Quarters of a calendar year
RDNA	.....Rapid Damage and Needs Assessment
SAR	.....synthetic aperture radar
SPF	.....State and Peacebuilding Fund
SWM	.....solid waste management
t/d	.....tons per day
TA	.....technical assistance
TIMSS	.....Trends in Mathematics and Science Study
TVET	.....technical and vocational education and training
UGC	.....underground cables
UN	.....United Nations
UNDP	.....United Nations Development Programme
UNEP	.....United Nations Environment Programme
UNICEF	.....United Nations Children's Fund
US\$United States dollar
WASHwater, sanitation, and hygiene
WFPWorld Food Programme

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The assessment was prepared by a multidisciplinary World Bank team led by Philipp Petermann (Senior Disaster Risk Management Specialist) and Joy Aoun (Senior Strategy Officer), under the strategic guidance of Jean-Christophe Carret (Country Director for the Middle East Department (Iran, Iraq, Jordan, Lebanon, and Syria)) and Catherine Signe Tovey (Practice Manager for Urban, Resilience and Land in the Middle East and North Africa). The core team included Rob Pilkington (Senior Urban Finance Specialist), Ban Edilbi (Urban Specialist), Elie Mahfouz (Consultant), Fares Salem (Consultant), Ghizlane Aqariden (Consultant), Pol Nadal Cros (Consultant), Sara Boughedir (Consultant), and Randy Rizk (Program Assistant).

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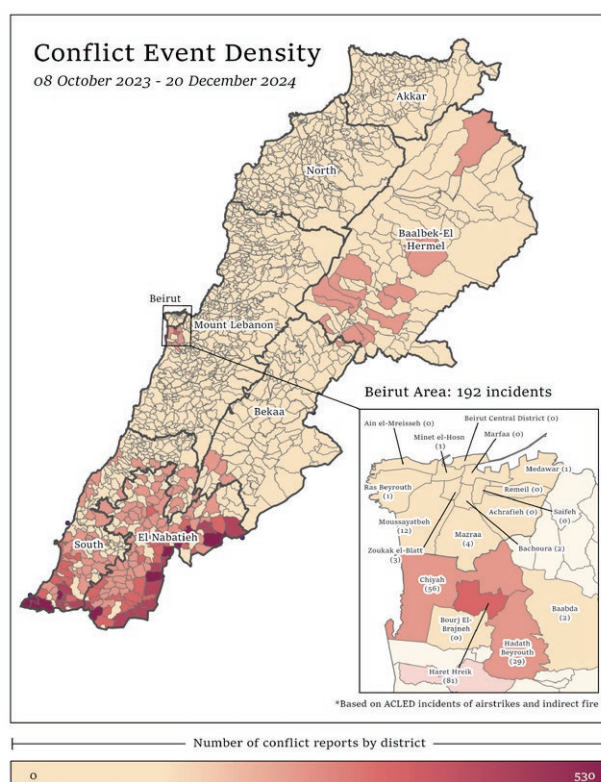


OVERVIEW

This report presents the Rapid Damage and Needs Assessment (RDNA) related to the impact of the 2023–2024 conflict that affected Lebanon, conducted by the World Bank at the request of the Government of Lebanon, and in collaboration with the National Council for Scientific Research - Lebanon (CNRS-L). The RDNA estimates the impact of the conflict in terms of physical damage and economic losses¹ and identifies preliminary recovery and reconstruction needs over the immediate, short, and medium term.² The RDNA covers the entire country,³ assessing both direct and indirect impacts of the conflict⁴ across 10 sectors:⁵ Agriculture and Food Security; Commerce, Industry and Tourism; Education; Environment and Debris Management; Energy; Health; Housing; Municipal and Public Services; Transport; and Water, Wastewater and Irrigation. Alongside these estimates, the report summarizes the macroeconomic impacts of the conflict as well as displacement patterns. Unless indicated otherwise, data for the assessment covers the period between October 8, 2023, and December 20, 2024 (inclusive).⁶

The report finds that damage to physical assets amounts to US\$6.8 billion, that the conflict has caused US\$7.2 billion in economic losses, and that recovery and reconstruction needs total US\$11 billion. In terms of damage, Housing is the most affected sector with damage costs amounting to US\$4.6 billion (or 67 percent of the total), followed by the infrastructure sectors (Energy; Municipal and Public Services; Transport; and Water, Wastewater and Irrigation) with a combined 10 percent of the total. In terms of economic losses, which were estimated for a 26-month period,⁷ Commerce, Industry and Tourism is the most impacted sector, with US\$3.4 billion in estimated losses (or 48 percent of the total), driven by the cumulative impact of the conflict on commercial activity across the national economy and on inbound tourism and national travel. Environment and Debris Management accounts

for the next highest share of losses at 11 percent, primarily driven by the conflict's negative impact on riverine and coastal ecosystems. The needs are estimated at US\$8.4 billion in the immediate and short term (covering the first three recovery years, i.e., 2025–27), and US\$2.6 billion in the medium term (2028–30). The highest estimated needs are in Housing at US\$6.3 billion (or 57 percent of the total), and in Commerce, Industry and Tourism with US\$1.8 billion (or 17 percent of the total), followed by the infrastructure sectors with a combined US\$1.0 billion of needs (or 9 percent of the total).



Source: Map generated for the World Bank, Ipsos

1 Damage refers to the pre-conflict replacement value of completely destroyed or partially damaged physical assets. Losses refer to changes in economic flows that result from the interruption or reduction of production and services due to the conflict.

2 Needs refer to the cost of rebuilding infrastructure and restoring service delivery and business activity to the pre-conflict level. They cover both infrastructure reconstruction as well service delivery restoration. Needs are expressed in current prices (considering inflation) and include a build back better premium.

3 The RDNA covers all nine governorates of Lebanon (Akkar, Baalbek-Hermel, Beirut, Bekaa, Keserwan-Jbeil, Mount Lebanon, Nabatiyeh, North, and South), except for Municipal and Public Services, which assessed damage and needs in nine districts due to data limitations, while losses were assessed nationwide.

4 While direct impacts are limited to conflict-affected areas (covering 453 municipalities that have witnessed at least one conflict incident), indirect impacts extend nationwide.

5 These sectors are those requested by the Government of Lebanon to be included in this RDNA.

6 Impact from conflict events occurring after this time period were not assessed as part of this RDNA.

7 This includes the conflict period (14 months, from October 2023 to December 2024) and the first recovery year. The loss period for Agriculture and Food Security differs (see Sector Summaries). For some sectors, it is likely that losses will continue to accumulate beyond the 26-months period, depending on the speed of sectoral recovery and sector-specific criteria.

Out of the US\$11 billion in total needs, it is estimated that a significant portion of the recovery will need to be driven by the private sector, including the provision of around US\$6-8 billion in financial resources, in particular in the Housing and the Commerce, Industry and Tourism sectors. This will likely require public support in terms of policy, investment environment, banking sector reforms, and potentially financial instruments such as guarantees that can help leverage the necessary amount of private capital. This also reflects that at least US\$3-5 billion in direct financing will be required from the public sector side, primarily for investments in the infrastructure sectors, agriculture, environment and human development sectors (education, health).

In geographic terms, Nabatiyeh and South governorates are the most impacted governorates, followed by Mount Lebanon. Nabatiyeh governorate has incurred the highest damage (US\$3.2 billion or 47 percent of the total), the highest losses (US\$ 2.0 billion or 28 percent of the total), and the highest needs (US\$4.7 billion, or 43 percent of the total). This is followed by the South Governorate, which stands at 23 percent, 23 percent and 22 percent, respectively, of total damage, losses and needs. Mount Lebanon, which includes the southern suburbs of Beirut, has also been considerably impacted and carries 16 percent of the total needs. Needs in Baalbek-Hermel and Bekaa represent 7 and 6 percent, respectively, of the total.

The RDNA builds on the recently published Interim Damage and Loss Assessment (DaLA)⁸ and follows the globally established and recognized Post-Disaster Needs Assessment (PDNA) methodology jointly developed by the European Union (EU), the World Bank, and the United Nations (UN). This methodology has been applied globally in post-disaster and post-conflict contexts to inform recovery and reconstruction planning. The methodology for this assessment relies on a mix of ground- and remote-based data, including ground surveys, key informant interviews (KIIs), sample visual checks, high-resolution satellite imagery (drawing on both public and non-public sources), synthetic aperture radar analysis (public and non-public) and social media analytics. CNRS-L provided technical contributions to the report, including data that were used for sectoral assessments and for the corroboration and validation of data and assumptions from other sources. In addition, the assessment

benefited from data and technical inputs provided by several UN agencies at the sectoral level. To ensure the relevance of the estimates and respond to urgent recovery planning requirements, the assessment was conducted over a compressed two-month timeline. Since the RDNA covers 10 sectors, but not all sectors of the economy, the findings are not representative of total national-level damage, losses, and needs. Given these constraints, future recovery planning and implementation efforts should include work to further improve upon the RDNA data through the integration of more comprehensive ground-based data collection and inclusion of additional sectors.

The report also includes an updated macroeconomic analysis of the impact of the conflict. Real gross domestic product (GDP) is now expected to contract by 7.1 percent in 2024. Compared to a no-conflict growth estimate of 0.9 percent, the conflict's total impact reaches -8.0 percent in 2024. This compounds the pre-existing economic crisis in Lebanon: by the end of 2024, the country's cumulative GDP decline since 2019 is nearly 40 percent.

The RDNA aims to inform recovery and reconstruction efforts by providing a transparent and evidence-based assessment that is grounded in 'build back better' principles. The assessment of needs related to rebuilding assets as well as restoring services and business activity can inform prioritization of both recovery and reconstruction efforts in geographic areas with the greatest needs. The assessment identifies costs that may be covered by the public and private sectors to inform policy dialogue and decisions about appropriate division of responsibility for financing recovery and reconstruction needs. The costing of needs includes a "build back better" premium to reflect the costs of rebuilding assets in a more sustainable, green, and resilient manner and help mitigate future risks.

The rest of the report presents the detailed findings of the assessment. This includes a factsheet; key assessment findings on damage, losses, and needs; a macroeconomic impact assessment; displacement analysis; followed by summary findings for each sector and information on the methodology used. The annexes include a detailed methodology note, unit cost assumptions, as well as maps and figures that support the assessment.

8 The recently published Interim Damage and Loss Assessment (DaLA) focused on physical damage and economic losses only and was limited to six sectors. The RDNA benefits from more comprehensive data (especially ground data), covers 10 sectors and a longer time period, and provides needs estimates. As a result of these differences, damage and loss estimates across the two assessments are not directly comparable.



Key Facts

OBJECTIVES

The RDNA provides an estimate of damage, losses, and recovery and reconstruction needs resulting from the conflict. More specifically, it aims to:

- Provide a comprehensive analysis of the impact of the conflict in terms of physical damage and economic losses.
- Deliver a preliminary estimate of recovery and reconstruction needs.
- Inform policy makers on recovery priorities.

SCOPE



GEOGRAPHIC SCOPE

The RDNA covers the **entire country** to estimate both the direct and indirect impacts of the conflict.

SECTORAL SCOPE

The RDNA covers the following 10 sectors: **Agriculture and Food Security; Commerce, Industry and Tourism; Education; Environment and Debris Management; Energy; Health; Housing; Municipal and Public Services; Transport; and Water, Wastewater and Irrigation.** It also covers macroeconomic impact and displacement patterns.

TEMPORAL SCOPE

Data for the assessment covers the period between October 8, 2023, and December 20, 2024 (inclusive).

KEY FINDINGS



6.8 DAMAGES
US\$ billion



7.2 LOSSES
US\$ billion

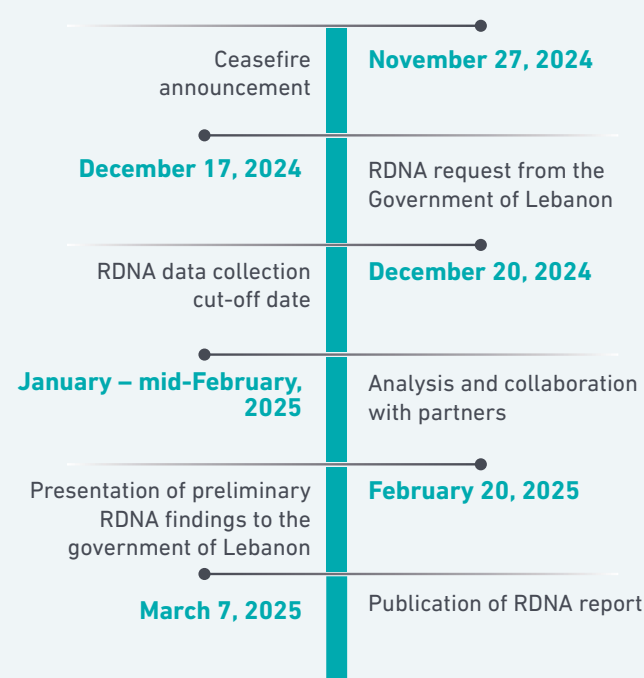


11.0 RECOVERY AND
RECONSTRUCTION NEEDS
US\$ billion

DATA SOURCES

The RDNA blends ground-based and remotely collected data. For each, various sources were used to improve the accuracy of the data. Ground-based data were provided through ground surveys, field assessments, KIIs, as well as government organization and UN agencies; while remote data were collected through high-resolution satellite imagery from public and non-public sources, synthetic aperture radar (SAR), anonymized cellphone data, social media analytics, and publicly available data. The use of cutting-edge remote-sensing technology assisted in reaching inaccessible areas and improving the corroboration of more traditional data sources. See Annex 1 for more detailed information on the methodology used. Due to the rapid nature of the assessment, the RDNA estimates are preliminary and are not a substitute for in-depth sector-specific analysis.

KEY MILESTONES

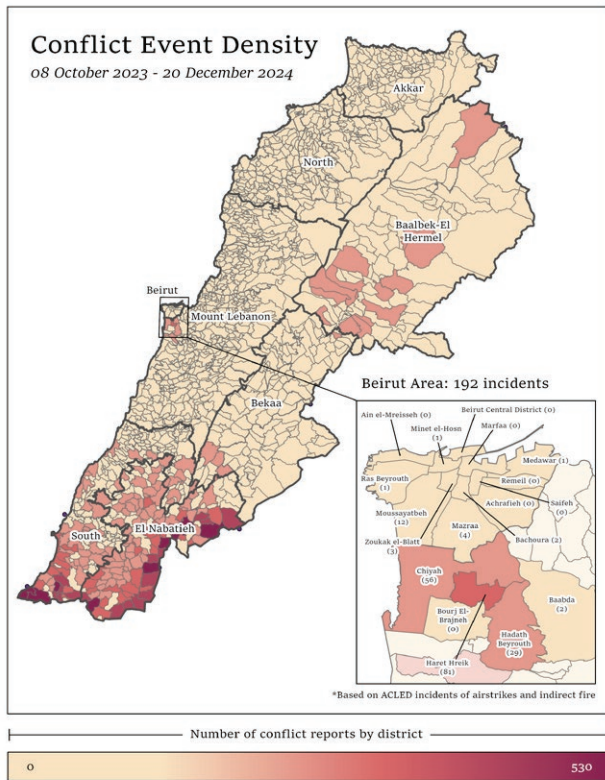


لمحة عامة

بالمائة، مدفوعة بشكل أساسي بالتأثير السلبي للنزاع على النظم البيئية النهرية والساحلية. تُقدر الاحتياجات بنحو 8.4 مليار دولار أمريكي في المديين الفوري والقصير (الذي يغطي سنوات التعافي الثلاث الأولى، أي 2025-2027)، و2.6 مليار دولار أمريكي في المدى المتوسط (2028-2030). وتتركز أعلى الاحتياجات المقدرة في قطاع الإسكان (6.3 مليار دولار أمريكي أو 57 بالمائة من الإجمالي)، وفي قطاع التجارة والصناعة والسياحة (1.8 مليار دولار أمريكي أو 17 بالمائة من الإجمالي)، تليها قطاعات البنية التحتية بإجمالي احتياجات قدرها مليار دولار أمريكي (9 بالمائة من الإجمالي). ومن أصل إجمالي الاحتياجات البالغة 11 مليار دولار أمريكي، تشير التقديرات

يعرض هذا التقرير نتائج التقييم السريع للأضرار والاحتياجات الناجمة عن النزاع الذي شهده لبنان خلال الفترة ما بين 2023 و 2024، والذي أعده البنك الدولي بناء على طلب من الحكومة اللبنانية، وبالتعاون مع المجلس الوطني للبحوث العلمية في لبنان (CNRS-L). يهدف التقييم إلى تقدير آثار النزاع من حيث الأضرار المادية والخسائر الاقتصادية، وتحديد الاحتياجات الأولية للتعافي وإعادة الإعمار على المستويات الفورية والقصيرة والمتوسطة المدى. يشمل التقييم كافة الأراضي اللبنانية¹، حيث يرصد الآثار المباشرة وغير المباشرة للنزاع² في عشرة قطاعات أساسية هي: ³ الزراعة والأمن الغذائي؛ التجارة والصناعة والسياحة؛ التعليم؛ البيئة وإدارة الردميات؛ الطاقة؛ الصحة؛ الإسكان؛ الخدمات البلدية والعامة؛ النقل؛ والمياه والصرف الصحي والري. إلى جانب هذه التقديرات، يستعرض التقرير الآثار الاقتصادية الكلية للنزاع وأنماط النزوح السكاني. وتغطي بيانات التقييم الفترة الممتدة من 8 تشرين الأول/أكتوبر 2023 حتى 20 كانون الأول/ديسمبر 2024 (شاملة)، ما لم يُشر إلى خلاف ذلك⁴.

يُخصّص التقرير إلى أن الأضرار التي لحقت بالأصول المادية تبلغ 6.8 مليار دولار أمريكي، وأن النزاع تسبب في خسائر اقتصادية قدرها 7.2 مليار دولار أمريكي، وأن احتياجات التعافي وإعادة الإعمار تصل إلى 11 مليار دولار أمريكي. من حيث الأضرار، يُعد قطاع الإسكان الأكثر تضرراً حيث بلغت قيمة الأضرار فيه 4.6 مليار دولار أمريكي (أي 67 بالمائة من الإجمالي)، يليه قطاعات البنية التحتية (الطاقة؛ الخدمات البلدية والعامة؛ النقل؛ والمياه والصرف الصحي والري) بنسبة مجتمعة تبلغ 10 بالمائة من الإجمالي. أما فيما يتعلق بالخسائر الاقتصادية، التي تم تقديرها لفترة 26 شهراً⁵، فإن قطاع التجارة والصناعة والسياحة هو الأكثر تأثراً، حيث بلغت الخسائر فيه 3.4 مليار دولار أمريكي (أو 48 بالمائة من الإجمالي)، مدفوعة بالتأثير التراكمي للنزاع على النشاط التجاري عبر الاقتصاد الوطني وعلى السياحة الوافدة والسفر الداخلي. ويستأثر قطاع البيئة وإدارة الردميات بثاني أعلى نسبة من الخسائر عند 11



المصدر: خريطة تم إنشاؤها لصالح البنك الدولي، إيبسوس

- 1 يغطي التقييم المحافظات اللبنانية التسع (عكار، بعلبك-الهرمل، بيروت، البقاع، كسروان-جبيل، جبل لبنان، النبطية، الشمال، والجنوب)، باستثناء قطاع الخدمات البلدية والعامة الذي اقتصر تقييم أضراره واحتياجاته على تسعة أقضية نظراً لمحدودية البيانات، بينما تم تقييم الخسائر على المستوى الوطني.
- 2 تقتصر الآثار المباشرة على المناطق المتضررة من النزاع (والتي تضم 453 بلدية شهدت حادثة نزاع واحدة على الأقل)، في حين تمتد الآثار غير المباشرة لتشمل البلاد بأكملها.
- 3 طلبت الحكومة اللبنانية تضمين هذه القطاعات في التقييم.
- 4 لم يشمل هذا التقييم آثار أحداث النزاع التي وقعت بعد هذه الفترة الزمنية.
- 5 يشمل ذلك فترة النزاع (14 شهراً، من أكتوبر 2023 إلى ديسمبر 2024) والسنة الأولى من التعافي. اختلفت فترة الخسارة لقطاع الزراعة والأمن الغذائي (انظر ملخصات القطاعات). بالنسبة لبعض القطاعات، من المحتمل أن تستمر الخسائر في التراكم بعد فترة الـ 26 شهراً، اعتماداً على سرعة التعافي القطاعي والمعايير الخاصة بكل قطاع.



والافتراضات الواردة من مصادر أخرى والتحقق منها. كما استفاد التقييم من البيانات والمدخلات التقنية التي وفرتها عدة وكالات تابعة للأمم المتحدة على المستوى القطاعي. ولضمان ملاءمة التقديرات والاستجابة العاجلة لمتطلبات التخطيط للتعافي، تم إجراء التقييم خلال جدول زمني مضغوط مدته شهران. وبما أن التقييم يغطي 10 قطاعات، ولكن ليس جميع قطاعات الاقتصاد، فإن نتائجه لا تمثل إجمالي الأضرار والخسائر والاحتياجات على المستوى الوطني. وفي ضوء هذه القيود، ينبغي أن تتضمن جهود التخطيط وتنفيذ التعافي المستقبلية العمل على تحسين بيانات التقييم من خلال دمج بيانات ميدانية أكثر شمولاً وإدراج قطاعات إضافية.

ويتضمن التقرير أيضاً تحليلاً محدثاً لتأثير النزاع على الاقتصاد الكلي. ومن المتوقع أن ينكمش الناتج المحلي الإجمالي الحقيقي بنسبة 7.1 بالمائة في عام 2024. وبالمقارنة مع النسبة المقدرة للنمو في حالة غياب النزاع والبالغة 0.9 بالمائة، فإن التأثير الإجمالي للنزاع يصل إلى -8 بالمائة في عام 2024. وهذا يفاقم الأزمة الاقتصادية القائمة في لبنان: فبحلول نهاية عام 2024، سيبلغ الانخفاض التراكمي في الناتج المحلي الإجمالي للبلاد منذ عام 2019 ما يقارب 40 بالمائة.

يهدف التقييم السريع للأضرار والاحتياجات إلى إرشاد جهود التعافي وإعادة الإعمار من خلال توفير تقييم شفاف يستند إلى الأدلة ويرتكز على مبادئ إعادة البناء بشكل أفضل. يمكن أن يسهم تقييم الاحتياجات المتعلقة بإعادة بناء الأصول واستعادة الخدمات والنشاط التجاري في تحديد أولويات جهود التعافي وإعادة الإعمار في المناطق الجغرافية ذات الاحتياجات الأكبر. ويحدد التقييم التكاليف التي قد يغطيها القطاعان العام والخاص لتغطية الحوار بشأن السياسات والقرارات حول التوزيع المناسب للمسؤولية عن تمويل احتياجات التعافي وإعادة الإعمار. وتشمل عملية احتساب تكلفة الاحتياجات ضرورات «إعادة البناء بشكل أفضل» بحيث تعكس تكاليف إعادة بناء الأصول بطريقة أكثر استدامة وخضرة ومرونة لتخفيف المخاطر المستقبلية.

يعرض باقي التقرير النتائج التفصيلية للتقييم. ويشمل ذلك تقرير الحقائق؛ ونتائج التقييم الرئيسية حول الأضرار والخسائر والاحتياجات؛ وتقييم التأثير على الاقتصاد الكلي؛ وتحليل أنماط النزوح السكاني؛ يليها ملخص النتائج لكل قطاع ومعلومات عن المنهجية المستخدمة. وتتضمن الملاحق مذكرة منهجية مفصلة، وافتراضات تكلفة الوحدة، فضلاً عن الخرائط والرسوم التي تدعم التقييم.

إلى أن جزءاً كبيراً من جهود التعافي سوف تحتاج إلى أن يقودها القطاع الخاص، بما في ذلك توفير نحو 6-8 مليارات دولار من الموارد المالية، وخاصة في قطاعات الإسكان والتجارة والصناعة والسياحة. ومن المرجح أن يتطلب هذا دعماً عاماً على صعيد السياسات وبيئة الاستثمار وإصلاحات القطاع المصرفي، وربما الأدوات المالية مثل الضمانات التي يمكن أن تساعد في تعبئة المبلغ اللازم من رأس المال الخاص. وهذا يعكس أيضاً أن ما لا يقل عن 3 إلى 5 مليارات دولار أميركي من التمويل المباشر سوف تكون مطلوبة من جانب القطاع العام، بشكل أساسي للاستثمارات في قطاعات البنية التحتية والزراعة والبيئة وقطاعات التنمية البشرية (التعليم والصحة).

من الناحية الجغرافية، تعد محافظتا النبطية والجنوب الأكثر تضرراً، تليهما محافظة جبل لبنان. فقد تكبدت محافظة النبطية أعلى مستوى من الأضرار (3.2 مليار دولار أميركي أو 47 بالمائة من الإجمالي)، وأعلى الخسائر (ملياري دولار أميركي أو 28 بالمائة من الإجمالي)، وأعلى الاحتياجات (4.7 مليار دولار أميركي، أو 43 بالمائة من الإجمالي). تليها محافظة الجنوب، التي تكبدت 23 بالمائة و23 بالمائة و22 بالمائة، على التوالي، من إجمالي الأضرار والخسائر والاحتياجات. كما تأثرت محافظة جبل لبنان، التي تضم الضاحية الجنوبية لبيروت، بشكل كبير وتمثل 16 بالمائة من إجمالي الاحتياجات. وتمثل الاحتياجات في بعلبك-الهرمل والبقاع 7 و6 بالمائة، على التوالي، من الإجمالي.

يستند التقييم السريع للأضرار والاحتياجات على التقييم الأولي للأضرار والخسائر في لبنان الذي تم نشره مؤخراً⁶ ويتبع منهجية تقييم الاحتياجات ما بعد الكوارث (PDNA) المعترف بها عالمياً والتي طورت بالشراكة بين الاتحاد الأوروبي والبنك الدولي والأمم المتحدة. تم تطبيق هذه المنهجية عالمياً في سياقات ما بعد الكوارث والنزاعات لإرشاد عمليات التخطيط للتعافي وإعادة الإعمار. تعتمد منهجية هذا التقييم على مزيج من البيانات الميدانية والبيانات عن بُعد، بما في ذلك المسوحات الميدانية، والمقابلات مع مصادر المعلومات الرئيسية، والفحوصات البصرية العينية، وصور الأقمار الصناعية عالية الدقة (بالاستناد إلى مصادر عامة وغير عامة)، وتحليل الرادار ذي الفتحة الاصطناعية (العام وغير العام) وتحليلات وسائل التواصل الاجتماعي. وقد قدم المجلس الوطني للبحوث العلمية في لبنان مساهمات تقنية في إعداد التقرير، من خلال توفير بيانات استخدمت مباشرة في التقييمات القطاعية، كما ومن خلال مراجعة البيانات

6 ركز التقييم الأولي للأضرار والخسائر في لبنان المنشور مؤخراً على الأضرار المادية والخسائر الاقتصادية فقط واقتصر على 6 قطاعات. ويستفيد التقييم السريع للأضرار والاحتياجات من بيانات أكثر شمولاً (خاصة البيانات الميدانية)، ويغطي 10 قطاعات وفترة زمنية أطول، ويقدم تقديرات للاحتياجات. ونتيجة لهذه الاختلافات، فإن تقديرات الأضرار والخسائر بين التقييمين ليست قابلة للمقارنة بشكل كامل.

النتائج الرئيسية



الأضرار
6.8 مليار دولار أمريكي



الخسائر
7.2 مليار دولار أمريكي



احتياجات التعافي وإعادة الإعمار
11 مليار دولار أمريكي

مصادر البيانات

يجمع التقييم بين البيانات الميدانية والبيانات المجمعة عن بُعد. لكل منها، تم استخدام مصادر متنوعة لتحسين دقة البيانات. تم جمع البيانات الميدانية من خلال المسوحات الميدانية، والتقييمات الميدانية، والمقابلات مع مصادر المعلومات الرئيسية، بالإضافة إلى المنظمات الحكومية ووكالات الأمم المتحدة؛ بينما تم جمع البيانات عن بُعد من خلال صور الأقمار الصناعية عالية الدقة من مصادر عامة وغير عامة، والرادار ذي الفتحة الاصطناعية، وبيانات الهواتف المحمولة مجهزة المصدر، وتحليلات وسائل التواصل الاجتماعي، والبيانات المتاحة للعموم. ساعد استخدام تكنولوجيا الاستشعار عن بُعد المتطورة في الوصول إلى المناطق التي يصعب الوصول إليها وتحسين التحقق من مصادر البيانات التقليدية. انظر الملحق 1 للحصول على معلومات أكثر تفصيلاً حول المنهجية المستخدمة. نظراً للطبيعة السريعة للتقييم، فإن تقديرات التقييم أولية ولا يمكن اعتبارها بديلاً عن التحليل المتعمق الخاص بكل قطاع.

المحطات الرئيسية



الحقائق الرئيسية



- يقدم التقييم السريع للأضرار والاحتياجات تقديراً للأضرار والخسائر واحتياجات التعافي وإعادة الإعمار الناجمة عن النزاع. وعلى وجه التحديد، يهدف إلى:
- تقديم تحليل شامل لتأثير النزاع من حيث الأضرار المادية والخسائر الاقتصادية.
- تقديم تقدير أولي لاحتياجات التعافي وإعادة الإعمار.
- إرشاد صانعي السياسات بشأن أولويات التعافي.



النطاق

النطاق الجغرافي

يغطي التقييم البلاد بأكملها لتقدير الآثار المباشرة وغير المباشرة للنزاع.

النطاق القطاعي

يغطي التقييم القطاعات العشرة التالية: الزراعة والأمن الغذائي؛ التجارة والصناعة والسياحة؛ التعليم؛ البيئة وإدارة الردميات؛ الطاقة؛ الصحة؛ الإسكان؛ الخدمات البلدية والعامة؛ النقل؛ والمياه والصرف الصحي والري. كما يغطي التأثير الاقتصادي الكلي وأنماط النزوح.

النطاق الزمني

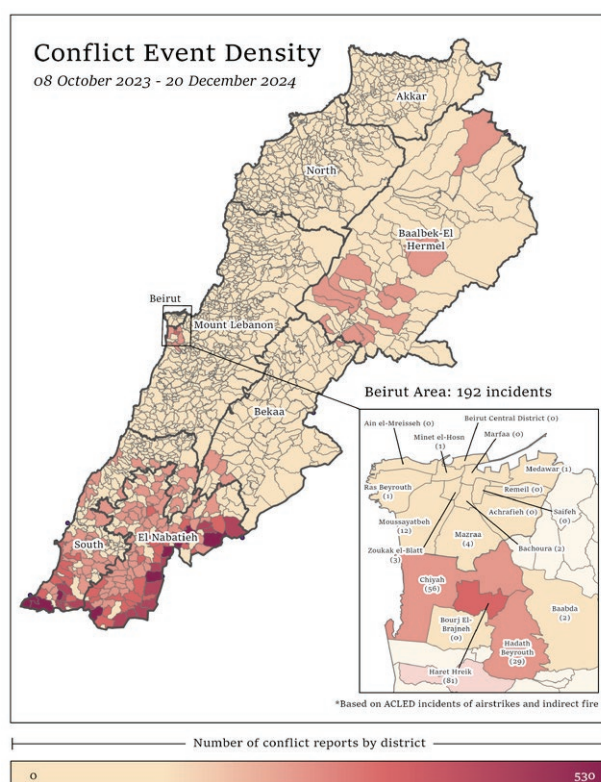
تغطي بيانات التقييم الفترة الممتدة من 8 تشرين الأول / أكتوبر 2023 حتى 20 كانون الأول / ديسمبر 2024 (شاملة).

APERÇU GÉNÉRAL

Ce rapport présente l'évaluation rapide des dommages et des besoins (RDNA) liés à l'impact du conflit de 2023/2024 sur le pays. Il a été mené par la Banque mondiale à la demande du gouvernement libanais et en collaboration avec le Conseil national de la recherche scientifique du Liban (CNRS-L). Le RDNA estime l'ampleur du conflit en termes de dommages physiques et de pertes économiques¹ et identifie les besoins préliminaires pour le relèvement et la reconstruction à très court (immédiat), court, et moyen termes.² Le RDNA couvre l'ensemble du pays³ et examine les impacts directs et indirects du conflit⁴ dans dix secteurs⁵ : agriculture et sécurité alimentaire ; commerce, industrie et tourisme ; éducation ; environnement et gestion des déchets ; énergie ; santé ; logement ; services municipaux et publics ; transports ; eau, eaux usées et irrigation. Parallèlement à ces estimations, le rapport synthétise les impacts macroéconomiques du conflit ainsi que les dynamiques de déplacements. Sauf indication contraire, les données de l'évaluation couvrent la période allant du 8 octobre 2023 au 20 décembre 2024 inclus.⁶

Le rapport estime les coûts des dommages aux biens matériels à 6,8 milliards de dollars et les pertes économiques causées par le conflit à 7,2 milliards de dollars. Les besoins de relèvement et de reconstruction sont évalués à 11 milliards de dollars. En termes de dommages, le secteur du logement est le plus touché, représentant 4,6 milliards de dollars (soit 67 % du total), suivi par les infrastructures (énergie, services municipaux et publics, transport, eau, eaux usées et irrigation) qui cumulent 10 % du total. En termes de pertes économiques, estimées sur une période de 26 mois⁷, le secteur du commerce, industrie et tourisme est le

plus touché, avec des pertes estimées à 3,4 milliards de dollars (soit 48 % du total), en raison de l'impact cumulé du conflit sur l'activité commerciale dans l'ensemble de l'économie nationale et sur le tourisme entrant et les voyages nationaux. L'environnement et la gestion des déchets représentent la deuxième part la plus élevée des pertes, soit 11 %, principalement en raison de l'impact négatif du conflit sur les écosystèmes fluviaux et côtiers. Les besoins sont estimés à 8,4 milliards de dollars à très court et



Source: Carte générée pour la Banque mondiale, Ipsos

1 Les dommages correspondent à la valeur de remplacement, avant le conflit, des biens matériels totalement détruits ou partiellement endommagés. Les pertes correspondent aux modifications des flux économiques résultant de l'interruption ou de la réduction de la production et des services en raison du conflit.

2 Les besoins correspondent au coût de la reconstruction des infrastructures et du rétablissement des services et de l'activité économique au même niveau qu'avant le conflit. Ils couvrent à la fois la reconstruction des infrastructures et le rétablissement des services. Les besoins sont exprimés en prix courants (en tenant compte de l'inflation) et comprennent une prime pour « reconstruire en mieux ».

3 Le RDNA couvre les neuf gouvernorats du Liban (Akkar, Baalbek-Hermel, Beyrouth, Bekaa, Kesrouan-Jbeil, Mont Liban, Nabatieh, Liban-Nord et Liban-Sud), à l'exception du secteur des services municipaux et publics, pour lesquels les dommages et les besoins ont été évalués dans neuf districts en raison de données limitées, tandis que les pertes ont été évaluées à l'échelle nationale.

4 Alors que les impacts directs se limitent aux zones touchées par le conflit (couvrant 453 municipalités qui ont connu au moins un incident du conflit), les impacts indirects s'étendent à l'ensemble du pays.

5 Il s'agit des secteurs que le gouvernement libanais a demandé d'inclure dans ce RDNA.

6 L'impact des événements conflictuels survenus après cette période n'a pas été évalué dans le cadre de ce RDNA.

7 Cela inclut la période du conflit (soit 14 mois, d'octobre 2023 à décembre 2024) et la première année de relèvement. La période de pertes pour l'agriculture et la sécurité alimentaire est différente (voir les résumés sectoriels). Pour certains secteurs, il est probable que les pertes continueront de s'accumuler au-delà de la période de 26 mois, selon la rapidité du relèvement sectoriel et des spécificités de chaque secteur.

court termes (couvrant les trois premières années de relèvement, soit 2025-2027), et à 2,6 milliards de dollars à moyen terme (2028-2030). Les besoins les plus élevés concernent le secteur du logement à hauteur de 6,3 milliards de dollars (soit 57 % du total) et celui du commerce, de l'industrie et du tourisme à hauteur de 1,8 milliard de dollars (soit 17 % du total), suivis par les secteurs des infrastructures, dont les besoins combinés s'élèvent à 1 milliard de dollars (soit 9 % du total). Sur les 11 milliards de dollars nécessaires, on estime qu'une part importante de la reprise devra être menée par le secteur privé, avec notamment la mise à disposition d'environ 6 à 8 milliards de dollars de ressources financières, en particulier dans les secteurs du logement, du commerce, de l'industrie et du tourisme. Cela nécessitera probablement un soutien public en termes de politiques, d'environnement d'investissement, de réformes du secteur bancaire et, éventuellement, d'instruments financiers tels que des garanties qui peuvent aider à mobiliser le volume nécessaire de capitaux privés. Cela reflète également le fait qu'au moins 3 à 5 milliards de dollars de financement direct seront nécessaires du côté du secteur public, principalement pour des investissements dans les secteurs des infrastructures, de l'agriculture, de l'environnement et du développement humain (éducation, santé).

Sur le plan géographique, les gouvernorats de Nabatieh et du LibanSud sont les plus touchés, suivis par le MontLiban. Le gouvernorat de Nabatieh a subi les dommages les plus importants (3,2 milliards de dollars, soit 47 % du total), a enregistré les pertes les plus élevées (2 milliards de dollars, soit 28 % du total) et devrait avoir les besoins les plus importants (4,7 milliards de dollars, soit 43 % du total). Vient ensuite le gouvernorat du Liban-Sud, qui représente 23 % du total des dommages, 23 % du total des pertes et 22 % des besoins. Le Mont Liban, qui comprend la banlieue sud de Beyrouth, a également été fortement impacté et représente 16 % du total des besoins. Enfin, les besoins estimés pour les gouvernorats de Baalbek-Hermel et de la Bekaa représentent respectivement 7 et 6 % du total.

Le RDNA s'appuie sur l'évaluation intermédiaire des dommages et des pertes (DaLA)⁸ récemment publiée et suit la méthodologie de l'évaluation des besoins post-catastrophe, établie et reconnue à l'échelle mondiale, et élaborée conjointement par l'Union européenne (UE), la Banque mondiale et les Nations unies (ONU). Appliquée dans le monde

entier dans des contextes post-catastrophe et post-conflit, cette méthodologie vise à éclairer la planification du relèvement et de la reconstruction. La méthodologie pour cette évaluation repose sur un mélange de données collectées sur le terrain et à distance, y compris des enquêtes de terrain, des entretiens avec des informateurs clés, des contrôles visuels échantillonnés, des images satellites à haute résolution (provenant de sources publiques et non publiques), des analyses des données de radar à ouverture synthétique (publiques et non publiques) et des analyses des réseaux sociaux. Le CNRS-L a apporté des contributions techniques au rapport, notamment en fournissant des données qui ont été directement utilisées pour les évaluations sectorielles et pour la corroboration et la validation des données et des hypothèses provenant d'autres sources. En outre, l'évaluation a bénéficié de données et de rapports techniques fournis par plusieurs agences des Nations unies au niveau sectoriel. Afin de garantir la pertinence des estimations et de répondre à l'urgence de la planification du relèvement, l'évaluation a été réalisée dans un délai réduit de deux mois. Toutefois, comme elle se concentre sur 10 secteurs et ne couvre pas l'ensemble de l'économie, ses résultats ne reflètent pas l'intégralité des dommages, des pertes et des besoins au niveau national. Etant donné ces contraintes, les efforts futurs de planification et de mise en œuvre du relèvement devront s'appuyer sur une collecte de données plus approfondie, et relevés sur le terrain et l'inclusion de secteurs supplémentaires pour affiner l'analyse des dommages et des besoins.

Le rapport comprend également une analyse macroéconomique actualisée de l'impact du conflit. Le produit intérieur brut (PIB) réel devrait désormais se contracter de 7,1 % en 2024. Comparé à une estimation de croissance de 0,9 % dans un scénario sans conflit, l'impact total du conflit atteint -8 % cette année-là. Cette détérioration accentue la crise économique préexistante au Liban : d'ici fin 2024, le pays aura enregistré un déclin cumulé de près de 40 % de son PIB depuis 2019.

Le RDNA vise à orienter les efforts de relèvement et de reconstruction en fournissant une évaluation transparente et factuelle, fondée sur les principes de « reconstruire en mieux ». L'évaluation des besoins liés à la reconstruction des biens matériels ainsi qu'à la restauration des services et de l'activité économique peut permettre de hiérarchiser les

8 L'évaluation intermédiaire des dommages et des pertes (DaLA) récemment publiée portait uniquement sur les dommages matériels et les pertes économiques et se limitait à six secteurs. Le RDNA s'appuie sur des données plus complètes (incluant des données de terrain), couvre dix secteurs et une période plus longue, et fournit des estimations en matière de besoins. En raison de ces différences, les estimations des dommages et des pertes entre les deux évaluations ne sont pas entièrement comparables.



efforts de relèvement et de reconstruction dans les zones géographiques où les besoins sont les plus pressants. L'évaluation identifie les coûts pouvant être pris en charge par les secteurs public et privé afin d'éclairer le dialogue politique et les décisions concernant la répartition appropriée des responsabilités pour le financement des besoins de relèvement et de reconstruction. Le chiffrage des besoins inclut une prime « reconstruire en mieux » pour refléter les coûts liés à une reconstruction des biens plus durable, plus écologique et plus résiliente, contribuant ainsi à réduire les risques futurs.

Le rapport détaille ensuite les conclusions de l'évaluation. Il comprend une fiche d'information, un résumé des principales conclusions sur les dommages, les pertes et les besoins, une analyse de l'impact macroéconomique et des déplacements, ainsi qu'un aperçu des conclusions pour chaque secteur et des informations sur la méthodologie employée. Les annexes comprennent une note méthodologique détaillée, des hypothèses de coûts unitaires, ainsi que des cartes et des données chiffrées qui étayent l'évaluation.



Faits marquants

OBJECTIFS

Le RDNA fournit une estimation des dommages, des pertes et des besoins de relèvement et de reconstruction résultant du conflit. Plus précisément, elle vise à :

- Fournir une analyse complète de l'impact du conflit en termes de dommages physiques et de pertes économiques.
- Fournir une estimation préliminaire des besoins de relèvement et de reconstruction.
- Informer les décideurs politiques sur les priorités en matière de relèvement.

SCOPE

PORTÉE GÉOGRAPHIQUE

Le RDNA couvre **l'ensemble du pays** afin d'estimer les impacts directs et indirects du conflit.

PORTÉE SECTORIELLE

L'étude RDNA couvre les 10 secteurs suivants : **Agriculture et sécurité alimentaire ; commerce, industrie et tourisme ; éducation ; environnement et gestion des déchets ; énergie ; santé ; logement ; services municipaux et publics ; transport ; eau, eaux usées et irrigation.** Il couvre également l'impact macroéconomique et les schémas de déplacement.

PORTÉE TEMPORELLE

Les données de l'évaluation couvrent la période comprise entre le 8 octobre 2023 et le 20 décembre 2024 (inclus).

PRINCIPALES CONCLUSIONS



6.8 **DOMMAGES**
milliards de dollars



7.2 **PERTES**
milliards de dollars

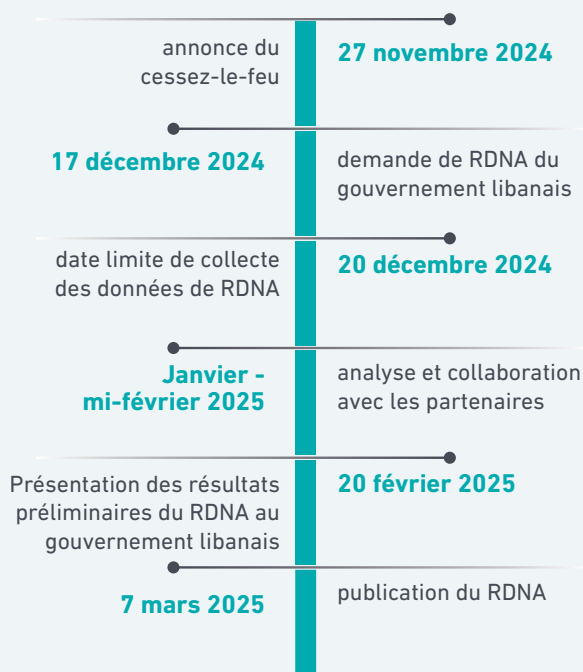


11.0 **BESOINS DE RELÈVEMENT ET DE RECONSTRUCTION**
milliards de dollars

SOURCES DES DONNÉES

L'étude RDNA combine des données collectées sur le terrain et à distance. Diverses sources ont été utilisées afin d'améliorer la précision des données. Les données collectées sur le terrain ont été fournies par le biais d'enquêtes et d'évaluations sur le terrain, d'entretiens avec des informateurs clés, ainsi que des rapports d'organisations gouvernementales et d'agences des Nations unies. Les données à distance ont, elles, été collectées grâce à des images satellites haute résolution provenant de sources publiques et non publiques, à un radar à synthèse d'ouverture (RSO), à des données anonymisées de téléphones portables, à des analyses des réseaux sociaux et à des données accessibles au public. L'utilisation d'une technologie de télédétection de pointe a permis d'atteindre des zones inaccessibles et d'améliorer la corroboration des sources de données plus traditionnelles. Voir l'annexe 1 pour plus d'informations sur la méthodologie utilisée. En raison de la nature rapide de l'évaluation, les estimations du RDNA sont préliminaires et ne remplacent pas une analyse sectorielle approfondie.

PRINCIPALES ÉTAPES





Summary of Assessment Findings

DAMAGE

The RDNA estimates that total damage caused by the conflict amounts to US\$6.8 billion. Damage is largely concentrated in **Housing**, which makes up more than 67 percent of total damage observed, followed by the **infrastructure sectors** (Energy; Municipal and

Public Services; Transport; and Water, Wastewater and Irrigation) with a combined 10 percent, and **Commerce, Industry and Tourism** with 9 percent. Among the nine governorates assessed, **Nabatiyeh** and **South** governorates were most damaged at 47 percent and 23 percent of total damage, respectively, followed by **Mount Lebanon** at 16 percent.

Table 1: Summary of damage per sector

Sector	Damage (US\$, millions)
Agriculture & Food Security	79
Commerce, Industry & Tourism	612
Education	151
Energy	98
Environment & Debris Management	512
Health	208
Housing	4,580
Municipal & Public Services	41
Transport	198
Water, Wastewater & Irrigation	356
Total	6,834

Note: Tables may not sum to totals due to rounding.

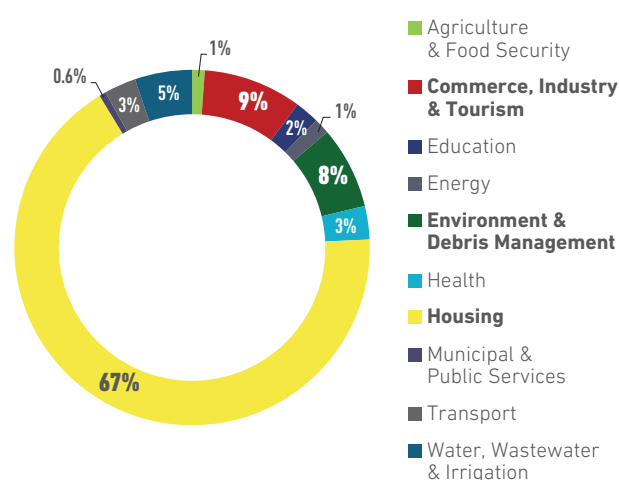
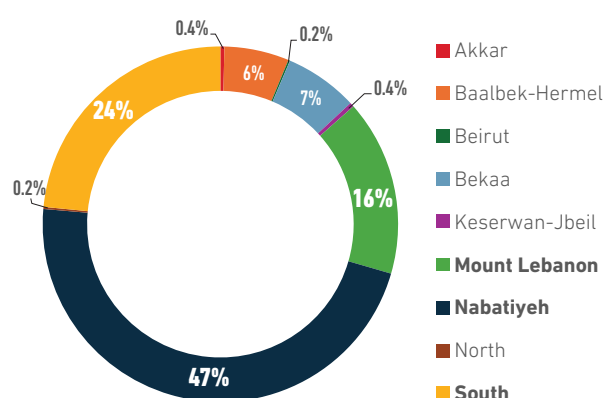


Table 2: Geographic distribution of damage

Governorate	Damage (US\$, millions)
Akkar	25
Baalbek-Hermel	403
Beirut	11
Bekaa	456
Keserwan-Jbeil	26
Mount Lebanon (including the southern suburbs of Beirut)	1,095
Nabatiyeh	3,203
North	13
South	1,602
Total	6,834

Note: Tables may not sum to totals due to rounding.



LOSSES

Economic losses from the conflict are estimated at **US\$7.2 billion**.⁹ Losses are largely concentrated in **Commerce, Industry and Tourism** with 48 percent of the total loss, driven by the cumulative impact of the conflict on commercial activity across the national economy and on inbound tourism and national travel.

Environment and Debris Management accounts for the next highest share of losses at 11 percent, primarily driven by the conflict's negative impact on the riverine and coastal ecosystems. This is followed by the **infrastructure sectors** (Energy; Municipal and Public Services; Transport; and Water, Wastewater and Irrigation), **Agriculture and Food Security**, and **Health**, each accounting for 10 percent of total losses.

Table 3: Summary of losses per sector

Sector	Losses (US\$, millions)
Agriculture & Food Security	742
Commerce, Industry & Tourism	3,410
Education	414
Energy	209
Environment & Debris Management	790
Health	700
Housing	363
Municipal & Public Services	192
Transport	173
Water, Wastewater & Irrigation	171
Total	7,164

Note: Tables may not sum to totals due to rounding.

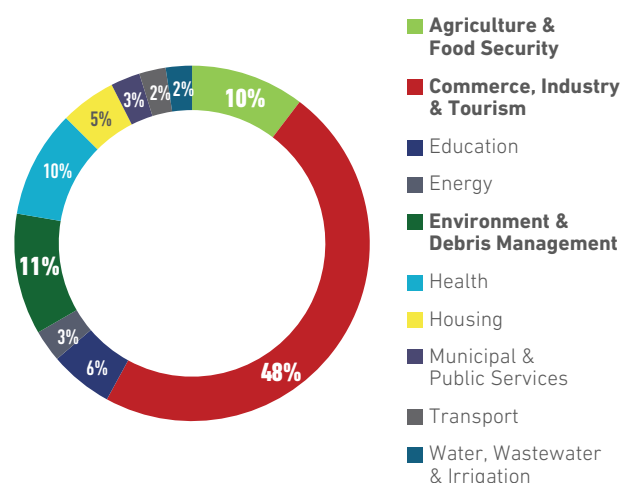
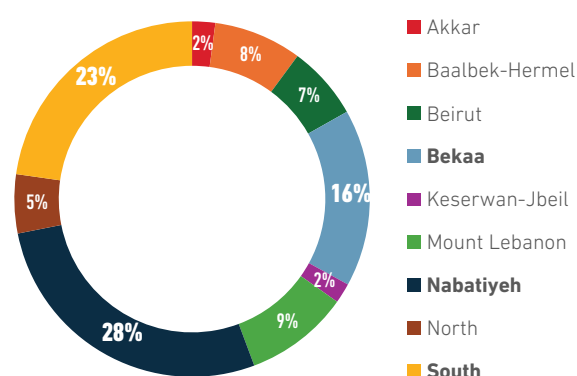


Table 4: Geographic distribution of losses

Governorate	Losses (US\$, millions)
Akkar	151
Baalbek-Hermel	574
Beirut	481
Bekaa	1,157
Keserwan-Jbeil	131
Mount Lebanon (including the southern suburbs of Beirut)	681
Nabatiyeh	1,976
North	384
South	1,630
Total	7,164

Note: Tables may not sum to totals due to rounding.



⁹ Economic losses are calculated by assessing changes in economic flows due to the conflict. They are calculated for a period of 26 months, including the conflict period (14 months, from October 2023 to December 2024) and the first recovery year. Agriculture and Food Security used a slightly longer loss period, see the respective sector summary and the Methodology Annex for more details.



RECOVERY AND RECONSTRUCTION NEEDS

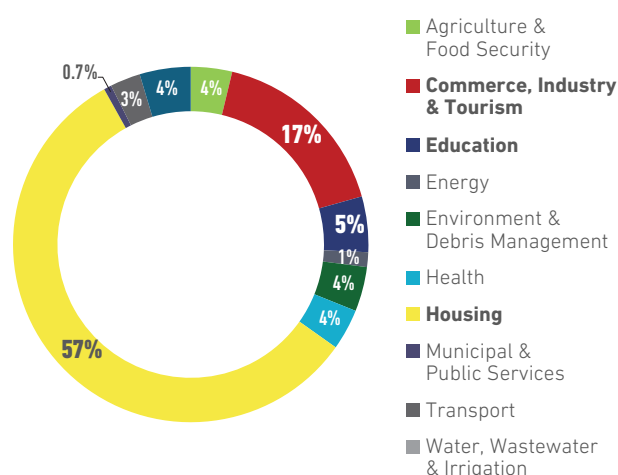
Recovery and reconstruction needs refer to the cost of rebuilding assets and restoring services and business activity to the pre-conflict level. Whereas damage and losses describe the impact of the conflict, needs are forward-looking and provide an overview of the financial resources necessary for the recovery and reconstruction from conflict or disaster. Needs are valued at current prices (and thus take into account inflation) and include a “build back better” premium to rebuild assets in a more sustainable, green, and resilient manner. They

cover both infrastructure reconstruction (which is directly linked to damage) as well as service delivery restoration. Depending on the specificities of each sector, needs are expected to be financed through a combination of public and private financing.

Recovery and reconstruction needs are estimated at US\$11 billion, which are spread over the immediate, short, and medium term. Immediate and short term needs for the first three recovery years (2025–27) are estimated at US\$8.4 billion, and medium term needs (2028–30) amount to US\$2.6 billion. At the sectoral level, the largest needs pertain to **Housing** with 57 percent of the total, followed by **Commerce, Industry**

Table 5: Summary of recovery and reconstruction needs per sector

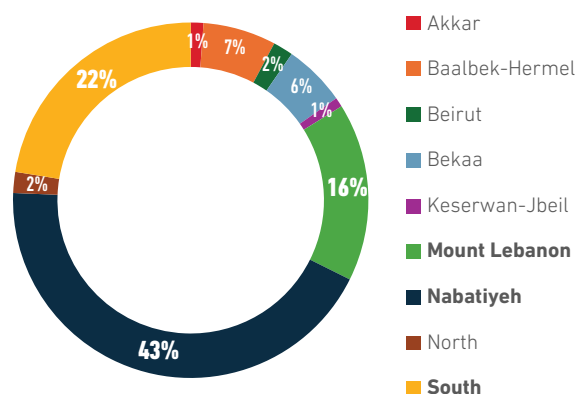
Sector	Needs (US\$, millions)
Agriculture & Food Security	412
Commerce, Industry & Tourism	1,849
Education	554
Energy	147
Environment & Debris Management	444
Health	409
Housing	6,252
Municipal & Public Services	76
Transport	302
Water, Wastewater & Irrigation	508
Total	10,951



Note: Tables may not sum to totals due to rounding.

Table 6: Geographic distribution of recovery and reconstruction needs

Governorate	Needs (US\$, millions)
Akkar	126
Baalbek-Hermel	727
Beirut	201
Bekaa	619
Keserwan-Jbeil	94
Mount Lebanon (including the southern suburbs of Beirut)	1,776
Nabatiyeh	4,741
North	209
South	2,458
Total	10,951



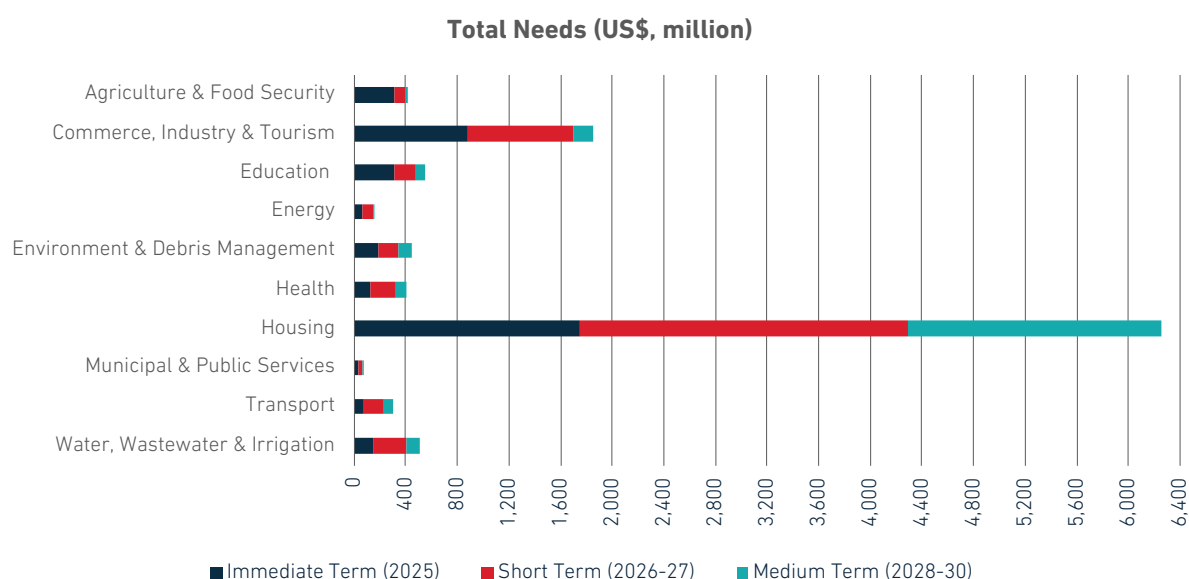
Note: Tables may not sum to totals due to rounding.

and Tourism at 17 percent. The infrastructure sectors have a combined US\$1.0 billion of needs, representing 9 percent of the total. Debris removal, transportation, recycling and disposal, a pre-requisite for sectoral recovery interventions, is estimated at US\$105 million. Out of the US\$11 billion in total needs, it is estimated that a significant portion of the recovery will need to be driven by the private sector, including the provision of around \$6-8 billion in financial resources, in particular in the Housing and the Commerce, Industry and Tourism sectors. This will likely require public support in terms of

policy, investment environment, banking sector reforms, and potentially financial instruments such as guarantees that can help leverage the necessary amount of private capital. This also reflects that at least US\$3-5 billion in direct financing will be required from the public sector side, primarily for investments in the infrastructure sectors, agriculture, environment and human development sectors (education, health). Geographically, the needs are concentrated in Nabatiyeh (43 percent of the total), followed by South governorate (22 percent of the total) and Mount Lebanon (16 percent of the

Table 7: Summary of estimated recovery and reconstruction needs in the immediate, short, and medium term

Sector	Needs (US\$, millions)			Total
	Immediate Term (2025)	Short Term (2026-27)	Medium Term (2028-30)	
Agriculture & Food Security	312	88	11	412
Commerce, Industry & Tourism	885	817	147	1,849
Education	311	170	72	554
Energy	66	79	2	147
Environment & Debris Management	191	150	103	444
Health	123	204	82	409
Housing	1,747	2,549	1,957	6,252
Municipal & Public Services	29	32	15	76
Transport	76	151	75	302
Water, Wastewater & Irrigation	144	264	100	508
Total	3,883	4,504	2,564	10,951



Note: Tables may not sum to totals due to rounding.


Table 8: Summary of damage, losses, and needs by sector

Sector	Total (US\$, millions)		
	Damage	Losses	Needs
Agriculture & Food Security	79	742	412
Commerce, Industry & Tourism	612	3,410	1,849
Education	151	414	554
Energy	98	209	147
Environment & Debris Management	512	790	444
Health	208	700	409
Housing	4,580	363	6,252
Municipal & Public Services	41	192	76
Transport	198	173	302
Water, Wastewater & Irrigation	356	171	508
Total	6,834	7,164	10,951

Note: Tables may not sum to totals due to rounding.

total). The needs can be divided into two categories: infrastructure reconstruction and rehabilitation of assets, estimated at US\$8.8 billion; and restoration of service delivery and access to goods, estimated at US\$2.1 billion.

MACROECONOMIC IMPACT

Updated World Bank estimates indicate that the conflict reduced real gross domestic product (GDP) growth for 2024 by 8 percentage points, up from an earlier projection of 6.6 percentage points in November 2024.¹⁰ Using mixed data sampling (MIDAS) methods, refined via predictor selection methods,¹¹ and updated high-frequency economic data, the latest analysis confirms a deeper impact. Real GDP is now expected to contract by 7.1 percent in 2024. Compared to a no-conflict growth estimate of 0.9 percent, the conflict's total impact reaches -8 percent in 2024.

By the end of 2024, Lebanon's cumulative GDP decline since 2019 approached 40 percent, worsening its pre-existing economic crisis. The conflict further compounds an ongoing prolonged downturn, exacerbated by sovereign default, sharp currency depreciation, a systemic banking crisis, limited capital investment, and deteriorating public services. The destruction of capital stock and skilled labor migration further erodes Lebanon's economic potential, posing significant risks to long term growth.¹²

DISPLACEMENT

Over the past year, the conflict in Lebanon has led to a significant displacement crisis. The number of internally displaced persons (IDPs) peaked in November 2024, reaching approximately 900,000, or approximately 20 percent of the country's population.¹³ The vast majority of IDPs originated from the districts of Bent Jbeil, Tyre, Nabatiyeh,

10 A prior analysis in November 2024 projected a 5.7 percent contraction, based on shocks to consumption and net exports—the primary transmission channels of the conflict's effects. In a counterfactual no-conflict scenario, real GDP growth would have been 0.9 percent, implying an earlier estimated total conflict impact of -6.6 percent. See: World Bank. November 2024. *Lebanon Interim Damage and Loss Assessment (DaLA): Assessment Report*. Washington, DC: World Bank Group; and World Bank. 2024. *Lebanon Economic Monitor: Mounting Burdens on a Crisis-Ridden Country*. Washington, DC: World Bank Group.

11 For further details on the MIDAS methods, refer to: World Bank. 2021. *Lebanon Economic Monitor: Lebanon Sinking (To the Top 3)*. Washington, DC: World Bank Group; and World Bank. 2023. *Lebanon Economic Monitor: The Normalization of Crisis is No Road for Stabilization*. Washington, DC: World Bank Group.

12 World Bank. 2024. *Lebanon Economic Monitor: Mounting Burdens on a Crisis-Ridden Country*. Washington, DC: World Bank Group.

13 International Organization for Migration. November 2024. DTM Mobility Snapshot, Round 65. IOM, Lebanon.

Marjaayoun, and Baabda. They were mostly hosted by the districts of Saida, Nabatiyeh, Tyre, Aley, and Metn. The Beirut municipality and surrounding suburbs experienced a substantial degree of population shift when the ceasefire went into effect on November 27, 2024. Prior to that, Beirut hosted a cumulative total of approximately 450,000 displaced individuals, who were primarily located in Zoukak El-Blatt, Achrafieh, and Bachoura.¹⁴ While most of these individuals originated from outside of the Greater Beirut area, this total also included 73,000 individuals from the nearby southern suburbs¹⁵ (see more details on displacement patterns in Figure C3 in Annex C).

The protracted conflict has inflicted extensive damage on civilian infrastructure, including roads, homes, schools, and health facilities, thereby exacerbating the challenges faced by displaced populations in their efforts to return. Many villages near the southern border remain uninhabited due to ongoing insecurity and access limitations, further complicating the return process for IDPs.¹⁶ More than 95 percent of those IDPs who have initiated their return to their areas of origin are currently residing in rental housing or host settings.¹⁷ Many families report having sold assets to cope with prolonged displacement and disruptions to their

livelihoods.¹⁸ Some were unable to afford necessities such as food, clothing, and shelter. The high cost of living in safer areas forces families to make difficult choices, often prioritizing immediate survival over long-term health and education. The vulnerability of IDPs, regardless of their current housing situations, is at risk of being heightened if delays occur in reconstruction and recovery efforts, which are essential for rebuilding critical civilian infrastructure and restoring livelihoods. Persons injured by the conflict, women, children, the elderly, persons with disabilities, refugees, and migrant workers are particularly vulnerable.

Even prior to the escalation of the conflict, the economic crisis had already triggered unprecedented levels of poverty and food insecurity in the country.¹⁹ Nearly one-third of Lebanon's population is reportedly facing acute food insecurity following the escalation of conflict in late 2024.²⁰ The healthcare system, already weakened by years of economic strain, is unable to meet the needs of the displaced, leaving many without access to necessary medical care. The psychological impact on displaced individuals is significant and the need for mental health and psychosocial support constitutes an essential part of recovery for Lebanon.

14 Data collected for the Lebanon RDNA.

15 Ibid.

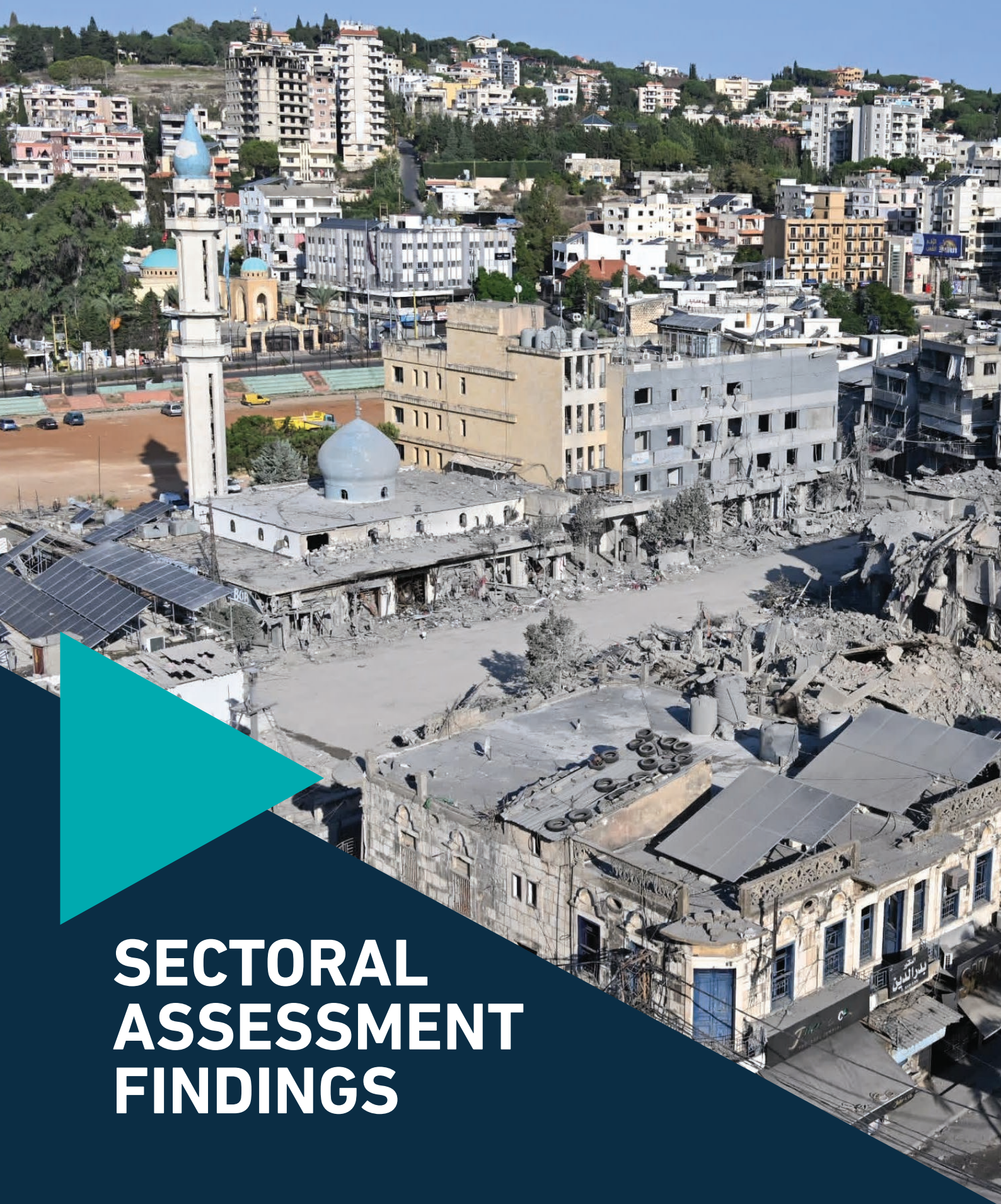
16 According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), many villages near the southern border remain deserted due to ongoing insecurity and impediments to access. Confirmed by Ipsos maps for the Lebanon RDNA.

17 Around 31 percent of IDPs are currently living in host settings, while 65 percent have opted for rental housing around 2 percent are housed in 33 collective sites. Another 2% have relocated to their secondary residences. Meanwhile, less than 1 percent are categorized under "other", this includes unfinished buildings, tents, parks, on the streets, or self-settled sites". International Organization for Migration (IOM), February 2025. DTM Mobility Snapshot, round 75, IOM, Lebanon, p.7.

18 Data of phone surveys conducted for this RDNA.

19 World Bank. May 2024. *Lebanon Poverty and Equity Assessment 2024: Weathering a Protracted Crisis*. Washington, DC: World Bank.

20 IPC. January 17, 2025. "Lebanon: Lebanon's Food Security Expected to Deteriorate Following the Escalation of the Conflict." Acute Food Insecurity Analysis October 2024 – March 2025.



SECTORAL ASSESSMENT FINDINGS

Agriculture & Food Security

Damage

US\$79 million

Losses

US\$742 million

Recovery & Reconstruction Needs

US\$412 million

Pre-conflict situation: Prior to the conflict, agriculture was crucial for Lebanon's food security. As of 2020, agriculture constituted 9 percent of Lebanon's GDP and 4 percent of employment, while the food processing industry added another 4 percent.²¹ South governorate alone was responsible for 64 percent of the country's citrus trees,²² 94 percent of banana plantations, 15 percent of olive trees, and 44 percent of tropical fruit trees, including 63 percent of avocado trees.²³ Bekaa produced 70 percent of Lebanon's grapes, 30 percent of which were used for winemaking.²⁴ 40 percent of agricultural activities were livestock related and almost 60 percent of livestock farmers in Lebanon depended on dairy as their main source of income.²⁵ This sector played a crucial role in sustaining rural livelihoods, providing economic stability, and significantly benefiting women by enhancing their participation in agricultural value chains. However, the sector had already been weakened by the 2019 economic crisis, which limited access to finance, exacerbated by poor value chain integration and inefficient public institutions. Small and medium enterprises and cooperatives were heavily reliant on international aid and non-governmental organization (NGO) support. Environmental and social (E&S) vulnerabilities were high, with 67 percent of agricultural households in the Bekaa and South governorates in poverty—worsened by climate change and environmental degradation. The assessment covers crop production, livestock,

food security,²⁶ facilities and equipment,²⁷ on-farm irrigation,²⁸ and fishery assets.

For Agriculture and Food Security, the conflict has caused damage estimated at US\$79 million. The conflict has severely impacted infrastructure, crop production, livestock, fisheries, and irrigation systems, deteriorating livelihoods and hindering subsequent recovery. Major direct damage to irrigated crops amounts to US\$34 million and includes substantial uprooting of key crops such as olives and avocado; damage to irrigation systems amounts to US\$16 million and livestock damage to US\$11 million, including around 3 million chickens killed and nearly 10,000 square meters (m²) of poultry farms damaged. Along the coast, many fishing activities have stopped, with damage to 472 docked fishing boats²⁹ and to 13 aquaculture ponds amounting to US\$1.2 million in damage. In spatial terms, Nabatiyeh governorate incurred the most damage with US\$42 million, followed by South governorate with US\$24 million, and Bekaa governorate with US\$8 million.

The conflict has caused losses to Agriculture and Food Security estimated at US\$742 million.³⁰ These primarily reflect lost revenues from agricultural products that could not be sold due to reduced or damaged production. This includes an estimated US\$693 million in lost revenue from crop production, US\$25 million from livestock, and US\$24 million from

21 Food and Agriculture Organization. 2024. "Lebanon at a Glance." <https://www.fao.org/lebanon/our-office/lebanon-at-a-glance/en#:~:text=Agriculture%20plays%20an%20important%20role,to%2013%20percent%20in%202020>.

22 Jalkh, Jeanine. March 26, 2024. "Lebanon's Economy, Another Victim of the War." *L'Orient Today*. <https://today.lorientlejour.com/article/1408350/lebanons-economy-another-victim-of-hezbollah-israel-war.html>.

23 Ministry of Agriculture. الإحصاء الزراعي الشامل لعام 2010 - وزارة الزراعة. (Agriculture Census 2010 Main Results). <http://www.Agriculture.gov.lb/Statistics-and-Studies/Comprehensive-Agricultural-Statistics/statistics-2010>.

24 Ibid.

25 Abdallah, Chadi, Rita Der Sarkissian, Samah Termos, Talal Darwish, and Ghaleb Faour. 2018. *Agricultural Risk Assessment for Lebanon to Facilitate Contingency & DRR/CCA Planning by the Ministry of Agriculture*. Beirut, CNRS-L and FAO.

26 Including 8 wholesale markets, 627 bakeries and production lines.

27 Including government buildings, agriculture vocational schools and research stations, and agricultural machinery.

28 Focusing on on-farm irrigation systems with a total of 100,902.62 hectares, including sprinklers, drip, and on-farm canals. The assessment of the impact of the conflict on larger irrigation systems is covered under the Water section of this report.

29 This figure accounts for both boats destroyed by direct shelling and those damaged from prolonged idling during the conflict. Of the total, 12 boats were completely destroyed by shelling, while 460 others suffered significant damage due to rust, saltwater, and sun exposure due to halted fishing. The replacement cost for the destroyed boats is equivalent to that of a brand-new 8-meter boat with an engine, while repairs for the partially damaged ones are costed at 10 percent of their original value.

30 Losses in the Agriculture sector were calculated over a period corresponding to specific average recovery periods needed for crops (one and a half to three years), livestock (two years), and fisheries (one year).



fisheries. The losses were driven by inaccessible farmland, continued uprooting of trees, and halted harvests in conflict-affected areas, all of which exacerbated the sector's vulnerabilities and delayed recovery. The highest losses are recorded in South governorate with US\$286 million, followed by Bekaa with US\$212 million, and Nabatiyeh with US\$199 million (see the geographic distribution of losses in Figure C1 in Annex C).

The recovery and reconstruction needs for Agriculture and Food Security are estimated at US\$412 million. For the Agriculture sector, needs are estimated at US\$165 million. This includes needs for infrastructure reconstruction and rehabilitation of assets that are estimated at US\$29 million and encompass mostly the repair of on-farm irrigation systems, aquaculture ponds, fishing boats, and crops processing equipment. It also covers the total investment needs for service restoration and access to goods amounting to US\$136 million, including US\$19 million for livestock recovery, US\$59 million for crop recovery, and US\$57 million to support agricultural labor recovery, which refers to the compensation for labor lost due to the conflict and typically involves cash-based support, such as cash-

for-work programs, to aid recovery and restore livelihoods. Immediate term needs for Agriculture amount to US\$65 million covering agriculture labor needs, supplemental animal feed, and initiation of on-farm irrigation repairs. Short term needs total US\$88 million and should prioritize the rehabilitation of key assets such as agricultural plots (mainly for potatoes and vegetable value chains), greenhouses, olive groves, and livestock, with investments in infrastructure such as olive presses and fishing boats. Medium term recovery needs in Agriculture amount to US\$11 million, including rebuilding damaged cross-cutting infrastructure, on-farm irrigation systems, and destroyed poultry farms. For Food Security, emergency food security assistance needs resulting from the conflict are a priority to address, estimated to require US\$247 million³¹ in the immediate term to benefit around 550,000³² individuals who became food insecure (classified by the Integrated Food Security Phase Classification (IPC) as Phase 3 (crisis) and IPC Phase 4 (emergency conditions³³) during the conflict. Additionally, there are 1.1 million people across Lebanon who already experienced IPC Level 3 or higher food insecurity prior to the conflict, whose food security needs are not included in this assessment.³⁴

31 Food security needs were obtained by multiplying the number of people vulnerable to food security (IPC level 3 and higher) with the price of the Survival Minimum Expenditure Basket (SMEB) as set by the WFP at US\$ 37.4 per month (US\$ 448.8 per year).

32 This number was calculated by subtracting the estimated number of people at IPC Level 3 or higher between October 2023 – March 2024 from the projected figures for January 2025 – March 2025. The IPC assesses the number of people at IPC Level 3 or higher on a trimestral to bi-annual basis. The period from May 2023 – October 2023 was marked by heightened instability due to the lira crisis, reduced access to bread, and the lifting of subsidies. As a result, the October 2023 – March 2024 period is considered a more reliable baseline for understanding the food security situation before further shifts in displacement patterns and socio-economic conditions caused by the conflict. The projected figure for the first quarter of 2025 was used to estimate immediate needs as accurately as possible.

33 IPC Phase 3 (Crisis): Households face food consumption gaps or must adopt crisis-level coping strategies, leading to high malnutrition. Urgent action is needed. IPC Phase 4 (Emergency): Households experience severe food shortages, high malnutrition, and excess mortality. Immediate intervention is required. (Source: IPC, www.ipcinfo.org).

34 IPC. "Lebanon: Acute Food Insecurity Situation for October 2023 - March 2024 and Projection for April 2024 - September 2024 | IPC - Integrated Food Security Phase Classification." Ipcinfo.org, 2023, www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1156728/?iso3=LBN.

Table 9: Damage, losses, and needs for the Agriculture & Food Security sector

Asset Types	Partially Damaged	Completely Destroyed	Total Cost (US\$, millions)
DAMAGE			
Government buildings and vocational schools (unit)	7	-	0.3
On-farm irrigation systems (sprinklers, drip, on-farm canals) (ha)	4,442	843	16
Crops (ha)	14,444	2,193	34
Harvesting and processing equipment (unit)	-	37	3.4
Greenhouses and plan nursery (ha)	100	70	10
Cattle, sheep, and goats (head)	-	2,652	1.2
Poultry (head)		2,750,000	9.6
Bee hives (unit)	-	5,000	0.8
Poultry farm (m2)	-	9,784	2.9
Fishing boats (unit)	460	12	0.9
Aquaculture ponds (unit)	-	13	0.3
Total Damage			79
LOSSES			
Reduced crop production and revenues			693
Reduced livestock production and revenues			25
Reduced fish production and revenues			24
Total Losses			742

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Agriculture Needs					
Infrastructure Reconstruction & Rehabilitation of Assets	Government buildings and vocational schools	-	-	0.2	0.2
	On-farm irrigation	7	7	7	21
	Harvesting and processing equipment	-	5	-	4.6
	Apiary infrastructure	-	1.1	-	1.1
	Fishing boats and aquaculture ponds	-	2	-	2
	Subtotal	7	15	7	29
Restoration of Service Delivery & Access to Goods	Crops	-	59	-	59
	Livestock	1	15	4	19
	Animal Feed	0.7	-	-	0.7
	Agriculture labor	57	-	-	57
	Subtotal	58	74	4	136
Total Agriculture Needs		65	88	11	165
Food Security Needs					
Restoration of Service Delivery & Access to Goods	<i>Food Security Needs</i>	247	-	-	247
	Subtotal	247	-	-	247
Total Needs		312	88	11	412



Commerce, Industry & Tourism

Damage

US\$612 million

Losses

US\$3.4 billion

Recovery & Reconstruction Needs

US\$1.8 billion

Pre-conflict situation: The Commerce, Industry and Tourism Sector comprises two key categories: Commerce and Industry, which covers essential sectors such as wholesale/retail, industry, and professional services; and Tourism. Prior to the conflict, the Commerce, Industry and Tourism sector accounted for 40 percent of Lebanon's GDP³⁵ and included around 215,000 formal and informal establishments.³⁶ Since 2019, the sector had been gradually recovering from multiple challenges, albeit at a slow pace. Access to finance continued to be a significant challenge, crippling business operations. Lebanon remained a net importing country despite small-scale growth in agribusiness, chemicals, and medicinal production. Tourism establishments, which include hospitality (restaurants, cafes, bars, hotels, short term accommodation, and other tourism-related services), have historically been a source of employment and key drivers of the Lebanese economy, especially when including foreign expatriate and Lebanese diaspora spending. Tourist arrivals (excluding expatriates) witnessed a year-on-year increase of 56.6 percent in 2022. Despite the 24 percent drop in incoming visitors in Q4 2023 in comparison with Q4 2022, the sector still accounted for around 8.6 percent of GDP in 2023. Prior to the conflict, employment in the Tourism sector was estimated to be around 4.4 percent of total employment³⁷ and accounted for up to 20 percent of the sector's total input costs.

For Commerce, Industry and Tourism, the conflict has caused damage estimated at US\$612 million, out of which 27 percent occurred in Tourism. In the sector as a whole, it is estimated that at least 2,099 establishments were destroyed and 7,094 were partially damaged, impacting 11 percent of the assessed baseline.³⁸ Within Commerce and Industry, there have been 6,974 impacted establishments, of which 2 percent are destroyed and 8 percent partially

damaged. In tourism, 2,219 establishments have been impacted, of which 3 percent are destroyed and 10 percent partially damaged. In spatial terms, the conflict affected Marjaayoun district the most with US\$121 million of damage, followed by Nabatiyeh district with US\$101 million, and Tyre with US\$88 million (see Figure C2 in Annex C for more details).

The conflict has caused losses estimated at US\$3.4 billion in the Commerce, Industry and Tourism sector, out of which US\$1.3 billion (38 percent) were recorded in tourism. Losses to Commerce and Industry, totaling US\$2.1 billion, were driven by business closures due to damaged establishments or the displacement of employees and business owners from conflict-affected areas, changes in consumption behavior in non-conflict zones with a concentration on necessary rather than luxury goods, and disruptions to supply chains. These losses include US\$990 million for wholesale/retail, US\$829 million for manufacturing, and US\$254 million for services. Tourism losses are estimated at US\$1.3 billion, reflecting the nationwide scope of the conflict's impact on the sector. An estimated 45 percent of tourism losses accrued in conflict-affected areas, while 55 percent occurred in the rest of Lebanon, reflecting the higher concentration of tourism activity in areas not directly impacted by the conflict. Losses in tourism encompass a decline in economic activity, including reduced rental income, lower demand for consumable goods, diminished business profits, and wage losses for workers in the sector. These losses are driven by the drastic drop in tourist arrivals and hotel occupancy due to travel restrictions, supply chain disruptions, reduced consumer spending, and safety concerns. At the district level, total losses for the entire sector were highest in Nabatiyeh with US\$454 million, followed by Beirut with US\$423 million, and Tyre with US\$410 million.

35 At current prices, Central Administration of Statistics (CAS) Lebanon National Accounts 2004–2021. Sub-sectors included: food and beverage, light manufacturing, heavy manufacturing, repair (vehicles), wholesale and retail trade, services.

36 Informal establishments are estimated to be 2.5 times the number of formal establishments.

37 Central Administration of Statistics. 2020. "Labor Force Survey 2018–2019. Lebanon."

38 Baseline extrapolation accounted for the inclusion and representation of formal and informal establishments.



The recovery and reconstruction needs for Commerce, Industry and Tourism are estimated at US\$1.8 billion, out of which 34 percent pertain to Tourism. The estimated needs reflect the total requirements for the sector's recovery, independent of the eventual financing sources, which may include contributions from both the public and private sectors. The total investment needs for infrastructure reconstruction are estimated to be US\$796 million, which include US\$532 million for repairing partially damaged establishments and US\$264 million for reconstructing completely destroyed establishments—of which 27 percent would be for Tourism establishments. Needs for service delivery restoration are estimated to be US\$1,023 million, of which 34 percent are needs for the Tourism sector. Service delivery restoration needs entail working capital provision to facilitate repurchasing of inventory supplies, to cover immediate and short term operational costs, wage compensation for workers, and rental fees for temporary operational spaces. Support for such working capital needs would be most critical for micro, small, and medium establishments, which are most vulnerable and likely unable to recover by themselves. It is assumed that around 35 percent of impacted businesses in the conflict-affected areas

will need some liquidity support.³⁹ In the immediate term, sector recovery needs are estimated at US\$885 million and focus on repair of partially damaged establishments and destroyed establishments, with the provision of working capital to companies that have sustained income losses. In the short and medium term, needs are estimated at US\$817 million and US\$147 million, respectively, entailing repair of remaining damaged assets and destroyed establishments, with continued provision of working capital. Technical assistance (TA) will also be crucial to help the private sector recover, rebuild and adapt to new challenges in an efficient manner; and to enhance the capacity of public institutions regulating the private sector and foster a more conducive business environment.⁴⁰ TA needs are estimated at US\$30 million, with half allocated for the immediate term. Public sector support is likely to be needed to provide immediate and short term relief to the most vulnerable micro and small businesses. Over time, as the situation stabilizes and the financial sector resumes functioning with restored credit intermediation, the private sector will need to take on a larger role in supporting longer-term recovery and growth. It is estimated that at least 25 percent of the needs would be publicly financed.

39 It is estimated that 30 percent of total economic losses will need to be allocated to support micro, small, and medium enterprises (MSMEs) in the form of liquidity support. In other words, around 35 percent of the approximately 85,415 businesses in conflict-affected areas are expected to require external financing of approximately USD \$35,000 each to resume their operations.

40 The TA to the private sector can cover a range of areas, addressing immediate needs while also building resilience for the future. It can provide expertise in restoring business operations, financial recovery strategies, supply chain restoration, while adopting a building back better strategy. The TA to the public sector will support public institutions in improving the business environment: simplifying and streamlining regulatory procedures, strengthening governance and oversight systems, and optimizing the effectiveness of policies and regulations. It will also support the development of sector-specific strategies in the commerce and tourism sectors that stimulate their growth.


Table 10: Damage, losses, and needs for the Commerce, Industry & Tourism sector

Asset Types		Partially Damaged (establishments)	Completely Destroyed (establishments)	Total Cost (US\$, millions)	
DAMAGE					
Commerce & Industry		5,363	1,611	567	
	Manufacturing	785	288	93	
	Retail, wholesale, and trade	3,491	989	261	
	Professional services	1,086	334	93	
Tourism (including hospitality)		1,732	488	165	
Total Damage				612	
LOSSES					
Output and wage losses from Commerce & Industry				2,072	
	Manufacturing				829
	Wholesale, retail, and trade				990
	Professional services				254
Output and wage losses from Tourism (including hospitality)				1,338	
Total Losses				3,410	
Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Repair partially damaged establishments	266	239	27	532
	Reconstruct completely destroyed establishments	92	158	13	264
	Subtotal	358	398	40	796
Restoration of Service Delivery & Access to Goods	Working capital support for companies that have sustained income losses	512	409	102	1,023
	TA	15	10	5	30
	Subtotal	527	419	107	1,053
Total Needs		885	817	147	1,849
Commerce & Industry %		66	66	65	66
Tourism %		34	34	35	34

Education

Damage

US\$151 million

Losses

US\$414 million

Recovery & Reconstruction Needs

US\$554 million

Pre-conflict situation: The Lebanese education system faced severe challenges even before the current conflict, including a decline in the qualified teaching force, outdated curriculum, and inefficient processes. The 2018 Program for International Student Assessment (PISA) results ranked Lebanon among the lowest, with over two-thirds of students not achieving basic literacy,⁴¹ and Trends in Mathematics and Science Study (TIMSS) results showed a decline in science scores from 2007 to 2019.⁴² Public school students experienced significant learning losses due to disrupted academic years from 2019–23, receiving only 270 days of in-person teaching instead of the expected 600 days, leading to long term economic impacts.⁴³ Lebanon has 3,334 educational institutions, 43 percent public and 57 percent private, serving about 1.2 million students (with 38 percent enrolled in public schools). These institutions include public schools, public universities, private schools, private universities, United Nations Relief and Works Agency (UNRWA) for Palestine Refugees in the Near East centers, shelters, technical and vocational education and training (TVET) centers, and private colleges.

For Education, the conflict has caused damage estimated at US\$151 million. A total of 59 education facilities were destroyed and 299 were partially damaged, impacting 40 percent of the assessed baseline. Most damage was recorded on private schools, with 34 schools completely destroyed and 173 partially damaged. Spatially, the conflict affected Nabatiyeh governorate the most with US\$81 million,

followed by South governorate with US\$39 million, and Mount Lebanon with US\$21 million.

The conflict caused losses estimated at US\$414 million for the Education sector. These losses included US\$378 million in foregone income from fees due to private school closures and US\$36 million in additional costs incurred for operating hub schools. The governorates with highest losses are Mount Lebanon with US\$116 million, South with US\$64 million, and Bekaa with US\$55 million (see Figure C4 in Annex C for more details). The impact of the conflict is deepening educational inequalities in Lebanon, with private schools resuming sooner while public schools face delays. This will further disadvantage vulnerable children and likely increase dropout rates. Additionally, disruptions to education will have a longer-term impact on human development and the economy due to lost future earnings, the analysis of which goes beyond the scope of this assessment.⁴⁴

The recovery and reconstruction needs for Education are estimated at US\$554 million. The total investment needs for infrastructure reconstruction are estimated to be US\$226 million and for service delivery restoration a further US\$327 million. Within infrastructure reconstruction, the reconstruction of fully destroyed schools requires US\$74 million, while rehabilitation of partially damaged schools necessitates US\$153 million. Restoration of service delivery includes US\$118 million for catch-up programs for public schools,⁴⁵ US\$53 million for

41 World Bank Group. 2018. "Lebanon PISA 2018." <https://thedocs.worldbank.org/en/doc/435071580399593024-0280022020/LEBANON-PISA-Brief-2018>.

42 Gajderowicz, Tomasz Janusz and Jan Maciej Jakubowski. 2023. *Lessons from TIMSS 2019 to Improve Education in Lebanon*. Washington, DC: World Bank Group. <http://documents.worldbank.org/curated/en/099052423032013756/P1758141db28a4d16482140a218488143ec88da5ec3>.

43 Kheyfets, Igor, and Adelle Pushparatnam. 2023. *Another Lost Year: Estimating the Educational and Economic Costs of Lebanon's Public-School Closures in 2022-23*. Washington, DC: World Bank Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099092623073542135/p1758140ac57150b0aeb70e40d19f082b5>.

44 Initial analysis based on approaches developed over recent years in Lebanon indicates a further potential long-term impact on the economy as a result of lost earnings accruing at an estimated net present value of at least US\$3.3 million per day. Based on this analysis, total reductions of future earnings could exceed US\$496 million. See for example: Kheyfets, Igor, and Adelle Pushparatnam. 2023. *Another Lost Year: Estimating the Educational and Economic Costs of Lebanon's Public-School Closures in 2022-23*. Washington, DC: World Bank Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099092623073542135/p1758140ac57150b0aeb70e40d19f082b5>.

45 Cost of catch-up programs were derived from a pilot program implemented in Lebanon. For 2025, it is assumed that 7 hours of catch-up instructions are needed per week, for the duration of the academic year (28 weeks). For 2026-2027, it is assumed that 25 percent of children would need additional catch-up instruction per year, considering the magnitude of learning losses observed in the sector. Source: World Bank. 2025. *Pilot of a Teaching at the Right Level (TaRL) Based Approach in Lebanon*. Washington DC. © World Bank. <https://documents1.worldbank.org/curated/en/099012925041565266/pdf/P175814119c54b0321833715c5b56c4a628.pdf>.



revised teaching and learning materials for students and teachers, US\$70 million for psychosocial support for students in public schools and US\$75 million for the same in private schools, US\$5 million for training for public school teachers, US\$7 million psychosocial support for teachers, and US\$4.8 million for revised teaching and learning materials for teachers. In the immediate term, recovery needs are estimated at US\$312 million to cover the rehabilitation of partially damaged schools, reconstruction of completely damaged schools, the provision of catch-up programs, revised teaching and learning materials for teachers and students, and psychosocial support

for public and private students. In the short and medium term, needs are estimated at US\$170 million and US\$72 million, respectively, and focus on continued reconstruction of damaged schools and rehabilitation of partially damaged schools, with the incorporation of measures for building back better, as well as the continued provision of catch-up programs. It is important to note that catch-up programs and remedial education have not been included in the needs estimate beyond the immediate and short term, but such support may be also needed in the medium term given the significant learning losses observed.

Table 11: Damage, losses, and needs for the Education sector

Asset Types		Partially Damaged (unit)	Completely Destroyed (unit)	Total Cost (US\$, millions)	
DAMAGE					
Public schools		120	25	51	
Private schools		173	34	96	
Universities and TVET Centers		6	-	3.8	
Total Damage				151	
LOSSES					
Additional costs incurred for operating hub schools throughout the territory				36	
Foregone income from fees due to private school closures				378	
Total Losses				414	

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Reconstruction of completely destroyed schools	37	22	15	74
	Rehabilitation of partially damaged schools	76	46	31	153
	Subtotal	113	68	45	226
Restoration of Service Delivery & Access to Goods	Catch-up programs	78	39	-	118
	Revised teaching and learning materials	44	8.8	-	53
	Psychosocial support	74	52	26	152
	Teacher training (public)	2	2	1	5
	Subtotal	198	102	27	327
Total Needs		312	170	72	554

Energy

Damage

US\$98 million

Losses

US\$209 million

Recovery & Reconstruction Needs

US\$147 million

Pre-conflict context: Lebanon's electricity sector was already facing severe challenges before the recent conflict, characterized by a significant supply-demand gap and chronic power outages that forced many Lebanese households and businesses to rely on expensive diesel generators to meet their energy needs. The state-owned utility, Electricité du Liban (EDL), struggled with operational inefficiencies, financial constraints, and outdated infrastructure, providing for an average user only about ten hours of daily electricity pre-crisis, which dropped to just 1–2 hours in 2022 before slightly recovering to 4–5 hours in 2023. Its financial viability was severely compromised by historically low tariffs, widespread non-payment of bills, and significant electricity losses. Despite recent tariff increases, these trends limited EDL's ability to invest in critical infrastructure upgrades, leading to a continuing deterioration in service quality and reliability. Lebanon's grid-connected electricity infrastructure consists of 2,300 megawatt (MW) capacity, including seven thermal power plants (2,000 MW)—with Zahrani and Deir Ammar being the largest at 975 MW combined—and hydropower plants (280 MW, mostly on the Litani river). Despite this capacity, electricity demand in 2021 of 24,000 gigawatt hours (GWh) far exceeded the grid-connected generation of 14,000 GWh. This severe supply shortage catalyzed a dramatic shift toward private energy solutions, particularly standalone solar photovoltaic (PV) systems with battery storage, which reached 1,400 MW capacity by end of 2024—though this growth was limited to those who could afford the upfront costs given the constraints of Lebanon's banking sector.

For the Energy sector, the conflict has caused damage estimated at US\$98 million to network infrastructure. Damage incurred pertains to: (i) power network and grid, mainly at the transmission and distribution levels; and (ii) decentralized power generation, including for solar power systems deployed by households, businesses, and institutions, as well as diesel generators and associated networks, which were the primary source of electricity for many across the country but is not included in the scope of this assessment. Damage to the transmission network and substations is estimated at US\$24 million, disrupting electricity

supply by primarily affecting transformers and medium voltage (MV) and high voltage (HV) equipment. At the distribution level, damage was more widespread and severe, amounting to US\$74 million. Key infrastructure damage primarily affected MV substations and MV/ low voltage (LV) distribution networks, including poles, cables, switchgears, transformers, distribution panels, electrical accessories, and underground cables (UGC) in Beirut's southern suburbs. In spatial terms, the highest concentration of damage was observed in Nabatiyeh governorate with US\$41 million, followed by Mount Lebanon with US\$27 million, and South governorate with US\$20 million. In addition to these grid-based impacts, privately owned solar power systems likely sustained significant damage but were not included in the scope of this assessment due to data limitations.

The conflict has caused losses estimated at US\$209 million to the Energy sector. Due to pre-existing operational challenges, EDL already faced a delayed billing cycle, with billing lagging by two to 10 months across various districts before the conflict. These losses were quantified based on accounting data collected by Distribution Service Providers (DSPs), responsible for meter readings and payment collections on behalf of EDL. In this assessment, only billable periods, deemed irrecoverable by EDL, and starting with the conflict were incorporated. The highest losses were recorded in South governorate with US\$83 million, followed by Mount Lebanon with US\$59 million, and Nabatiyeh with US\$36 million.

The recovery and reconstruction needs for the Energy sector are estimated at US\$147 million. Excluding private solar based systems, the total investment needs for electricity network infrastructure reconstruction are US\$127 million, which covers the rehabilitation and retrofitting of the transmission and distribution, while US\$20 million is needed for service delivery restoration, including two elements: (i) design, engineering, and operational service restoration, entailing costs associated with updated engineering and studies to evaluate reconstruction needs, including civil works, electrical interconnection, and more, as well as additional expenses for administering procurement



and construction processes, such as engineering supervision, project management, commissioning, and other potential soft costs such as permitting and insurance; and (ii) TA and capacity development with potential support and training programs, supporting technical know-how at the relevant agencies. In the immediate term, recovery needs are estimated at US\$66 million and focus on restoring 50 percent of the damaged distribution assets and 30 percent of

those related to transmission. The short term needs of US\$79 million cover the remaining 50 percent and 70 percent of distribution and transmission assets, respectively. TA and capacity development are evenly distributed across the three periods, while design, engineering, and service restoration would be covered equally during the immediate and short periods only.

Table 12: Damage, losses, and needs for the Energy sector

Asset Types		Total Cost (US\$, millions)			
DAMAGE					
Transmission		24			
	MV equipment	4.3			
	HV equipment	4.7			
	Transformer	10			
	Mobile substation	4.7			
Distribution		74			
	MV/LV substations	18			
	MV distribution network	7.6			
	LV Distribution network	30			
	Accessories	12			
	UGC cables	6.0			
Total Damage		98			
LOSSES					
Financial losses of billable electricity generated and distributed by EDL		209			
Total Losses		209			

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Rehabilitation of the transmission network	9.4	22	-	31
	Rehabilitation of the distribution network	48	48	-	96
	Subtotal	57	70	-	127
Restoration of Service Delivery & Access to Goods	Design, engineering, and operational service restoration	7.3	7.3	-	15
	TA and capacity development	1.6	1.6	1.6	4.9
	Subtotal	9.0	9.0	1.6	20
Total Needs		66	79	1.6	147

Environment & Debris Management

Damage

US\$512 million

Losses

US\$790 million

Recovery & Reconstruction Needs

US\$444 million

Pre-conflict situation: Lebanon's natural capital was already witnessing a severe degradation prior to the conflict with a Cost of Environmental Degradation in 2023 of US\$2 billion, constituting 11 percent of Lebanon's GDP.⁴⁶ The assessed areas include extensive forests (around 35 percent of the country's total forest area), grasslands, wetlands, rivers, and coastal ecosystems. All these provide essential ecosystem services, such as preventing soil erosion and protecting water quality, but were already threatened by urbanization, pollution, forest fires, quarries, and climate change.⁴⁷ The solid waste management (SWM) sector was already suffering from inefficiencies and financial instability, which were worsened by the 2019 economic and financial crisis. Only 8 percent of solid waste was treated with the remainder managed through basic collection systems and limited sanitary disposal options.⁴⁸

For the Environment and Debris Management sector, the conflict has caused damage estimated at US\$512 million. The conflict has severely impacted Lebanon's natural resources, with damage amounting to US\$501 million, affecting 9,700 hectares (ha) of forests and shrublands, 32,000 ha of grasslands, 21,000 ha of riverine ecosystems, nearly 100 ha of wetlands, and 425 ha of coastline. In terms of districts, most damage was recorded in Tyre with US\$110 million, largely due to the damage to the coastline. Damage to the SWM sector is estimated at US\$11 million, including US\$3 million of damage to waste bins and collection trucks and US\$8 million to SWM facilities, of which eight are destroyed. In spatial terms, most SWM damage

was recorded in Nabatiyeh district with US\$5 million, followed by Marjaayoun with US\$2 million.

The conflict has caused losses estimated at US\$790 million. Disruptions in natural resource ecosystem services amount to US\$759 million, estimated for 26 months, although full restoration of most services may take more than 10 years.⁴⁹ The damage to natural resources has disrupted ecosystem functions, which typically regulate climate, control flooding, purify water and air, prevent erosion, and support nutrient cycling essential for soil fertility. This reduced functionality of ecosystems is expected to lead to impaired water purification, air quality, and soil fertility, resulting in significant losses. Losses are noted mostly in riverine ecosystems (US\$704 million) and in coastal ecosystems (US\$32 million), where fire caused vegetation destruction, habitat loss, water quality degradation, and disruptions to hydrology. Losses in SWM amount to US\$31 million and are due to losses of revenues from recycling activities (US\$4.8 million) and additional waste management costs due to internal displacement (US\$27 million).

The recovery needs of natural resources and ecosystems, SWM services and debris removal are estimated at US\$444 million. The recovery of natural resources amounts to US\$299 million and is expected to span several years. In the immediate to short term, for natural resources, it is essential to first assess more in depth the damage to the ecosystems and soils, through additional field verification and qualitative assessments and then to initiate ecological restoration⁵⁰ and address soil

46 World Bank. 2024. Lebanon Cost of Environmental Degradation in 2023.

47 Ministry of Environment and UNDP. 2022. "Calculating the Quarrying Sector's Dues to the National Treasury in Lebanon." Beirut. <https://www.undp.org/lebanon/publications/calculating-quarrying-sectors-dues-national-treasury-lebanon>.

48 Ministry of Environment and World Bank. June 2023. "Lebanon Solid Waste Roadmap 2023–2026: Towards an Integrated Solid Waste Management System." Technical Note. Lebanon. <https://documents1.worldbank.org/curated/en/099112023054014380/pdf/P179435059e4c00080bd5a091bc0270002d.pdf>.

49 Losses from ecosystem services have been calculated over a 26-month period. However, full restoration may take up to 10 years.

50 The activities of ecosystem restoration focus on reinstating components and conditions suitable for natural recovery processes and implementing substantial interventions in degraded ecosystems to compensate for lost natural recovery potential. They can involve, among other activities: reintroducing species to areas where they previously occurred and reinforcing populations utilizing the potential of remnant species, controlling invasive species to promote the recovery of native ecosystems, amending soil and substrates to improve conditions for ecosystem recovery, modifying water regimes to ensure adequate water availability and quality for the target ecosystem, installing structures to provide shelter, breeding sites, and other habitat features for target species, and implementing measures to prevent soil erosion and stabilize slopes.



remediation. While ecosystems slowly recover on their own,⁵¹ interventions help reinstating conditions that promote this natural recovery. These activities include interventions such as reintroducing species, controlling invasive species, improving soil and water conditions, and preventing erosion to support the regeneration of degraded ecosystems. The recovery needs for the solid waste and debris management sector are substantial, amounting to US\$145 million and reflecting the amount of damage to infrastructure and the disruption of essential services. Among this amount, US\$105 million are dedicated to the critical

safe removal and management of 16.9 million tons of debris⁵² and hazardous waste.⁵³ Clearance, sorting, and recycling of debris, including hazardous waste and e-waste is a key priority in the recovery phase, to mitigate environmental and public health risks while a pre-requisite for many of the sectoral reconstruction efforts. Priority interventions for the solid waste sector include rubble clearance and sustainable management to ensure safe disposal and recycling, alongside restoring waste collection systems by replacing damaged bins and trucks and repairing damaged facilities.

Table 13: Damage, losses, and needs for the Environment & Debris Management sector

Asset Types	Partially Damaged	Completely Destroyed	Total Cost (US\$, millions)
DAMAGE			
Natural Resources & Ecosystems			
Riverine ecosystems (ha)	17,270	3,865	356
Forest including shrubland (ha)	8,880	824	10.5
Wetland (ha)	58	38	2.0
Grassland (ha)	29,956	2,134	3.7
Coastline area (ha)	701	276	130
Subtotal Natural Resources & Ecosystems			501
Solid Waste & Debris Management			
Waste collection and transportation (unit)		35	1.4
Waste bins (unit)		10,165	1.5
Solid waste treatment facilities (unit)	1	8	7.7
Subtotal Solid Waste & Debris Management			11
Total Damage			512
LOSSES			
Natural Resources & Ecosystems			
Forest and shrubland ecosystem services losses			14
Grassland ecosystem services losses			6.8
Wetland ecosystem services losses			2.2
Riverine ecosystem services losses			704
Coastline ecosystem services losses			32
Subtotal Natural Resources & Ecosystems			759

51 This explains why, for the green environment (natural resources and ecosystems), the needs estimate is lower than the damage cost.

52 The cost was estimated by adding the rubble collection and transportation costs, the cost of loading rubble into trucks, setting up and operating rubble landfills, and establishing and operating crushing lines. Additionally, it includes the cost of constructing a hazardous waste cell in a landfill, as well as managing and recycling e-waste.

53 Hazardous waste from solar panels, batteries, electric and electronic equipment, asbestos, chemicals, etc.

Solid Waste & Debris Management	
Revenue losses from recycling activities	4.8
Additional cost for waste management generated by displaced population	27
Subtotal Solid Waste & Debris Management	31
Total Losses	790

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Natural Resources & Ecosystems				
	Field assessment of damaged forests and shrublands	0.1	0.1	-	0.2
	Field assessment of soil damage	0.4	-	-	0.4
	Reforestation and maintenance of damaged forests and shrublands	9.5	13	9.5	32
	Ecological restoration of affected ecosystems	113	80	73	266
	Rehabilitation of the infrastructure of the protected areas	0.7	-	-	0.7
	Subtotal Natural Resources & Ecosystems	124	93	82	299
	Solid Waste & Debris Management				
	Replacement of damaged bins and trucks	4.3	-	-	4.3
	Reconstruction of destroyed and partially damaged SWM facilities	5.8	5.8	-	12
	Subtotal Solid Waste & Debris Management	10	5.8	-	16
	Subtotal	134	99	82	315
Restoration of Service Delivery & Access to Goods	Solid Waste & Debris Management				
	Debris (rubble, hazardous waste, e-waste) removal, transportation, recycling and disposal (incl. quarry rehabilitation and hazardous waste cell in one landfill)	42	43	20	105
	Building of sanitary landfills in affected areas	5.0	5.0	-	10
	Support to operating the existing SWM infrastructure, TA for engineering studies, Institutional support to Ministry of Environment (MoE) for E&S safeguards and monitoring	10	3	1	14
	Subtotal	57	51	21	129
Total Needs		191	150	103	444



Health

Damage

US\$208 million

Losses

US\$700 million

Recovery & Reconstruction Needs

US\$409 million

Pre-conflict situation: Lebanon's healthcare system has traditionally been curative, hospital-centric, and largely privatized, with approximately 160 hospitals—only 32 of which are public—and around 311 primarily private primary healthcare centers (PHCCs). Before 2020, Lebanon's health expenditure was higher than the Middle East and North Africa average, accounting for 8.35 percent of GDP in 2019, private spending dominated, as households covered 55 percent of health expenses—33 percent out-of-pocket and 22 percent through private insurance. Governance fragmentation across multiple public funds led to inequitable access to healthcare services. The healthcare system has also been strained by Lebanon's decade-long humanitarian crisis, with services to Syrian refugees further draining resources. Economic challenges resulting from compound crises have severely deteriorated service delivery, driving up medical costs and spurring a healthcare worker exodus, reducing the number of medical doctors to 26.17 per 10,000 persons by 2021.⁵⁴ Access to essential services has been decreasing, with the share of households deprived of healthcare rising from 9 percent in 2019 to 33 percent in 2021.

For the Health sector, the conflict has caused damage estimated at US\$208 million. Around 298 assets were destroyed and 587 were partially damaged, impacting 33 percent of the baseline. Most damage was recorded on dental clinics, with 121 completely destroyed and 44 partially damaged. In addition, 60 pharmacies were destroyed and 270 partially damaged; 34 social development centers were completely destroyed and 26 partially damaged; while one hospital was completely destroyed and 39 partially damaged (see Figure in Annex C). The conflict affected Nabatiyeh governorate the most (US\$85 million), followed by South governorate (US\$39 million), and Baalbek-Hermel (US\$34 million). Districts that witnessed the highest level of damage of health facilities include Marjaayoun

(US\$37 million), Baabda (US\$32 million), and Tyre (US\$27 million).

The conflict has caused losses estimated at US\$700 million. These losses result from decreased revenue from inoperative facilities (US\$605 million), followed by increased costs for additional health treatment of injuries and sicknesses due to the conflict and displacement (US\$51 million), and reduced availability of health personnel to provide proper medical attention in affected areas, leading to increased mortality and morbidity (US\$44 million). The biggest losses were recorded in Nabatiyeh governorate (US\$270 million), Baalbek-Hermel (US\$121 million), and South governorate (US\$11 million). Damage to health infrastructure and the loss of human resources have disrupted services, limited access and reduced care quality.

The recovery and reconstruction needs for Health are estimated at US\$409 million. Total investment needs for infrastructure reconstruction are estimated to be US\$312 million and US\$97 million for service delivery restoration. Infrastructure reconstruction entails the repair of damaged health facilities and replacement of medical equipment. Service delivery restoration entails replenishment of medications, vaccines, and medical supplies (US\$33 million); essential nutritional supplements and interventions needed to prevent malnutrition (US\$16 million); public sector healthcare workers compensation support, capacity building, and teams expansion particularly at Public Health Emergency Operation Centers (PHEOC), epidemiological surveillance centers, logistics, and national and subnational response and coordination teams (US\$3 million); and financial coverage to secure access to life-saving hospital care, essential secondary care, primary healthcare, including mental health for vulnerable populations, particularly the displaced (US\$45 million). In the immediate term, needs are estimated at US\$123 million and must focus on

54 The multiple crises have caused a significant brain drain within the health sector, with the WHO estimating in 2021 that 40 percent of doctors and 30 percent of nurses left the country either permanently or temporarily. World Health Organization. September 19, 2021. "Joint Statement by Dr Tedros Adhanom Ghebreyesus, WHO Director General, and Dr Ahmed Al Mandhari, Regional Director for the Eastern Mediterranean, on Lebanon." WHO Media Centre. <https://www.emro.who.int/media/news/joint-statement-by-dr-tedros-adhanom-ghebreyesus-who-director-general-and-dr-ahmed-al-mandhari-regional-director-for-the-eastern-mediterranean-on-lebanon.html>.

ensuring the restoration of depleted medicines, vaccines, and medical supplies, establishing a secure supply chain for medicines and medical supplies, replacing damaged essential equipment, and prioritizing the repair of partially and minimally damaged health facilities while building back better. In the short term, needs are estimated at US\$204 million and should focus on rebuilding fully damaged health facilities, replacing high-cost medical equipment, investing in human resources for health

(HRH), strengthening public health infrastructure, expanding access to essential services and ensuring financial coverage for vulnerable populations. In the medium term, needs are estimated at US\$82 million and should focus on creating a comprehensive recovery plan that integrates long term resilience and disaster preparedness, mitigates financial barriers to healthcare access, and supports digitalization projects to improve efficiency and access to services.

Table 14: Damage, losses, and needs for the Health sector

Asset Types	Partially Damaged (unit)	Completely Destroyed (unit)	Total Cost (US\$, millions)
DAMAGE			
Hospital	39	1	115
Primary healthcare center	31	11	10
Pharmacy	270	60	17
Dispensary	35	14	1.8
Laboratory	14	14	10
Private health clinic	116	28	6.2
Dental clinic	44	121	27
Blood bank	-	-	-
Optometrist	12	15	1.7
Radiology center	-	-	-
Social development center	26	34	19
Total Damage			208
LOSSES			
Losses of health resources for treatment of injuries and sicknesses resulting from conflict and displacement			51
Revenue losses from inoperative facilities			605
Losses from reduced availability of health personnel to provide proper medical attention in affected areas			44
Total Losses			700



Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Reconstruction and repair of damaged health facilities and replacement of medical equipment	94	156	62	312
	Subtotal	94	156	62	312
Restoration of Service Delivery & Access to Goods	Medications, vaccines and medical supplies	10	17	6.6	33
	Essential nutritional supplements and interventions to prevent malnutrition	4.7	7.9	3.2	16
	Public sector healthcare workers compensation support, capacity building, and teams' expansion	0.9	1.5	0.6	3
	Financial coverage to secure access to life-saving hospital care, essential secondary care, and primary healthcare, including mental health	13.5	23	9	45
	Subtotal	29	48	20	97
Total Needs		123	204	82	409



Housing

Damage

US\$4.6 billion

Losses

US\$363 million

Recovery & Reconstruction Needs

US\$6.3 billion

Pre-conflict situation: Before the 2023–24 conflict, Lebanon’s housing sector had already been strained by the country’s economic and financial crisis, including high inflation, currency devaluation, and a plunge in purchasing power starting in 2019. This environment pushed building material costs to record highs, stalled many private housing projects, and made government-subsidized initiatives nonviable amid budget constraints and political instability. Demand pressures—further compounded by Syrian displacement—reduced housing availability and affordability, especially in urban areas. In 2024, an estimated 1.65 million housing units existed nationwide, dominated by apartments (94.3 percent), with single-family homes (5.1 percent), luxury villas (0.3 percent), and informal units (0.4 percent) making up the rest. The housing stock was mostly older than 25 years, with 18.4 percent of units rented out. Real estate prices in 2024 remained roughly at 2023 levels, still 50 percent lower than before October 2019, reflecting limited transactions in the market. Institutional weaknesses—including the lack of an effective public housing program and affordable housing policy—have historically exacerbated vulnerabilities, while market speculation and minimal state intervention have left most of Lebanon’s urban population, especially in Greater Beirut, facing a severe shortage of adequate and affordable homes.

An estimated 162,900 housing units—approximately 10 percent of Lebanon’s pre-conflict housing stock—have been impacted by the conflict, resulting in physical damage estimated at US\$4.6 billion. Around 45,400 housing units were destroyed, 74,300 partially damaged, and 43,200 suffered light damage (see the geographic distribution of housing stock damage in Figure in Annex C).⁵⁵ 92 percent of damaged units are apartments, out of which 41,700 units were destroyed, 68,700 were partially damaged and 39,600 units sustained light damage. In addition, around 12,000 single-family homes, 500 villas, and 500 informal units were impacted. Nabatiyeh is the most affected governorate, concentrating 44 percent of impacted housing units, translating to

nearly US\$2.2 billion. South governorate (24 percent of impacted units, US\$980 million in damage), Mount Lebanon (21 percent of impacted units, US\$973 million in damage), and Baalbek-Hermel (7 percent of impacted units, US\$236 million in damage) also bear substantial burdens.

The conflict has caused losses to the Housing sector estimated at US\$363 million. The largest portion of these losses stems from wage losses of domestic workers (US\$163 million, or 45 percent), followed closely by foregone rental income for landlords (US\$133 million, or 37 percent). Meanwhile, service providers for housing maintenance incur US\$40 million (11 percent) in lost revenues, and rent expenditures by displaced owner-occupiers amount to US\$27 million (8 percent). Similar to damage, Nabatiyeh (US\$173 million, 48 percent of total losses), South (US\$120 million, 33 percent), Bekaa (US\$35 million, 10 percent), and Mount Lebanon (US\$29 million, 8 percent of total losses) are the most affected governorates in terms of losses.

The recovery and reconstruction needs for the Housing sector are estimated at US\$6.3 billion. The total investment needs for infrastructure reconstruction are estimated to be US\$6.2 billion and US\$61 million for service delivery restoration. Within infrastructure reconstruction, housing repair and reconstruction requires US\$5.8 billion, while technical inspection and engineering studies add US\$386 million. The restoration of service delivery encompasses institutional and regulatory arrangements (US\$15 million) and support for temporary housing (US\$46 million). The needs are sequenced over three phases, with the immediate term needs valued at US\$1.7 billion, short term needs at US\$2.5 billion, and medium term needs at US\$2 billion, ensuring both rapid stabilization of damaged units and a sustained pathway to comprehensive rebuilding and strengthened sector governance. Given Lebanon’s predominantly private housing sector, depending on housing recovery policy choices, it is estimated that around 70 percent

⁵⁵ Light damage entails damage to surfaces that does not impact the structural integrity of the building. This includes, for example, broken windows, broken doors, and burning of roofs.

of the infrastructure reconstruction needs (around US\$ 4 billion) are expected to be privately financed.⁵⁶ The remaining 30 percent (around US\$2 billion), together with the needs related to institutional and regulatory arrangements and temporary housing support (around US\$60 million), are expected to be financed by the public sector to support the poorest and most vulnerable homeowners.⁵⁷ Urban recovery and planning efforts must guarantee that housing is supported by basic municipal infrastructure—water, sanitation, electricity, and related public

facilities—and that building back better principles guide reconstruction, so that rehabilitated housing units become more resilient and energy-efficient. In addition, the recovery process will provide an opportunity to conceptualize housing reconstruction in the context of broader neighborhood upgrading, including the provision of new green and public spaces, increased mixed-use development and higher density. Recovery efforts should also ensure tenure security for all, including both owners and renters.

Table 15: Damage, losses, and needs for the Housing sector

Asset Types		Light Damage (unit)	Partially Damaged (unit)	Completely Destroyed (unit)	Total Cost (US\$, millions)
DAMAGE					
Single-family home		3,346	5,188	3,454	678
Villa		135	220	124	52
Apartment		39,580	68,692	41,716	3,845
Informal		115	213	124	4.3
Total Damage					4,580
LOSSES					
Wage losses to domestic workers					163
Rent losses for landlords					133
Service provider losses for unit maintenance					40
Increased rent expenditure for displaced owners					27
Total Losses					363

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Repair and reconstruction	1,617	2,366	1,821	5,805
	Technical inspection and engineering studies and designs	108	162	117	386
	Subtotal	1,725	2,528	1,938	6,191
Restoration of Service Delivery & Access to Goods	Institutional and regulatory arrangements	2	5	8	15
	Emergency support for temporary housing	20	16	11	46
	Subtotal	22	21	18	61
Total Needs		1,747	2,549	1,957	6,252

56 Private financing of housing reconstruction will likely require reforms in Lebanon's banking sector to restore lending capacity and create favorable credit conditions.

57 The private–public financing split is informed by poverty data and the home ownership rate among impacted households.

Municipal & Public Services

Damage

US\$41 million

Losses

US\$192 million

Recovery & Reconstruction Needs

US\$76 million

Pre-conflict situation: Municipalities in Lebanon, totaling 1,030, form the third level of public administration and are distributed across nine governorates and 26 districts. Governed by the 1977 Law of Municipalities, they manage public interests such as budgeting, tax collection, and infrastructure maintenance, often under the supervision of higher authorities. Funding comes from own-source revenues such as property taxes, fees for municipal services (sanitation, permits), business licenses and fines, and other local taxes and charges. Transfers from the central government include: allocations from the Independent Municipal Fund, increments from value of consumed utilities within each municipality, specific grants and subsidies, and shared taxes (a portion of the value-added tax). Due to the economic crisis, municipal services have reached a near-collapse as a result of limited revenue generation, aging infrastructure, and inadequate administrative capacity, hindering their ability to provide effective governance and address resident needs. As a result, municipal services have been reduced to only the essentials, such as solid waste collection, carrying out vital maintenance work, and paying salaries of employees and municipal police. Despite efforts to increase own-source revenue and reliance on external assistance, municipalities struggle to maintain essential services amidst economic challenges.

For the Municipal and Public Services sector, the conflict has caused damage estimated at US\$41 million. Due to data limitations, the damage assessment covers only nine districts, therefore total sector damage is likely to be higher than this estimate.⁵⁸ Across the nine districts covered, 113 assets were destroyed and 190 were partially damaged. Most damage was recorded on municipality-owned buildings, for which 46 assets were completely destroyed and 106 were partially damaged. In addition, 13 public parks were destroyed, 11 sport facilities, 11 fire stations, eight community market, eight public libraries, eight community facilities, and two courthouses were destroyed. The conflict affected Marjaayoun district the most (US\$11 million), followed by Tyre (US\$10 million), and Bent Jbeil (US\$10 million).

The conflict has caused losses estimated at US\$192 million in the Municipal and Public Services sector. This includes: revenue losses from property tax on residential properties (US\$153 million), revenue losses from property tax on commercial properties (US\$5 million), revenue losses from utility companies (US\$31 million), and revenue losses from rental income of municipal facilities such as community markets, public parks and cultural facilities (US\$0.5 million). In addition, given that many facilities are no longer functioning, it is expected that jobs of contractors and daily workers associated to these facilities will be lost (US\$1.8 million). The biggest losses were recorded in Nabatiyeh governorate (US\$63 million), mostly due to the damage of the housing stock and commercial establishments, which reduced municipalities' revenue collected from property taxes.

The recovery and reconstruction needs for the Municipal and Public Services sector are estimated at US\$76 million. The total investment needs for infrastructure reconstruction are estimated to be US\$62 million, which include repairing partially damaged assets (US\$25 million) and reconstructing completely destroyed assets (US\$37 million).⁵⁹ The total needs for service delivery restoration are estimated to be US\$14 million, which takes into account restoring fundamental services provided by municipal and public services (US\$13 million) as well as the re-establishment and strengthening of governance and technical capacity (US\$1.4 million). In the immediate term, recovery needs are estimated at US\$29 million and focus on repairing partially damaged assets and restoring fundamental services provided by municipalities and other public institutions, with a focus on addressing the most urgent assets and critical infrastructure regularly accessed by local communities, such as community markets, fire stations, and police stations, among others. Infrastructure reconstruction should take into account building back better principles to ensure that services are made more resilient to continue operating in times of crisis, providing continuous essential services to residents. In the short term and medium term, needs are estimated at US\$32 million and US\$15 million, respectively, and should entail

⁵⁸ Damage was assessed in the districts of Bent Jbeil, Nabatiyeh, Hasbaya, Marjaayoun, Saida, Tyre, Baalbek, Keserwan, and Baabda. Additional assessments and verification may be needed to confirm the impact on other districts.

⁵⁹ Needs for infrastructure reconstruction have been derived from the damage assessment. Given the limited scope of the damage assessment, total sector needs are likely higher than estimated.



infrastructure reconstruction to ensure reparation of all assets to restore function, as well as TA for municipal institutions to enhance revenue collection

and strengthen crisis preparedness and emergency response capacities.

Table 16: Damage, losses, and needs for the Municipal & Public Services sector

Asset Types	Partially Damaged (unit)	Completely Destroyed (unit)	Total Cost (US\$, millions)
DAMAGE*			
Community facility	10	6	1.9
Community market	8	8	1.1
Courthouse	7	2	0.7
Fire station	7	11	5.6
Municipality building	106	46	16
Police	7	8	2.9
Post office	3	0	0.7
Public library	5	8	2.5
Public park	13	13	0.6
Sport facility	24	11	9.6
Total Damage			41
LOSSES			
Revenue losses from property tax on residential properties			153
Revenue losses from property tax on commercial properties			5.1
Revenue losses from utility companies			31
Revenue losses from rental income of municipal facilities			0.5
Job losses in public administration and governance sectors (daily workers)			1.8
Total Losses			192

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Repair partially damaged assets	13	13	0	25
	Repair completely destroyed assets	11	15	11	37
	Subtotal	24	27	11	62
Restoration of Service Delivery & Access to Goods	Restoring fundamental services provided by municipal and public services	5	4.5	3.3	13
	Re-establishment and strengthening of governance and technical capacity	0.6	0.5	0.4	1.4
	Subtotal	5.6	5	3.7	14
Total Needs		29	32	15	76

Note: * Damage to SWM is covered under the Environment and Debris Management sector.

Transport

Damage

US\$198 million

Losses

US\$173 million

Recovery & Reconstruction Needs

US\$302 million

Pre-conflict context: Mobility in Lebanon is largely dominated by road transport. The road network spans approximately 21,705 km, including around 6,380 km of main (or national) roads and 15,325 km of municipal and local roads. The main roads are further classified into international roads (529 km), primary roads (1,673 km), secondary roads (1,367 km), and internal roads (2,811 km). The condition of the road network is generally fair to poor, and 54 percent of Lebanon's road assets are at risk of landslides.⁶⁰ Despite recent efforts to improve public transport, most journeys are still made using private vehicles, contributing to increased congestion and carbon emissions. Public transport service provision is largely informal, fragmented, unreliable and unorganized, and the public transport fleet is outdated, poorly maintained and polluting. The weak institutional framework, lack of comprehensive sectoral vision, poor planning/budgeting, lack of enforcement, limited fiscal space, and the impact of recent compounded crises have contributed to the sector's developmental challenges. In a recent survey completed by the World Bank, 52 percent of non-working women in Greater Beirut in 2022 stated that commuting is a barrier to work outside of home, and the share is similar across non-working men (54 percent).⁶¹ Lebanon has one international airport located in Beirut and several seaports. The seaports, particularly the Port of Beirut (PoB), are struggling with deteriorating infrastructure, exacerbated by the 2020 explosion, and funding shortages that hamper repairs and upgrades.

For the Transport sector, the conflict has caused damage estimated at US\$198 million. 930 km of roads were damaged, of which 216 km are fully destroyed and 714 km are partially damaged. Damage is largely located on internal roads (546 km). Around 40 meters (m) of tunnels as well as six bridges have been damaged, including Al Abboudiye

bridge and Jesr Qamar and Arida border crossings. The conflict is likely to have exacerbated the deteriorating quality and vulnerability of Lebanon's existing roads, further compromising the stability of sloping terrains, the structural stability of existing roads and bridges, as well as road safety (see impacted roads and tunnels in Figure C8 in Annex C). Among the nine governorates, the conflict affected Nabatiyeh the most (US\$58 million), followed by the South governorate (US\$48 million), and Bekaa (US\$35 million).

The conflict has caused losses estimated at US\$173 million in the Transport sector. They include an increase in vehicle travel time due to traffic disruptions and detours resulting from obstructions and damage to the roads (US\$110 million), increase in marginal vehicle operating costs (US\$36 million), and losses to the aviation sector due to a decline in air passenger volumes (US\$27 million). Around 239,000 people who had access to a hospital within 30 minutes pre-conflict, and 215,000 people who had access to an urban center, lost accessibility post-conflict, meaning they now must travel more than 30 minutes to reach these facilities (see more details on accessibility pre- and post-conflict in Figure in Annex C). Vulnerable groups, including women, children, IDPs, and the elderly, are likely to suffer the most from hindered access to services and employment, which in turn further exacerbates their vulnerability. As for aviation, in 2024, inbound and outbound traffic decreased by approximately 715,000 and 756,000 passengers, respectively, compared to 2023. The biggest losses are recorded in the governorates of Nabatiyeh (US\$56 million), South (US\$56 million), and Baalbek-Hermel (US\$15 million).

The recovery and reconstruction needs for the Transport sector are estimated at US\$302 million.⁶² Total investment needs for infrastructure

60 World Bank. 2024. *Lebanon Country Climate and Development Report*. Washington, DC: World Bank Group

61 Alam, Muneeza Mehmood and Lisa Bagnoli. 2023. "Ten-thousand Steps in Her Shoes: The Role of Public Transport in Women's Economic Empowerment – Evidence from Egypt, Jordan, and Lebanon." Middle East and North Africa Development Report Series. World Bank, Washington, DC.

62 While services provided by transport facilities and infrastructure are not an end in themselves, they are a means to a series of wider ends. They ensure connectivity and help provide equal access to essential services and employment, contributing to food security, human capital as well as economic development. They are crucial to pave the way for recovery and reconstruction across all sectors, enabling delivery of necessary supplies and materials as well as access to damaged building and sites.



reconstruction are US\$297 million, which covers rehabilitation of roads, bridges, and tunnels, while US\$5 million is needed for service delivery restoration, including TA towards preparatory studies, designs, project management, and works supervision as well as capacity development supporting technical know-how at the relevant agencies. In the immediate term, recovery needs are estimated at US\$76 million and efforts should focus on restoring access to essential services and employment, through rehabilitation and/or reconstruction of critical damaged roads and bridges (high-traffic roads, roads in areas with returning displaced populations, or roads connecting key destination like hospitals, schools and border crossings), as well as TA, capacity building and

addressing changes in mobility needs for displaced populations. Short and medium term needs total US\$151 million and US\$75 million, respectively, focusing on rehabilitating and maintaining the remaining roads, tunnels, and bridges to restore connectivity between residential areas, services, businesses, and economic hubs. Recovery should take the opportunity to build back better and ensure infrastructure resilience against climate change and natural disasters, while also creating much-needed employment opportunities through labor-intensive road maintenance, rehabilitation and reconstruction interventions and the creation of microenterprises, particularly in affected areas.

Table 17: Damage, losses, and needs for the Transport sector

Asset Types	Partially Damaged	Completely Destroyed	Total Cost (US\$, millions)
DAMAGE			
Roads (km) (international, primary, secondary, tertiary)	714	216	179
Bridges (m2)	786	3,044	18
Tunnels (km)	0.03	0.01	1.1
Total Damage			198
LOSSES			
Losses due to increase in marginal vehicle cost			36
Losses due to increase in travel time			110
Losses due to reductions in air passenger volumes			27
Total Losses			173

Needs Intervention/Activity		Immediate Term (2025)	Short Term (2026–27)	Medium Term (2028–30)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Roads (international, primary, secondary, tertiary)	67	134	67	269
	Bridges	6.7	13	6.7	27
	Tunnels	0.4	0.8	0.4	1.6
	Subtotal	74	149	74	297
Restoration of Service Delivery & Access to Goods	TA and capacity building	2	2	1	5
	Subtotal	2	2	1	5
Total Needs		76	151	75	302

Water, Wastewater & Irrigation

Damage

US\$356 million

Losses

US\$171 million

Recovery & Reconstruction Needs

US\$508 million

Pre-conflict situation: Preceding the conflict, Lebanon's Water, Wastewater and Irrigation sector⁶³ already struggled with aging infrastructure and the impacts of climate change, which were in turn worsened by conflict and economic crises. Weak governance, increased demand, and electricity outages exacerbated water scarcity. Climate change was already leading to an increased occurrence of prolonged droughts and irregular rainfall, further straining resources. Pollution from untreated wastewater increased water pollution, with only 6–7 percent of wastewater treated. Inadequate tariffs, poor collection rates, and lack of transparency in financial reporting prevented the sector at large, and the four water establishments—North Lebanon Water Establishment, Beirut-Mount Lebanon Water Establishment, Bekaa Water Establishment, and South Lebanon Water Establishment—in particular, from covering their operating costs, much less becoming financially sustainable. The sector showed losses of 16 percent of accrued revenues yearly, indicating a negative gross margin even assuming full collection. The current tariff has been adjusted as of 2024 and is at about US\$150 per year for 1 cubic meter (m³) per day after the adjustment for hyperinflation. Lack of permanent staff relative to organizational needs is a key challenge hindering the functionality of the institutions. Technical demands of the sector require a comprehensive water information system, inputs for operations and maintenance, increasing water efficiency, and provision of energy.

For the Water, Wastewater and Irrigation sector, the conflict has caused damage estimated at US\$356 million. This encompasses damage of US\$341 million in water supply and sanitation and US\$15 million to off-farm irrigation. About 64 percent of community water supply distribution reservoirs, 46 percent of water reservoirs, 58 percent of water pumping stations,⁶⁴ and 23 percent of water

treatment plants, have been destroyed or partially damaged, severely limiting their capacity to deliver water to local networks. In terms of sanitation, three wastewater treatment plants (21 percent) and three wastewater pumping stations (12 percent) have been assessed as destroyed, posing a risk of waterborne diseases and contamination on nearby water bodies. In terms of off-farm irrigation, the total canal length is 754 km, of which 77km, or about 10 percent has been destroyed. According to a household survey covering 25 of Lebanon's districts conducted by FAO, in collaboration with the government, damages were reported to motor pumps for irrigation (65 percent), irrigation channels (49 percent), tube wells (45 percent), and solar panels (32 percent). The total estimated value of these damages was approximately US\$1.3 million. The conflict affected Marjaayoun district the most (US\$123 million), followed by Tyre (US\$79 million), and Nabatiyeh (US\$77 million) (see Figure C9 in Annex C for more details). Due to limited information, the damage estimates exclude the water supply and sewerage networks, which require on-site verification as most of the infrastructure is buried underground and cannot be assessed via remote-based assessment tools.

The conflict has caused losses estimated at US\$171 million in the Water, Wastewater and Irrigation sector. These losses are driven by a US\$24 million increase in water establishments' operating costs caused by damage to the water supply system, a US\$7 million revenue losses for water establishments due to lost household connections from damaged units, and, at the household level, US\$140 million in losses of producer surplus⁶⁵ to water establishments from the households' increased reliance on tanker water purchases, which cost 10 times more for the households. The reliance on expensive water from private trucks is expected to constrain demand for water establishments water by up to 32 percent.⁶⁶

63 Regarding irrigation, this section covers off-farm irrigation, which refers to infrastructure or services that deliver water up to the boundary of a farm but not within it. In contrast, the Agriculture and Food Security sector section addresses on-farm irrigation.

64 The number reported here includes potable water pumping stations, as well as other water stations for other uses where water is not potable.

65 The losses to water establishments from households relying on high-cost water tankers instead of water supply produced by the water establishments. The producer surplus is calculated for the water establishments that lose the revenue from household units destroyed completely and thus would have to resort to tanker water purchases at a much higher rate than the public network for the 14 months of the conflict, and another 12 months discounted at 50 percent.

66 The water establishments provide 1 m³ of water per household per day for an average household size of 4.5 people. This amounts to 220 liters (L) per capita per day. This decrease amounts to 150 L per person per day, which is the basic right.



In spatial terms, losses are highest in Marjaayoun district with US\$27 million, followed by Baalbek with US\$23 million, and Tyre with US\$19 million.

The recovery and reconstruction needs for the Water, Wastewater and Irrigation sector are estimated at US\$ 508 million. Total investment needs for infrastructure reconstruction are estimated to be US\$462 million with US\$46 million for service delivery restoration. Ensuring both immediate term and short-term support for the water sector is crucial for public health, environmental sustainability, and economic resilience. In the immediate term,

recovery needs are estimated at US\$144 million and should entail emergency measures such as energy provisions to operate water facilities, restoring water supply services, water quality monitoring, and infrastructure repairs to help prevent immediate crises, such as waterborne diseases, contamination, and service disruptions. In addition, irrigation needs are prioritized for the immediate term along with the needs for repairing infrastructure that is partially damaged. In the short and medium term, recovery needs are estimated to be US\$264 million and US\$100 million, respectively, and entail investments in water resource assessments,

Table 18: Damage, losses, and needs for the Water, Wastewater & Irrigation sector

Asset Types	Partially Damaged	Completely Destroyed	Total Cost (US\$, millions)
DAMAGE			
Water supply and sanitation (number)			
Pumping station (drinking water)	20	8	40
Pumping station (sewage)	-	3	4.6
Wastewater treatment plant	-	3	90
Water pump station	11	18	56
Water reservoir	12	1	20
Community water supply distribution reservoirs	20	53	2.1
Water spring	1	6	0.3
Water tower	1	5	53
Water treatment plant	2	1	72
Water well	39	34	1.9
Irrigation (km)			
Canals	-	3	1
Drains	-	4	0.1
Irrigation networks	-	69	14
Total Damage			356
LOSSES			
Increased operating costs for water establishments			24
Revenue losses for water establishments			7
Surplus losses of water establishments from reliance on private trucks			140
Total Losses			171

Needs Intervention/Activity		Short term (2025)	Medium term (2026-2027)	Long term (2028-2030)	Total
NEEDS					
Infrastructure Reconstruction & Rehabilitation of Assets	Water Supply and sanitation (number)				
	Pumping station (drinking water)	26	18	7.8	52
	Pumping station (sewage)	-	4.2	1.8	6
	Wastewater treatment plant	-	82	35	117
	Water pump station	14	41	18	73
	Water reservoir	22	3.2	1.4	26
	Community water supply distribution reservoir	0.4	1.7	0.7	2.8
	Water spring	0.03	0.3	0.1	0.4
	Water tower	5.1	45	19	69
	Water treatment plant	42	36	16	94
	Water well	0.8	1.2	0.5	2.4
	Irrigation				
	Canals	0.4	0.9	-	1.3
	Drains	0.1	0.06	-	0.2
	Irrigation networks	13	5.4	-	18
	Subtotal	123	239	100	462
Restoration of Service Delivery & Access to Goods	Operating costs of service restoration	16	19	-	35
	Rebuilding revenue streams	4.7	5.5	-	10
	Subtotal	20	24	-	46
Total Needs		143	264	100	508

infrastructure rehabilitation, and efficiency improvements to strengthen the sector's resilience and sustainability, providing an opportunity to build back better. Reconnecting water facilities to the grid, addressing leakage, and expanding monitoring systems will ensure a more stable and efficient water supply, reducing long term operational costs. Reliable water infrastructure supports industries such as agriculture, manufacturing, and energy production, which depend on a steady water supply. By safeguarding water quality and distribution,

these efforts contribute to economic stability, food security, and overall development, reducing risks and resource scarcity. Reconstruction efforts should be accompanied by investments in water supply and sanitation infrastructure to restore service delivery, facilitating the transition from short term emergency response to longer term, sustainable water supply and sanitation services. These measures will need to be accompanied by efforts to strengthen the institutional arrangements for sustaining services.



METHODOLOGY, DATA & LIMITATIONS

METHODOLOGY FOR DAMAGE, LOSS, AND NEEDS ASSESSMENT

The Lebanon RDNA follows the globally established and recognized PDNA assessment methodology jointly developed by the EU, the World Bank, and the UN. This methodology has been applied globally in post-disaster and post-conflict contexts to inform recovery and reconstruction planning. This transparent and standard assessment methodology contributes to coordinated and coherent national and international efforts. In the case of Lebanon, the methodology was adjusted to cover a more limited scope of 10 sectors and to rely on a mix of ground-based and remote-based data.

The RDNA assesses (i) damage; (ii) losses; and (iii) recovery and reconstruction needs: **damage** is estimated as the replacement value of totally, partially, or lightly damaged physical assets; **losses** are estimated from the disruptions to the economy that arise from the temporary absence of the damaged assets, for a period of 26 months,⁶⁷ unless otherwise indicated; and **recovery and reconstruction needs** are comprised of rebuilding infrastructure and rehabilitating assets as well as restoring service delivery and access to goods. They are costed in the immediate (2025), short (2026–27), and medium term (2028–30). They cover opportunities to build back better and smarter guided by principles of inclusion, resilience, and sustainability. They are costed in current prices (considering inflation). They will be financed by a combination of private and public financing.

The assessment follows a two-tiered hybrid approach, relying on both ground-based and remote-based data. This process involves the collection and triangulation of data obtained through various sources including ground-based surveys and assessments, KIs, sample-based field verification, as well as high-resolution satellite imagery, SAR, anonymized cellphone data tracking, and social media analytics. Data collection involved the technical collaboration between the World Bank and the CNRS-L.⁶⁸ Data were also corroborated with data available at line ministries and UN agencies (see the detailed methodology note in Annex A).

METHODOLOGY FOR THE MACROECONOMIC ANALYSIS

As part of the RDNA, the macroeconomic analysis nowcasts real GDP growth in 2024 using MIDAS. A key advantage of MIDAS regressions is their ability to combine low-frequency GDP data with higher-frequency economic activity data. This macroeconomic analysis complements the RDNA but follows a different methodology and time frame. While the RDNA assesses sector-level damage over a longer horizon, its results are not directly comparable to GDP estimates. However, the damage identified in the RDNA will ultimately reduce the capital stock across many sectors of the economy and is expected to have a significant impact on Lebanon's future GDP potential.

LIMITATIONS

The RDNA was produced in a quick timeframe to provide a rapid estimate and analysis of the impacts and needs arising from the conflict in Lebanon. Although extensive efforts were made to improve the accuracy of the information, the RDNA is not a replacement of in-depth sector-specific assessments.

In particular, the RDNA faced several sector-specific challenges, which were mitigated where possible through data triangulation and methodological adaptations. In Agriculture and Food Security, limited ground-truthing and data gaps, particularly for infrastructure and machinery, were addressed by integrating satellite imagery with information from CNRS-L, key informants, and development partners. Commerce, Industry and Tourism estimates, while based on aggregated and extrapolated data, leveraged online mapping platforms and satellite imagery to capture broader business impacts, though smaller-scale and informal sector damages may be underrepresented. The Education assessment focused on the hardest-hit areas, acknowledging potential underestimation of private sector revenue losses. In Energy, decentralized solar PV systems and diesel generators were not fully quantified, highlighting the need for further analysis. Environment and Debris Management estimates,

67 The 26 months include the conflict period (October 2023–November 2024) as well as a one-year recovery period (December 2024–December 2025). For some sectors, it is anticipated that losses will further accumulate beyond this period.

68 The World Bank partly had Ipsos provide the data. Ipsos is a multinational research firm with a global network of over 22,000 surveyors in 95 countries and an extensive network of data suppliers. Ipsos has extensive experience in damage data collection, having undertaken multiple projects on this topic for the World Bank.



constrained by access limitations, relied on high-level references to assess debris management. Health sector analysis adapted methodologies from comparable contexts to estimate impacts, while also considering ongoing detailed assessments by health partners. Housing estimates were primarily based on remote data and thus serve as indicative figures that can be further refined with more granular ground data. Municipal and Public Services assessments acknowledged potential underestimations due to baseline data constraints and made informed assumptions on service disruptions and external support. The Transport

assessment prioritized major road infrastructure, recognizing the need for further analysis of vehicle and traffic furniture damages. Finally, the Water, Wastewater and Irrigation sector combined satellite imagery, ministry data, and qualitative reviews, underscoring the importance of ground-truthing for future refinements, including ground assessments and on-site verification to assess the level of damage to underground infrastructure, such as water supply and sewerage networks. Despite these challenges, the assessment offers a strong foundation for understanding conflict impacts, with clear pathways for further data enhancement and refinement.



Annex A: Detailed Methodology Note

1. ASSESSMENT METHODOLOGY SUMMARY

	Macroeconomic Impact	Damage	Losses	Needs
Purpose	Estimate overall impact of the conflict on 2024 GDP	Quantify the physical damage (complete destruction or partial damage) induced by the conflict based on pre-conflict dollar value	Estimate economic losses, including reductions in revenues, increased operational costs, and employment losses valued at current prices	Cost of rebuilding assets and restoring services and business activity to the pre-conflict level, using current prices (with inflation) and including a build back better premium
Geographic Scope	National, covering the entire country to estimate both the direct and indirect impacts of the conflict.			
Sectoral Scope	Whole economy	10 sectors: Agriculture & Food Security; Commerce, Industry & Tourism; Education; Environment & Debris Management; Energy; Health; Housing; Municipal & Public Services; Transport; Water, Wastewater & Irrigation		
Time Period	2024 (estimate)	October 8, 2023 – December 20, 2024	26 months (14 months of conflict + first recovery year, unless otherwise indicated)	2025–2030
Approach	MIDAS-based econometric modeling	Identification (remote sensing, ground reporting) and quantification of partially and fully damaged assets	Assumption-based sectoral losses based on damage and displacement data as well as sector-specific transmission channels	Infrastructure reconstruction derived from damage data; service delivery restoration derived from loss and sectoral data
Unit of Results	Percent GDP	Monetary value (US\$)	Monetary value (US\$)	Monetary value (US\$)
Key Data Sources	Banque du Liban; World Bank macro modeling	Ground-based data: ground surveys, KIs, publicly available data; Remotely collected data: high-resolution satellite imagery, SAR, artificial intelligence and algorithms, social media analytics	Damage data, sectoral data, displacement data	Damage data, loss data, sectoral data



2. RDNA METHODOLOGICAL APPROACH

The assessment is based on the PDNA methodology, jointly developed by the EU, the UN, and the World Bank, which has been successfully applied in numerous countries.⁶⁹

This RDNA provides estimates of: (i) damage to physical assets, estimated as the replacement value of completely destroyed or partially damaged physical assets; (ii) economic losses, estimated as changes in economic flows that result from the interruption or reduction of production and services due to the conflict; and (iii) recovery and reconstruction needs, estimated as the cost of rebuilding infrastructure and restoring service delivery to the pre-conflict level, including a build back better premium.

Baseline. The baseline consists of the pre-conflict situation in terms of number and geographical distribution of assets, as well as their economic values (pre-conflict replacement cost of the asset).

Damage. The damage estimates are calculated based on: (i) the pre-conflict replacement value per asset category; (ii) the number of assets damaged in each category assessed within the sector; and (iii) the physical status of the assets (completely, partially or lightly damaged). As a general assumption in line with standard PDNA methodology, completely destroyed assets were costed at 100 percent of the replacement cost; partially damaged assets at 40 percent. For the housing sector, a third category—“lightly damaged”—has been introduced costed at 10 percent of the replacement cost.

Losses. Estimating losses entails capturing the effects of the conflict beyond the immediate damage and destruction of physical assets. This can include lost income, increased operational costs, and reduced productivity. To maintain a way of comparison across sectors, unless otherwise indicated in the sector summaries, losses were estimated for a period of 26 months (14 months of conflict plus another 12 months), based on damage incurred, displacement patterns, and other sector-specific transmission channels. Sector-specific transmission channels refer to factors such as reduced or absent travel (specific to tourism), use of facilities as shelters (such as schools), economic disruptions, and supply chain interruptions, all of which contribute to sectoral losses. However, losses may continue to accumulate beyond this period, depending on the speed of sectoral recovery and sector-specific criteria.

Needs. The estimation of sector recovery and reconstruction needs involves identifying, characterizing, and costing the requirements for restoring infrastructure and services to their pre-conflict levels of functionality while ensuring a sustainable recovery process. These are prioritized into three timeframes: immediate term needs (2025), short term needs (2026–27), and medium term needs (2028–30). The needs are categorized into two broad categories: (i) infrastructure reconstruction and asset rehabilitation—this includes the replacement and rehabilitation of physical assets, valued based on replacement costs with premiums for building back better, smarter, and greener, as well as adjustments for inflation and insurance; and (ii) service delivery and access to goods—this entails the cost of restoring essential services, resuming the production of goods, and ensuring access to services. It includes both the costs incurred by service providers to reinstate basic services and the additional costs borne by affected populations to access them. Needs estimations are based on current market prices, incorporating production and transportation costs, logistics, materials, labor, and other relevant factors.

3. DATA COLLECTION

Data collection involved the technical collaboration between the World Bank and the CNRS-L. Data was also corroborated with data available at line ministries and UN agencies. The Lebanon RDNA follows a two-tiered hybrid approach, relying on both ground-based and remote-sensing data, using triangulation of sources to strengthen the veracity and accuracy of the estimates. The following type of data collection sources, methods, and techniques were used by the World Bank:

a) Ground-based Data

- **Key informant interviews:** KIIs were conducted, allowing to collect direct feedback on damage and functionalities of assets. Key informants included a wide range of people, depending on the sector, and included municipal and governorate representatives, health and education facility stakeholders, farmers, professional syndicates, and manufacturers.

⁶⁹ For example: Gaza (2021 and March 2024), Libya Floods (February 2024), Syria Earthquake (2023), Ukraine (2022), Pakistan Floods (2022), Beirut (2020).

- **Ground surveys:** ground-based teams collected a sample of data on schools within and outside conflict-affected areas to provide a nationwide representative survey on functionality impacts. In addition, a pilot AI-based survey was done for a mass volume assessment of basic functionality of commercial structures.
- **Sample-based field verification** was conducted on a representative sample in the following sectors, from December 19, 2024, to January 15, 2025: Commerce, Industry and Tourism; Education; Energy; Health; Transport; Municipal and Public Services; and Water, Wastewater and Irrigation.
- **Third-party data:** government, municipalities, civil society, and humanitarian actors.
- **Artificial intelligence (AI) and algorithms,** refined via manual review: this was used for object detection and for activity detection to integrate data from multiple sources to achieve the highest level of accuracy possible. Object detection algorithms include YOLO V8 and Segment Anything Mode and its models for activity detection focus on proprietary models built on top of spatial-temporal graph neural, spectral analysis techniques, including common techniques such as Normalized Difference Vegetation Index, Normalized Difference Snow Index, spectral unmixing and isolation forest for anomaly detection, among others. Automated results were further refined via manual review by trained imagery analysts.

b) Remote-sensing Data

- **High-resolution optical imagery:** at 30–50 centimeters (cm), from PNO, Airbus, and Planet Labs, with pre-conflict imagery taken as closely as possible prior to the onset of conflict and recent imagery acquired on November 30, 2024, and December 5–6, 2024. Both pre-conflict and recent snapshots were used to provide accurate estimate of sectoral baselines and damage.
- **Synthetic aperture radar:** SAR was used to capture areas not covered by high-resolution optical imagery and to capture cumulative damage. The following thresholds were used: -0.7 for partial damage and -0.9 for destroyed, specifically tuned to urban areas. To calculate structural damage to infrastructure, changes in the “coherence”⁷⁰ of the SAR signal obtained from the European Space Agency’s (ESA) Sentinel-1 satellite was calculated.
- **Manual review of imagery:** undertaken by imagery analysts for the areas with persistent conflict activity.
- **Anonymized cell phone data:** anonymized mobile phone data compliant with the General Data Protection Regulation has been used across Lebanon for the assessment on Displacement, Education, and Health.
- **Open Web Geographical Information** for the creation of baseline data, including Google Maps, Open Street Map (OSM), and Microsoft Machine Learning (ML). The baseline was further augmented by data from government partners. Additionally, any facilities or assets detected during ground team verification that were not previously part of the baseline were added. This baseline was used noticeably to inform the SAR analysis.
- **Publicly available information (PAI):** including social media analytics, available datasets (e.g., census data, national accounts, etc.) and news reporting.
- **Partner data:** from CNRS-L, the government, and development partners (in particular from UN agencies).
- **Proxy indicators:** from other similar countries and/or similar assessments (e.g., Beirut RDNA, 2020).

⁷⁰ Coherence is a measure of the “randomness” of the SAR signal, allowing the separation of the landscape’s stable structural features. It is calculated by comparing the similarity of the radar signal from two different pre-conflict snapshots against the similarity of the radar signal from a post-conflict snapshot to a snapshot right before the start of the conflict. Landscape features that returned a stable signal before but not after the conflict are classified as either damaged or destroyed depending on how much the stability of the signal decreased. For example, while a building will usually reflect a similar radar signal at different points, a body of water or a street with a lot of traffic will not. If, suddenly, the radar signal takes a longer time to bounce back from the building, this signals that it is probably damaged. The value change difference between pre-conflict and post-conflict ranged from 0 for no change to -1 for significant change. For in-depth technical explanations, see Boloorani, Ali Darvishi, Mehdi Darvishi, Qihao Weng, and Xiangtong Liu. 2021. “Post-war Urban Damage Mapping Using InSAR: The Case of Mosul City in Iraq.” *ISPRS International Journal of Geo-Information* 10 (3): 140; and Plank, Simon. 2014. “Rapid Damage Assessment by Means of Multi-temporal SAR—A Comprehensive Review and Outlook to Sentinel-1.” *Remote Sensing* 6 (6): 4870–906.



4. SECTOR-SPECIFIC APPROACHES

Each sector proceeded with the following assumptions, methodological approaches, and data sources for the sectoral analysis of baseline, damage, losses, and needs.

AGRICULTURE & FOOD SECURITY

Assessment Item	Approach and Assumptions	Data Sources
Baseline	The baseline for the cropland areas was collected from ESA WorldCover v2, selecting land cover (crop) types that fall into agricultural areas. These crop types include: bananas; citrus orchard; fruit orchard; mixed orchards and fields; olives; potatoes and vegetables; tobacco; vineyard; wheat and barley.	ESA, PAI (Census); Partner's data (FAO, WFP, ILO, Ministry of Agriculture); KIs; Literature review.
Damage	<p>Damage to cropland was established through the percentage of agricultural areas burned. Burn area (dNBR) index was calculated from Clear-Sky Landsat images at 30 m resolution and classified into partial damage and destroyed burned areas. These burned areas were geospatially intersected with the full agriculture baseline (from July and September 2024 for a cumulative view) to determine damaged areas in hectares.</p> <p>Adjustments from satellite imagery data were made as follows: All tobacco-related data were removed from the analysis for Jbeil, as key informants confirmed that there are no tobacco plantations in this district. Regarding the greenhouse damage, the available data were not disaggregated, so the distribution was estimated by allocating 75 percent of the damage to coastal districts, which experienced the most bombardment and have a larger baseline of greenhouses, and 25 percent to the eastern districts, also affected by bombardments. Damage related to potatoes and vegetables, wheat and barley crops in the Bekaa district (i.e., Zahle, West Bekaa, and Rachaya) was excluded due to information received from governors that contradicts data received from satellite imagery.</p> <p>Damage to livestock was established through extrapolation and data triangulation. As no updated data on livestock was available, the team triangulated damage data received from FAO Data in Emergencies Monitoring (DIEM) round 8 with baseline numbers received from FAO and obtained an estimate damage for cattle, sheep, and goats, both adult and junior. For poultry, the team received information from key informants and industry experts. Given lack of access, the southernmost flocks and herds are assumed lost given that most have been abandoned or are inaccessible for the moment.</p> <p>Estimation of damage on on-farm irrigation systems was made by the team based on available resources and KIs that stated more prominent damages in pumps, on-farm water tanks, and solar power systems to power the pumps. Irrigation areas were considered only for the crops that were significantly affected; potatoes, vegetables, and vineyards. The damaged area was assessed under the assumption that all destroyed irrigated crops would also result in the destruction of their respective irrigation systems.</p> <p>Finally, due to the lack of disaggregated data for aquaculture ponds, losses were split between Tyre, Saida, Jezzine, Marjaayoun, Hasbaya, Nabatiyeh, and Bent Jbeil, areas along the sea, and both Litani and Awali rivers.</p> <p>Damage to other assets were estimated through KIs and partners' data.</p>	<p>Normalized Burn Ratio derived from Clear-Sky Landsat satellite imagery ; KIs with various public and private stakeholders, including poultry syndicate, four fishery syndicates, handmade boat's manufacturer, aquaculture pond manager, supplier for agriculture material ("Agriculture House"), beehive syndicate, Beqaa Farmers syndicate, Heads of Municipalities, and Union of Municipalities.</p> <p>FAODatainEmergencies Monitoring (DIEM) round 8</p>

Assessment Item	Approach and Assumptions	Data Sources
Losses	<p>Losses were calculated using farmgate price and production cycles.</p> <p>Losses of revenues from crops:</p> <p>For fruit orchard production, the figures are based on an average yield per hectare derived from apricot and avocado orchards. The production values for mixed orchards and fields combine the yields of both fruits and vegetables per hectare. The farmgate price for mixed orchards and fields is calculated as an average of the prices for four crops: tomato, zucchini, avocado, and apricots. Similarly, the farmgate price for potatoes and vegetables is based on the average price of potatoes and tomatoes. For greenhouses, the production volume was estimated as the average of strawberry and tomato production, with 25 tons and 200 tons per hectare respectively, and the average unit price was an average between prices of 1 kg of strawberries and 1 kg of tomatoes provided by the FAO.</p> <p>For crops, a recovery period of three years was assumed, except for greenhouses with one year, as it represents a balanced estimate between the time required for most fruit trees to begin fruiting and the time necessary for rehabilitating fields, setting up irrigation networks, and preparing the soil for replanting and potential soil remediation. Also, the harvest of wheat and barley had already occurred before data collection, leading to misrepresentation of damaged assets, and the harvest was stored but subsequently rotted and were not sold. Whereas for potatoes and vegetables, most fields were abandoned, and harvest was left on the ground, leading to a complete waste of the season. Therefore, this portion of losses was accounted for in the loss calculation over a one-year period only.</p> <p>Loss of revenues from livestock was estimated based on the value of meat and animal-specific byproducts such as milk, eggs, tallow, and wool. The price for chickens assumes the price of US\$6.5 per broiler, as all damage was observed in broiler farms, with no damage to laying hens. For goats, the average milk production was estimated across Baladi and Alpine breeds. Meat production from cattle, goats, and sheep was counted once in the damage.</p> <p>For livestock, the recovery period was considered as an average of one year for chickens to account for the time needed to source the chicks and reach maturity. Cattle, sheep, and goats also need an average of two years for recovery for the animals to reach maturity and the ideal weight for slaughter or start of milk production. The two years also account for time needed to build and restore livestock infrastructure to ensure operation optimization. The team also assumed that livestock herds were mainly made up of females as there is no specific data on the number of dairy farms versus meat farms.</p> <p>For fisheries, losses from boat damages were calculated by using the total revenues from fisheries in Lebanon in 2023 (US\$377.40 million) assuming that 25 percent originated from the South and Nabatieh Governorates, and accounting for losses generated from 3 months halt in fishing activities in the two governorates.</p>	FAO; Klls; Literature review



Assessment Item	Approach and Assumptions	Data Sources
Needs	<p>Needs were calculated by applying a recovery factor to the unit costs of each asset, considering an inflation rate of 9.9 percent, location-specific cost variations, potential financial impacts from delays, and adjustments to meet higher quality standards. This approach adheres to the build back better principle, enhancing sustainability and resilience, and includes a reconstruction premium to improve long-term infrastructure viability. Recovery needs for agricultural labor and animal feed were equitably distributed among the most affected districts: Tyre, Marjaayoun, Hasbaya, Rachaya, and Bent Jbeil.</p> <p>For the Food security sector, the needs were calculated by multiplying the number of people vulnerable to food security (IPC level 3 and higher) with the price of the Survival Minimum Expenditure Basket (SMEB) as set by the WFP at US\$ 37.4 per month (US\$ 448.8 per year).</p> <p>This number of people vulnerable to food security was obtained by subtracting the number of people above IPC level 3 between the period of October 2023 – March 2024, and the predictions for January – March 2025. The IPC assesses the number of people at IPC Level 3 or higher on a trimestral to bi-annual basis, with the following estimates: May 2023 – October 2023: 1,346,559; October 2023 – March 2024: 1,0140,90; April 2024 – September 2024: 1,106,206; October 2024-December 2024: 1,506,998; January 2025 – March 2025 (projected): 1,564,564. The period from May 2023 – October 2023 was marked by heightened instability due to the lira crisis, reduced access to bread, and the lifting of subsidies. As a result, the October 2023 – March 2024 period is considered a more reliable baseline for understanding the food security situation before further shifts in displacement patterns and socio-economic conditions caused by the conflict's increased intensity. The projected figure for the first quarter of 2025 was used to estimate immediate needs as accurately as possible.</p>	<p>FAO; WFP; Klls</p> <p>IPC. "Lebanon: Acute Food Insecurity Situation for October 2023 - March 2024 and Projection for April 2024 - September 2024 | IPC - Integrated Food Security Phase Classification." <i>lpcinfo.org</i>, 2023,</p>
Limitations	<p>The current data remains an approximate estimate due to several limitations in data gathering and the lack of comprehensive ground-truthing. Major gaps in data persist for several assets, particularly for agriculture infrastructure and machinery, where significant assets have not been fully accounted for. While damage data for crop assets was accurately measured using satellite imagery, similar data could not be obtained for livestock and data were obtained through estimation and triangulation using data from development partners. As a result, the team had to estimate disaggregated damage, which may not accurately reflect the situation on the ground. This is largely due to challenges in accessing conflicted areas, inconsistent reporting, and the destruction of records. The team had to estimate disaggregation for losses in greenhouses, fishing boats, aquaculture ponds based on Klls.</p>	

COMMERCE, INDUSTRY & TOURISM

Assessment Item	Approach and Assumptions	Data Sources
Baseline	<p>The baseline for the number of establishments was established by using population growth projection on the commerce/tourism establishment census of 2004, as it is the only and most recent source providing a distribution of commerce establishments nationwide over the concerned economic activities.</p> <p>In the absence of nationally available geolocated data for businesses, the primary method utilized online mapping platforms such as Google Maps, OSM, and Microsoft ML, which provided a baseline of around 18,415 establishments in conflict-affected zones. An extrapolation was applied on the baseline to correct for omitted establishments that are not represented on online platforms using the following assumptions: (i) 60 percent of formal businesses and 10 percent of informal businesses are geolocated; (ii) the number of informal businesses is 2.5x the number of formal businesses (based on CAS 2004 establishment census). The extrapolation resulted in the expansion of the baseline to 85,400 establishments and allowed for a more comprehensive estimation of damaged business baseline and damage in the affected areas.</p>	<p>Establishment Census of 2004 (CAS)</p> <p>Online mapping platforms such as Google Maps, OSM, and Microsoft ML</p>

Assessment Item	Approach and Assumptions	Data Sources
Damage	Damage assessment was conducted using SAR, and further augmented using field verifications, surveys, and interviews. The damage estimation also accounted for size differences among establishments estimating that 5 percent are large, 55 percent are small and medium and 40 percent are micro.	Establishment Census of 2004 (CAS) Unit costs were verified through KIIs
Losses	<p>The loss estimates utilize two key data sources: (i) the 2004 establishment census that contains the distribution of establishments by economic activity and by district – a growth factor relative to population growth was applied to obtain an approximation of the 2023 distribution; and (ii) the national accounts, which provides the value added of economic activity – the data were based on past trends and team estimates of the market progression. Due to lack of data on size and production capacity of establishments, the team assumed that all establishments in all districts produce equal outputs.</p> <p>Districts were divided into direct high impact areas (Nabatiyeh and South governorates); direct moderate impact (districts adjacent to high impact areas that have seen moderate levels of conflict incidents); and indirect impact zones (without direct conflict incidents) with assumptions developed relevant to each zone, conflict intensity relative to its progression over time, and asset type on the percentage of economic activity lost (see table below). These percentages were then applied to the GDP estimates (of each establishment) to obtain output losses and estimated wage losses.</p>	Establishment Census of 2004 (CAS); 2020 National Accounts; Proxy data; KIIs
Needs	<p>Infrastructure reconstruction and rehabilitation of assets: uses total cost of destroyed for the reconstruction costs, and partially damaged for the repairs. The unit costs used in the needs assessment covered the machinery and equipment and the structural values. The structural cost also accounts for a 30 percent additional premium to account for building back better and inflation.</p> <p>Restoration of services and access to goods: the team estimates that majority of the losses incurred have been circumstantial to the conflict with the key assumption that establishments that would require liquidity support are the ones that had to completely cease operation and those that have received physical damage. 30 percent of total economic losses are needed to be injected targeting micro, small, and medium establishments (MSMEs) particularly to maintain livelihoods of the most vulnerable. This is the equivalent of saying that 35 percent of businesses in conflict affected zones, primarily MSMEs, will need around 35,000\$ of working capital financing.</p>	
Limitations	<p>Outdated and aggregated data: CAS national accounts data is aggregated on International Standard Industrial Classification of All Economic Activities (ISIC) chapters that mix between commerce and non-commerce activities, even the national accounts that were published in aggregated form in 2021 are slightly outdated as the structure of the economy has greatly varied in the past four years. The latest establishment census by the CAS was concluded in 2004, which predates the 2006 war, making it highly outdated and only indicative of the current distribution. Moreover, CAS data does not include self-employed and business owners that operate from their homes or remotely. Additionally, satellite imagery may not capture smaller-scale damages, such as broken windows or minor infrastructure issues, which could result in businesses with such light damages being overlooked in the assessment.</p>	

Percentage of economic activity lost per conflict intensity (assumptions)

		Direct high impact area	Direct moderate impact area	Indirect impact area
High conflict intensity	Manufacturing – light and heavy	95%	70%	5%
	Wholesale and retail	95%	60%	20%
	Tourism and hospitality	100%	80%	70%
	Services	90%	50%	5%
	Food and beverage	90%	60%	0%
Moderate conflict intensity	Manufacturing – light and heavy	20%	10%	3%
	Wholesale and retail	20%	10%	10%
	Tourism and hospitality	60%	50%	40%
	Services	40%	10%	3%
	Food and beverage	30%	5%	0%
Post ceasefire	Manufacturing – light and heavy	60%	30%	2%
	Wholesale and retail	40%	20%	5%
	Tourism and hospitality	60%	50%	40%
	Services	30%	10%	2%
	Food and beverage	30%	5%	0%

DISPLACEMENT

Assessment Item	Approach and Assumptions	Data Sources
Displacement tracking and analysis	Data were collected from various sources, including IOM, WHO, and OCHA, and phone surveys conducted by the World Bank. This data were then integrated to create a comprehensive picture of the displacement situation. The movements of displaced populations, including internal displacement and returns, were mapped to understand the dynamics of displacement. Vulnerabilities of different groups, such as women, children, the elderly, persons with disabilities, refugees, and migrant workers, were assessed. The impact of displacement on various sectors, including healthcare, food security, and infrastructure, was evaluated. Challenges faced by displaced populations, such as inadequate sanitation, lack of medical care, and economic pressures, were identified.	<p>IOM: Displacement Tracking Matrix (DTM) Mobility Snapshots from November 2024 and February 2025 provided data on the number of IDPs and their movements.</p> <p>Phone Surveys Conducted by the World Bank: These surveys provided additional data on the living conditions and coping mechanisms of displaced populations.</p> <p>Lebanese Ministry of Health: Reported significant casualties and extensive damage, which contributed to the understanding of the scale of displacement.</p> <p>OCHA Flash Updates: Provided updates on the escalation of hostilities and the resulting displacement.</p> <p>Mixed Migration Center: Provided data on the number of foreign refugees in Lebanon.</p> <p>International Displacement Monitoring Centre: Provided global reports on internal displacement.</p>
Limitations	The data on displacement is considered indicative due to the fluidity and informality of internal displacement. Many people remain on the move until military activities cease and basic civilian infrastructure and sources of livelihood are restored.	

EDUCATION

Assessment Item	Approach and Assumptions	Data Sources
Baseline	The baseline included 1,188 educational facilities between schools, colleges, and universities. The baseline was compiled from Ministry of Education facility lists.	Open-source Baseline; Satellite imagery
Damage	<p>SAR automated analysis of damaged facilities was verified by imagery analysis to confirm partially damaged and destroyed areas and remove false positives of damage. It was further augmented through field team verification on a representative sample of facilities. Strategic field team assessments were conducted in 319 geographic areas of South Lebanon, Bekaa, Baalbek-Hermel, and Dahiyeh. The damage and functionality calls from the field team assessments supplemented and informed the imagery analysis. Methods include KIs with locals; field visits; and analysis of social media as well as other publicly available sources of information.</p> <p>For the unit costs on destroyed schools, the calculations estimate the average replacement cost (average unit size x average unit cost), with weights attributed for the size and unit costs to the share of the types of school (40 percent public, 58 percent private, and 2 percent universities).</p>	
Losses	<p>Losses consist of:</p> <p>a. The cost of operating temporary learning spaces (hub schools) set up by the Ministry of Education and Higher Education (MEHE):</p> <ul style="list-style-type: none"> Estimated number of students in need for hub schools were as follows, according to the MEHE: 150,000 public school displaced students, 300,000 private school students, and 200,000 public school students, whose regular schools were used as shelters. For the 2023–24 academic year, these costs are estimated for students displaced in the South (estimated at 10,000 public and 10,000 private). Disaggregation by district: losses associated with additional costs for hub schools were assigned to each district based on number of IDPs in each district as a proportion of the total number of IDPs at the national level. <p>b. The loss of revenues from private school tuition fees, using the following assumptions:</p> <ul style="list-style-type: none"> 40 percent of affected private school students withdrew from private schools. Note that this assumes 60 percent of all displaced private school students continued to stay enrolled and pay tuition despite being displaced. For the 2023–24 academic year, it is assumed that affected schools lost a full year of tuition fees for the 40 percent of displaced students. For the 2024–25 academic year, losses have been estimated for the first term. The average annual tuition fee is estimated at US\$4,500 (US\$1,500/term). Disaggregation by district: For the 2023–24 academic year, all losses were assigned to South Lebanon. Losses associated with lost private school fees were assigned to each district based on the number of schools closed in each district as a proportion of the total number of schools closed at the national level. 	MEHE; IOM; Satellite imagery; Proxy data (Beirut RDNA)
Needs	<p>For infrastructure reconstruction and rehabilitation of assets, needs are derived from the damage assessment, applying a 1.5 factor for building back better, and distributed as follows: 50 percent of total costs to the immediate term, 30 percent to the short term, and 20 percent to the medium term.</p> <p>For service delivery and access to good restoration, needs were based on number of students and teachers in need of the respective services (catch-up programs, revised teaching and learning material, psychosocial support, teacher training).</p> <p>Catch up programs were calculated based on the assumption that for the first year of recovery (2025), an estimated 7 hours of catch-up instructions are needed per week, for the entire academic year (28 weeks). For years 2 and 3 (2026–2027), it is assumed that only 25 percent of children would need additional catch-up instruction each year, considering the magnitude of learning losses observed in the sector. For distribution by governorate, needs were quantified by proportion of population in each governorate.</p>	Population data: Information International



Assessment Item	Approach and Assumptions	Data Sources
Limitations	The damages assessment only covers the areas of the country most affected by the conflict (covering 1,635 out of the total 3,334 educational institutions in Lebanon). The loss of private sector revenues is likely underestimated as the current estimate does not factor in losses associated with lost fees for private TVET centers and private universities.	

ENERGY

Assessment Item	Approach and Assumptions	Data Sources
Damage	The damages data overall were obtained from EDL for the transmission and distribution assets. Damage costs were assessed on item basis.	EDL; DSPs
Losses	The loss data were obtained from EDL, and the analysis performed is based on the 14 months covering the period between October 2023 and December 2024. A future projection for the following year covering the period of January 2025 to December 2025 was estimated based on 50 percent losses compared to the first year.	EDL data and accounts; DSPs
Needs	The needs were estimated based on the quantified damages of various distribution asset classes, with data collected by the DSPs on behalf of EDL.	EDL; DSPs
Limitations	<p>This assessment does not capture damages to decentralized solar PV systems, which presumably constitutes the highest category of damage in the electricity sector. In the context of Lebanon, where electricity demand is largely met by distributed systems, this is a major limitation. Due to the lack of data, the quantification of damages for solar PV systems proved not feasible and is therefore not included in this report. This should be a subject of future analysis. Similarly, the assessment does not capture the damage to the diesel generators, and their associated networks, which was a primary source of electricity for many communities, businesses and households.</p> <p>Several municipalities in southern Lebanon were still inaccessible to EDL and other subcontractors at the time of data collected performed for this assessment. This in turn limited collection of adequate overall data that would help quantify the damages for the transmission and distribution assets in those areas, nor for the decentralized generation. In this regard, damage may be underestimated.</p> <p>Finally, it is important to acknowledge that the demand of electricity in Lebanon is only partially met by grid services, and that long-term investments are needed to ensure that the service provision in Lebanon goes back to 24 hours per day, which requires important investments in generation assets as well as expanded upgraded transmission and distribution that can accommodate integration for renewable energy generation considered in the future.</p>	

A summary of the items identified under each of the five main asset categories for distribution is outlined below:

Asset Categories	Bill of Quantities List
MV/LV Substations	Substations 160 KVA
	160 kVA Trans. 15-20 kV/410V, HL, AI
	L pole as per EDL dwg # 72E205G
	Accessories: circuit breakers, disconnect switch meter panels, etc.
	Substations 250 KVA
	250 kVA Trans. 15-20 kV/410V, HL, AI
	L pole as per EDL dwg # 72E205G
	Accessories: circuit breakers, disconnect switch meter panels, etc.
	Substations 630 KVA
	630 kVA Transformer 11-20 kV/410V
	Accessories: circuit breakers, disconnect switch meter panels, etc.
	3 x 1000A distribution panel with 6-400A three phase breaker for outgoing feeders
	24 kV sectionalizing switch - SF6 gas
	24 kV UG transformer protection switch - SF6 gas
	Civil works
	Substations 1000 KVA
	1000 kVA Transformer 11-20 kV/410V
	Accessories: circuit Breakers, disconnect switch meter panels, etc.
	3 x 1600A distribution panel with 6-400A three phase breaker for outgoing feeders
	24 kV sectionalizing switch - SF6 gas
	24 kV UG transformer protection switch - SF6 gas
MV Distribution Network	Pole
	M1 pole,12m as per EDL dwg # 100B96G
	M2 pole,12m as per EDL dwg # 100B109A
	M3 pole,12m as per EDL dwg # 100B98G
	Almelec Cables
	Cables Accessories
LV Distribution Network	Poles
	A1 pole as per EDL dwg # 100B119B
	A2 pole as per EDL dwg # 100B119B
	Distribution Panels
	Bundles Cables
	Interface Materials
	Meters
Accessories	Accessories – Electrical Equipment
UGC	Underground Cable



ENVIRONMENT & DEBRIS MANAGEMENT

Assessment Item	Approach and Assumptions	Data Sources
Baseline	<p>The baseline for the natural resources areas was collected from ESA WorldCover v2, selecting land cover types that fall into environmental areas. These land cover types include: forests; shrublands; grasslands; wetlands; bare/sparse vegetation; river area; coastline area; protected area.</p> <p>For forests and shrublands in the South and Nabatiyeh governorates, the baseline used was the Land Use and Land Cover (LUC) for 2023 based on the CORINE (Coordination of Information on the Environment) nomenclature, provided by CNRS-L.</p> <p>The baseline for rivers and waterways was collected from OSM and buffered by 1 km to identify river areas. The areas for riverine ecosystem were estimated based on a width of 100 m (50 m from each side of the stream). The areas for coastline ecosystem were estimated based on a width of 100 m.</p> <p>The baseline number of waste collection bins and trucks in each district was made using assumptions based on the number of inhabitants and the quantity of waste generated. The estimates were based on an assumed collection frequency of 3–4 days per week and a filling rate of bins up to 80 percent of their volumes. For simplification in the absence of relevant data, all trucks were assumed to have either 6 or 10 tons capacity while bin volumes are either 240 or 1,100 liters (L), which is in line with the recent solid waste management assessment and roadmap conducted jointly by the MoE and the World Bank.</p> <p>Sorting and composting facilities vary in capacity from 1 ton per day (t/d) to 1,800 t/d (in Karantina) and depending on technology used.</p>	<p>OSM; Satellite Imagery; Partners' data</p> <p>Proxy data; Government and World Bank data</p>
Damage	<p>Damage on natural resources was established through the percentage of environment areas burned. Burn area (dNBR) index was calculated from Clear-Sky Landsat images at 30 m resolution and classified into partial damage and destroyed burned areas. These burned areas were geospatially intersected with the full environmental baseline (from July and September for a cumulative view) to determine damaged areas in hectares. For the districts in the South and Nabatiyeh governorates, the data for damaged forests and shrublands was sourced from CNRS-L, which used an adjusted a more granular baseline, increasing the degree of accuracy for these governorates.</p> <p>Damage on SWM was estimated with the following assumptions: Due to the extensive shelling and destruction in the surrounding villages in South Lebanon, it was assumed that 40 percent of waste collection bins and trucks across the affected districts have suffered some level of damage, which has been corroborated through ground verification conducted with local authorities from the affected area. In Baabda district, damage to bins was assumed to be 60 percent and damage to trucks to be 10 percent. In other areas the percentage of damage was accounted for based on the general level of damage in the district.</p>	<p>Normalized Burn Ratio derived from Clear-Sky Landsat satellite imagery; KIs</p>
Losses	<p>Losses from ecosystem services encompass losses from ecosystem service provided by the different natural resources (forest, grassland, riverine ecosystems, wetland and coastline). It was calculated over a duration of 26 months (14 months as conflict year plus one year) to be consistent with the approach adopted for other sectors in this RDNA, although most of these services will require more than 10 years to be restored. However, contrary to most sectors in this RDNA, there was no 50 percent discount factor used for the second year as recovery after the first year remains minimal.</p> <p>Losses from the SWM sector include the loss of revenues from waste recycling at street and facility levels and additional cost for waste management generated by displaced population in the host communities (at peak) over a period equivalent to one and a half year.</p>	<p>Literature review; Proxy data</p>

Assessment Item	Approach and Assumptions	Data Sources
Needs	<p>Debris calculations from the housing sector were based on the housing sector damage estimates (see section below). The rubble generation ratio was set at 1.6 tons/m² of built-up area for all districts. The total quantity of rubble was estimated by multiplying built areas by the number of affected units using these factors, with damage levels contributing 100 percent for fully destroyed buildings, 40 percent for partially damaged ones, and 10 percent for lightly damaged structures. The conversion from volume (m³) to weight (tons) was based on an average density of 1.6 tons/m³.</p> <p>A factor of five percent was used to account for damages from other sectors. The rubble calculations did not account for underground rubble. The estimated price for rubble removal per ton was calculated by combining the costs of collection and transportation, loading rubble into trucks, establishing and operating six rubble landfills, and setting up and operating six crushing lines. The total cost was then divided by the total quantity of rubble.</p>	Literature review; Proxy data; media reporting; Assumption validated by CNRS-L
Limitations	It was not feasible to fully assess the damage on natural resources especially in terms of impact on soil, water and air pollution and on SWM in terms of solid waste collection and transportation systems, such as bins and trucks, and facilities due to the lack of ground-truthing. Sustainable rubble management estimate was done at a high level given that accurate numbers depend on the availability of sites for transporting the rubble, distances travelled, size of facilities, and design of available sites	

HEALTH

Assessment Item	Approach and Assumptions	Data Sources
Baseline	A mix of sources were used to establish the main health assets by type.	Open-source Baseline; Satellite imagery; Field-based data; MoPH data; Inputs from health partners
Damage	SAR automated analysis of damaged facilities was verified by imagery analysis to confirm partially damaged and destroyed areas and remove false positives of damage. It was complemented by a field study conducted in South, Bekaa, Baalbek-Hermel governorates, and Baabda district. The field team consisted of a field manager, an active physician in their field who works closely with NGOs and ministries, and a supporting research team. The team assessed damage and functionality in nine health subsectors on 2,410 health facilities, including 523 medical clinics. The facility baseline was augmented through relevant syndicates like government health resources. Methods included KIIs with locals and facility contacts; field visits; and analysis of social media as well as other PAIs. Field team verification was comprehensive for blood banks, dispensaries, hospitals, laboratories, optometrists, dentists, pharmacies, and social development centers; for these subtypes, the facility baseline was provided by the MoPH. The field team assessed 10 percent of the remaining medical clinic subtypes.	SAR; Satellite imagery; Field-based study; MoPH data



Assessment Item	Approach and Assumptions	Data Sources
Loss	<p>Losses were assessed through a field survey led on the ground and by phone for a sample of facilities, complemented by data provided by the Ministry of Health. They include:</p> <p>a. Additional costs due to increased utilization of health resources for treatment of injuries and sicknesses resulting from conflict and displacement. Calculated based on the cost of treatment of injuries as a direct result of the conflict based on the tariffication scheme issued by the MoPH and the injuries data received from PHEOC and loss of health resources from estimated increased utilization of health services at all levels of care by IDPs; Breakdown of severity of injuries was used as follows: 45 percent minor, 30 percent moderate, 17 percent critical requiring surgery, 4 percent severe requiring intensive care without surgery, 2 percent severe requiring one surgery and 2 percent severe requiring multiple surgeries.</p> <p>b. Losses due to decreased revenue in health facilities rendered inoperable, calculated based on average revenue losses incurred by completely destroyed and partially damaged hospitals and PHCCs, considering 90 days required for partially damaged facilities to be operational and 365 days for completely destroyed facilities.</p> <p>c. Losses due to reduced availability of HRH in affected areas: calculated based on number of health personnel killed and injured and estimated disability-adjusted life years (DALYs). DALY is a measure used in global health to estimate the overall burden of disease. It combines both years of life lost due to premature mortality and years lived with disability due to illness or injury. To estimate the economic value of health losses the team used the human capital approach, which estimates the financial loss based on the loss of productivity due to premature death or disability.</p>	<p>Literature review; MoPH data; Proxy data; 2020 Beirut RDNA</p> <p>a. Team estimates based on MoPH injury severity categories.</p> <p>b. Team estimates</p> <p>c. Team estimates, based on Proxy</p>
Needs	<p>Needs were quantified as a sum of two categories:</p> <p>Needs for infrastructure reconstruction including reconstruction of infrastructure and rehabilitation of assets. Calculated based on the damage costs with the addition of a 1.5 factor to account for building back better.</p> <p>Needs for service delivery restoration. Calculated based on an itemized approach focused on replenishment of supplies and medicines including vaccines and nutritional supplements, human resources compensation, and financial coverage of health services for the most vulnerable including IDPs.</p>	<p>Damage data; MoPH costed recovery roadmap</p>
Limitations	<p>A number of health assets were not included in the estimation of damage costs, including emergency medical centers, nursing homes, ambulances, mobile clinics, mental health centers, physiotherapy and rehabilitation centers and medical warehouses.</p> <p>The damage status of some health facilities remained unknown given access restrictions.</p> <p>The functionality status information was limited given access restrictions and limitations in data sources.</p> <p>The analysis did not include estimations of losses resulting from disability for those injured who will experience life-long consequences due to data limitations. This limitation also affects the assessment of losses stemming from mental health issues, decreased immunization rates, and other long-term health impacts.</p> <p>Data on disease surveillance was not available, which made it difficult to estimate the change in the incidence of diseases. Estimation of burden of disease, added mortality and mortality for the financial loss exercise were used and adapted from similar exercises conducted in Syria and Yemen.</p> <p>Other detailed assessments by MoPH and health partners are underway, which will likely provide more in-depth information on some of the issues mentioned in this assessment of the health sector.</p>	

HOUSING

Assessment Item	Approach and Assumptions	Data Sources
Baseline	<p>Lebanon's housing footprint baseline was derived by merging Microsoft ML and OSM building data, then mapping these onto administrative areas. Housing categories and counts were aligned with Lebanese government data (CAS, 2018–2019) to reflect unit types and distribution.</p> <p>Inventory ratios were applied to the housing stock for each district. Unit costs were estimated based on Klls and PAI; these are likely to be conservative estimates. The following housing typology was used: house, villa, apartment building, informal. Apartment buildings were assumed to have 16 housing units in Baabda district, eight for Beirut, six for Aley district, and three for all other administrative areas covered, to reflect variable urban density.</p>	CAS; Global Urban Heights Footprint; Klls; PAI; Microsoft ML and OSM building databases
Damage	<p>In high-intensity, densely populated zones (Beirut, Tyre), high-resolution imagery provided detailed assessments; elsewhere, radar (SAR) analysis was corroborated with high-res images. Final damage determinations relied on side-by-side pre-/post-event comparisons to assess roof integrity, structural shifts, debris, and blast impacts. The assessment was further refined by cross-referencing incidents from the ACLED and WNEP databases, excluding outlier districts with no recorded incidents.</p> <p>Data collected this way was triangulated with data collected by CNRS-L and adjusted accordingly. CNRS-L's method for the damage assessment used a combination of high-resolution satellite imagery, Geospatial Imagery Analysis, and extensive field verification where possible.</p> <p>Damage costs were estimated based on building physical status (light damage, partial damage or complete destruction), the replacement value of the asset class (unit cost) and additional damage cost such as personal effects and landscaping for houses and villas. The replacement values only include construction costs before the conflict started; they don't cover any land value and profit margins and can therefore not be compared with advertised real estate values.</p>	SAR; high-resolution satellite imagery (30–50 cm); Klls; CNRS-L analysis
Losses	<p>Losses in the housing sector were only attributed to destroyed and partially damaged units, under the assumption that lightly damaged homes remain habitable. A linear discount rate was applied over time to reflect the growing number of damaged units and displaced populations. This approach captures the progressive escalation in financial losses as the conflict's effects unfold.</p> <p>Losses considered the following four categories: rental revenue, rent expenditure for displaced owners, domestic workers wage, and service providers for maintenance.</p> <p>Rental revenue: calculated based on an average monthly rent and the estimated share of renter households for each housing type.</p> <p>Rent expenditure for displaced owners: derived using IOM DTM percentages for households in collective shelters to approximate those incurring additional rental costs (others may reside with relatives/friends at no extra expense).</p> <p>Domestic worker wages: estimated from the average number of domestic staff employed per asset type and the prevailing salary levels, reflecting lost income for housekeeping and gardening staff.</p> <p>Service providers for maintenance: accounts for a typical monthly outlay on non-fixed expenses (e.g., minor repairs, plumbing, painting) for each building type, recognizing foregone revenues for tradespeople due to uninhabitable or partially inhabited units.</p>	Field-based data; Literature review



Assessment Item	Approach and Assumptions	Data Sources
Needs	<p>Four main needs categories have been identified: repair and reconstruction; technical inspection and engineering studies and designs; institutional and regulatory arrangements; and support for temporary housing.</p> <p>Repair and reconstruction: covers the structural repair or full reconstruction of damaged units, along with internal items and landscaping. It incorporates a premium factor of 1.3 for structural work (excludes personal effects or outdoor facilities) that considers building back better, security premiums, inflation, and additional construction costs due to scarcity of labor and materials.</p> <p>Technical inspection and engineering studies and designs: estimated at 10 percent of the damage cost, proportional to each damage category. Only applies to partially damaged and destroyed units. Follows the same timeline as repair/reconstruction.</p> <p>Institutional and regulatory arrangements: allocates a lump sum of US\$600,000 per district, distributed 15 percent for year 0–1, 35 percent for years 1–3, and 50 percent for year 3+. Covers capacity building, policy frameworks, and governance improvements.</p> <p>Support for temporary housing: applies a monthly allowance for households whose partially damaged or destroyed units are not yet rehabilitated, based on a reconstruction completion timeline for when units become habitable again aligned with the repair and reconstruction timeline.</p>	Field-based data; Literature review
Limitations	<p>This assessment depends on broad assumptions about unit size, construction costs, and damage levels, which can vary widely across regions and building types. The limited granularity of baseline data—especially regarding informal housing and multi-unit apartment complexes—may lead to under- or overestimations of total damage. Likewise, the categorization of destroyed, partially damaged, and lightly damaged units is based on indicative percentage thresholds rather than detailed structural assessments. As a result, potential disparities in the actual condition of individual units, as well as variations in rental markets, domestic labor arrangements, and local maintenance practices, are not fully captured.</p>	

MUNICIPAL & PUBLIC SERVICES

Assessment Item	Approach and Assumptions	Data Sources
Baseline	<p>The baseline was established through ground-based surveys for six districts, and complemented by additional damage from UNDP. The baseline included 472 assets covering community facility, community market, courthouse, fire station, municipality building, police, post office, public library, public park, and sport facility.</p>	Ground-based surveys, UNDP. January 2025. <i>From Crisis to Recovery: Local Authorities Confronting Post-War Realities in Lebanon Rapid Impact Assessment.</i>
Damage	<p>Damage was assessed using SAR and high-resolution imagery for those assets identified in the imagery frames for damage. This was followed by validation of damage and functionality from ground-based teams within conflict-affected areas. Strategic field team assessments were conducted in 254 geographic areas of South Lebanon, on 487 municipal services facilities. Methods include KIs with locals; field visits; and analysis of social media as well as other publicly available sources of information. Damage and functionality calls from the field team assessment were used to supplement and inform the imagery analysis.</p> <p>Damage costs were estimated based on physical status (partial damage or complete destruction) and the replacement value of the asset class (unit cost). The replacement values only include construction costs; they don't cover any land value and profit margins and can therefore not be compared with advertised real estate values.</p>	SAR; Very high-resolution satellite imagery (30 cm); KIs

Assessment Item	Approach and Assumptions	Data Sources
Losses	<p>Losses were assessed with the following assumptions:</p> <p>Revenue loss from property tax: households are required to pay municipalities 6.5 percent of the property's rental value annually. This was calculated by taking the amount of impacted housing units (completely destroyed and partially damaged), multiplied by their rental value (10 percent of baseline value) and 6.5 percent.</p> <p>Revenue loss from commercial tax: commercial facilities are required to pay municipalities 8.5 percent of the commercial property's rental value annually. This was calculated by taking the amount of impacted commercial facilities (completely destroyed and partially damaged), multiplied by their rental value and 8.5 percent.</p> <p>Revenue loss from utility companies: municipalities receive 10 percent of electricity, water, internet and telephone bills. This was calculated taking into account damaged housing and commercial assets.</p> <p>Revenue loss from use of facilities: Assets belonging to the municipality are often rented out for revenue, and their non-functionality would mean loss of revenue to the municipality. This was calculated using community markets, public parks and community facilities.</p> <p>Job losses in daily workers: it is assumed that all public sector workers are still employed and will continue to be paid, but daily workers will be affected as they are outsourced. This was calculated using functionality assessment of assets.</p>	Field-based data; Literature review; Klls
Needs	<p>For infrastructure reconstruction, needs were derived from the damage assessment, applying a 1.5 factor for building back better. For service delivery restoration, a 20 percent premium was added to ensure operating expenditures of municipal and public services is taken into account. Re-establishment and strengthening of governance and TA is accounted as 10 percent of service delivery restoration needs. A 1.5 factor was applied for building back better, taking into account the current context of Municipal and Public Services in Lebanon.</p>	Standard methodology PDNA
Limitations	<p>Damage costs may be higher than the assessment as the baseline was limited to nine districts, and therefore damage assessment is limited in geographical scope. Services such as solid waste collection, in which the municipalities are responsible for, have been calculated under the environment sector. Given that municipalities receive a major percentage of their operating expenditures from the central government, the current assessment does not take into account any overall spillover impacts on central government and transfers to municipalities (including the IMF), such as displacement impact on additional own-source revenue, nor on central government transfers, which may have been reduced due to the impact of the conflict nationwide. In addition, it is assumed that public sector workers remain employed and continue to receive their salaries from the central government. This is informed by interviews with key informants who confirmed that municipalities remained operational despite municipality buildings being closed.</p> <p>Losses to utilities only take into account the impact from the housing and commerce sectors, and do not extend to other sectors that have not been assessed in this phase (such as health, education, etc.). Finally, losses do not take into account additional operating expenditures on municipalities to address urgent repairs or needs of displaced populations, as it is assumed that municipalities (i) are already struggling with their current budget allocations and would cover these additional expenditures using existing resources; and (ii) rely heavily on external assistance including development projects, NGOs, and international organizations to address some of their needs.</p>	



TRANSPORT

Assessment Item	Approach and Assumptions	Data Sources
Baseline	The baseline covers the following asset types: International Roads (km), Primary Roads (km), Secondary Roads (km), Tertiary Roads (km), Bridges (m2) and Tunnels (km).	Open-Source Baseline, Satellite imagery and Field Based Data
Damage	<p>Damage was assessed using SAR and high-resolution imagery for those assets identified in the imagery frames for damage. This was followed by validation of damage and functionality from ground-based teams within conflict-affected areas. Strategic field team assessments were conducted in 254 geographic areas of south Lebanon; all facilities from the baseline were assessed for damage and functionality. Methods include KIs with locals; field visits; and analysis of social media as well as other publicly available sources of information. Damage and functionality calls from the field team assessment were used to supplement and inform the imagery findings for integrated analysis.</p> <p>Damage costs were estimated based on physical status (partial damage or complete destruction) and the replacement value of the asset class (unit cost).</p>	SAR, Satellite imagery, and Field verification. And team estimates for road rehabilitation unit costs per asset type
Losses	<p>To calculate the losses, an accessibility analysis to the main agglomerations was conducted pre- and post-conflict using population data from World Pop, the road network from CNRS-L, and a shapefile of damaged road assets from Ipsos. The delays resulting from traffic disruptions were estimated for the populations within 30 minutes of the main agglomerations, and the marginal vehicle operating costs due to lengthy detours were estimated for the populations within 15 km of the agglomerations. The agglomerations of interest in the affected areas were extracted from the National Physical Master Plan of the Lebanese Territory. The accessibility analysis post-conflict assumes that completely destroyed roads are not functional and therefore not accessible and that the speeds on damaged roads are halved. The loss calculation also assumes one trip per individual over 220 working days per year, an average value of time of US\$3.03 per hour, and a vehicle operating cost of US\$0.106 per passenger-km for light vehicles. The overlaps between catchment areas relative to neighboring agglomerations have been excluded to avoid double counting.</p> <p>To calculate the losses in the aviation sector, the difference in air traffic volumes between 2023 and 2024 was multiplied by the embarkation (departure) tax (US\$35) and the API / PNR Security Charge (US\$0.4).</p>	<p>Road network: CNRS-L (from previous work on the WB Climate Country Development Report). Open Street Map, CDR, and high-resolution satellite imageries.</p> <p>Average road speeds: Tariaak Mobile Application and Google maps.</p> <p>Damaged road assets: Shapefile received from Ipsos.</p> <p>Value of Time: Saroufim and Otayek (2019). Analysis and interpret road traffic congestion costs in Lebanon.</p> <p>Vehicle Operating Cost: MoE/UNDP (2015). Mobility Cost: A Case Study for Lebanon. Beirut, Lebanon.</p> <p>Air traffic volumes: Beirut International Airport through the Ministry of Public Works and Transport.</p>
Needs	Needs were derived from damage numbers. A build back better factor of 50 percent was applied to the rehabilitation costs per asset type to enhance infrastructure resilience against earthquakes, climate change and natural disasters.	Standard PDNA methodology
Limitations	The damage assessment for the road sector focuses on international, primary, secondary, and tertiary roads, as well as bridges and tunnels, and excludes damage to vehicles (light vehicles, buses, trucks, etc.), road traffic furniture (traffic lights, signage, etc.) or facility infrastructure (drainage or protection structures, etc.).	

WATER, WASTEWATER & IRRIGATION

Assessment Item	Approach and Assumptions	Data Sources
Baseline		Open web sources; Partners' data
Damage	Imagery analysis confirmed partially damaged and destroyed areas and calibrated false positives of damage identified by SAR automated analysis. SAR and AI analysis was further augmented through field team verification on a representative sample of facilities. Strategic field team assessments were conducted in 50 percent of the geographic scope, distributed across districts of the southern governorate. A census was conducted for water, sanitation, and hygiene (WASH) facilities in the southern Lebanon areas of interest, collecting functionality/ damage assessment for more than 80 percent of the baseline of WASH facilities. Methods included KIIs with locals; field visits; and analysis of social media as well as other PAIs.	SAR; Satellite imagery; Field survey
Losses	<p>a. Losses induced by an increase in operating costs due to the need to conduct emergency repairs and frequent electricity cuts were calculated assuming at a 20 percent increase in the costs of operation.</p> <p>b. Revenue losses were estimated based on the number of household units destroyed on each of the areas of service of each of the water establishments. This estimation assumes that all houses destroyed were subscribers of the public water distribution network and stopped paying the tariffs for 26 months (discounted at 50 percent for the last 12 months).</p> <p>c. Producer surplus loss is calculated for the water establishments that lose the revenue from household units destroyed completely and thus would have to resort to tanker water purchases at a much higher rate than the public network for the 14 months of the conflict, and another 12 months discounted at 50 percent. The rate of tanker water used is US\$5.85/m³ and a decrease in the consumption is assumed as 32 percent from the water establishment supply of 1 m³ per household per day (220 L/household). This decrease amounts to 150 L per person per day, for a household size on 4.5, which is the basic right.</p> <p>d. Revenues of the four water establishments was estimated on the basis of the number of subscribers, a "lump sum" tariff of US\$150 per year for 1 m³/day supply and available collection rates for each of the water establishments. In addition, it factors in a 10 percent tax paid by the utilities to the municipalities.</p> <p>e. Baseline operating costs were estimated based on the estimation of current revenues, and the revenues and operating costs of each of the water establishments in 2020. This estimation is based on the assumption that the water establishments have managed to keep similar operating expenses to revenue ratio since 2020 despite the drop in the Lebanese pound through a series of consecutive tariff increases with minor impact on the subscription rate.</p>	<p>a. Team estimates</p> <p>b. Housing sector RDNA</p> <p>c. UNICEF 2022</p> <p>d. Water establishment diagnosis reports (https://water-reform.com/en/resources/)</p> <p>e. Water establishment diagnosis reports. (https://water-reform.com/en/resources/)</p>
Needs	<p>a. Reconstruction needs were estimated calculation 1.5 times the cost of the damages.</p> <p>b. Service recovery needs were estimated based on the estimations of yearly increase of operating costs for service restoration (based on a 20 percent increase of yearly operating costs) and the estimation of the needs to rebuild revenue streams (based on the revenue losses resulting from the destruction of households). Both variables were discounted by 30 percent for the second year of reconstruction and an additional 30 percent for year 3.</p>	<p>a. RDNA guidelines</p> <p>b. Housing sector data and water establishment diagnosis reports (https://water-reform.com/en/resources/)</p>



Assessment Item	Approach and Assumptions	Data Sources
Limitations	<p>Limitations include insufficient data on irrigation networks, the absence of a pre-conflict baseline, challenges in assessing underground networks for both water supply and sewerage, and economic losses from tanker dependence and private sector disruptions. The assessment uses data from satellite imageries, Ministry of Energy and Water data, ongoing assessments, and a qualitative review of public reports. Ground-truthing data assessment will enhance damage estimates and reveal the full extent of damages to infrastructures such as wells, water towers, reservoirs, drainage, sanitation, water supply, sewerage, and irrigation networks. Understanding the extent of real infrastructure damage, and the functionality loss to water and wastewater treatment plants will also help provide accurate cost estimates based on their treatment capacities. Additionally, there is limited information regarding the extent of the freshwater sources of pollution. Continuous monitoring by the water establishments and assessment of the required treatment are necessary but remain challenging given the nature of remote-sensing data without on ground measurements. Finally, investing in water management capacity, implementing water resource management studies, and monitoring water quality are essential steps towards effective reconstruction and ensuring water availability for drinking and irrigation.</p>	

Annex B: Average Unit Sizes and Unit Costs

The following average unit sizes and unit costs were used in this assessment. These were obtained through data triangulation from different sources, including PAI, KIIs, information shared by government and development partners, a private construction company in Lebanon, the Lebanese Order of Engineers and Architects (OEA), and proxy data from other assessments conducted in countries with similar geographic and socioeconomic contexts.

How to read this table – examples:

- Citrus orchard fields produce on average 27,400 kg of citrus per ha and per harvest cycle, which can be sold at a price of US\$0.7 per kg on average.
- Revised teaching and learning materials for students are estimated to cost US\$100 per student on average.
- Community markets are estimated to be 200m² in average size and are valued at US\$199,000 per market.

Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Agriculture & Food Security				
Banana plantations (plants)	N/A	ha	\$1,941	KIIs; Team estimates
Banana plantations (harvest)	10,000 kg/ha	kg	\$0.7	KIIs
Citrus orchard (plants)	N/A	ha	US\$1,000	KIIs; Team estimates
Citrus orchard (harvest)	27,400 kg/ha	kg	\$0.7	KIIs
Fruit orchard (plants)	N/A	ha	\$2,250	KIIs
Fruit orchard (harvest)	35,000 kg/ha	kg	\$1.4	KIIs
Mixed orchards and fields (plants)	N/A	ha	\$2,475	KIIs
Mixed orchards and fields (harvest)	50,000 kg/ha	kg	\$0.9	KIIs
Olive groves (plants)	N/A	ha	\$3,400	KIIs; Team estimates
Olive groves (harvest)	650 kg/ha	kg	\$4	KIIs
Potatoes and vegetables (seeds)	N/A	ha	\$2,700	KIIs; Team estimates
Potatoes and vegetables (harvest)	55,000 kg/ha	kg	\$0.5	KIIs; Team estimates
Tobacco (plants)	N/A	ha	\$4,300	KIIs
Tobacco (harvest)	1,000 kg/ha	kg	\$10	KIIs
Vineyard (plants)	N/A	ha	\$3,823	KIIs
Vineyard (harvest)	5,000 kg/ha	kg	\$1.2	KIIs
Wheat and barley (seeds)	N/A	ha	\$1,606	KIIs; Team estimates
Wheat and barley (harvest)	3,500 kg/ha	kg	\$0.26	KIIs; Team estimates



Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Chicken (animal)	N/A	Head	\$3.50	Syndicate of poultry producers
Chicken (broiler)	N/A	Head	\$6.50	Syndicate of poultry producers
Cattle (animal)	N/A	Head	\$1,000	KIIs
Cattle (milk)	10,000 L/year	L	\$1	KIIs
Ducks (animal)	N/A	Head	\$20	KIIs
Ducks (for consumption)	N/A	Head	\$30	KIIs
Goats (animal)	N/A	Head	\$100	KIIs
Goats (milk)	575 L/year	L	\$1	Litterature review ⁷¹
Horses (animal)	N/A	Head	\$3,000	Team estimates
Pigs (animal)	N/A	Head	\$300	Team estimates
Sheep (animal)	N/A	Head	\$300	KIIs
Sheep (milk)	300 L/year	L	\$1	KIIs
Government buildings (including extension and research stations)	N/A	Unit	\$100,000	FAO
Agriculture vocational schools	N/A	Unit	\$100,000	FAO
Large size tractors	N/A	Unit	\$80,000	FAO
Medium size tractors	N/A	Unit	\$10,000	FAO
Manual tractors	N/A	Unit	\$850	KIIs
Combine harvester	N/A	Unit	\$25,000	FAO
Olive harvester	N/A	Unit	\$1,000	Internet research
Greenhouses	N/A	ha	\$87,500	FAO
Greenhouses	102,058 kg/ha	kg	\$1.30	KIIs; Team estimates
Wheat crushers	N/A	Unit	\$3,000	FAO
Wheat crushers	90 day/year	Daily rate	\$100	KIIs; Team estimates
Carob presses	N/A	Unit	\$40,000	FAO
Carob presses	90 day/year	Daily rate	\$50	KIIs; Team estimates
Olive presses	N/A	Unit	\$110,000	FAO
Olive presses	90 day/year	Daily rate	\$100	KIIs; Team estimates
Poultry farm	N/A	m2	\$300	Syndicate of poultry producers

71 Hosri C., E. Tabet, and M. Nehme. 2016. "Goat and sheep products value chain analysis in Lebanon." In *The Value Chains of Mediterranean Sheep and Goat Products: Organisation of the Industry, Marketing Strategies, Feeding and Production Systems*, edited by M. Napoléone, Ben Salem, J.P. Boutonnet, A. López-Francos, and D. Gabiña, 61–66. Zaragoza: CIHEAM. OOT Cluster. September 8, 2022. "Gout Blanc: QOOT Lebanon Agrifood Innovation Cluster." QOOT. <https://qoot.org/member/gout-blanc/> (Accessed August 16, 2024).

Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
On-farm irrigation systems (pumps, sprinklers, drip, on-farm canals)	N/A	Unit	\$6,000	KII; Team estimates
Fishing boats	N/A	Unit	\$15,000	KII; Team estimates
Aquaculture pond	N/A	Unit	\$25,000	KIIs; Team estimates
Aquaculture pond	500 fish/pond	Fish	\$10	KIIs; Team estimates
Beehives	N/A	Unit	\$165	FAO
Beehives (production)	7 kg/bee hive	kg	\$17.50	KIIs; Team estimates
Food security needs	1,653,991	Number of persons	\$449	WFP
Agriculture labor	23,849	Number of Laborer	\$2,400	KIIs; Team estimates
Animal feed	3,692,764	kg	\$0.20	KIIs; Team estimates
Commerce, Industry & Tourism				
Food and beverage	457	m2	\$200	KIIs
Light manufacturing	450	m2	\$1,100	KIIs
Heavy manufacturer	462	m2	\$1,450	KIIs
Energy	201	m2	\$700	KIIs
Repair (vehicles and motorbikes)	396	m2	\$900	KIIs
Retail, wholesale, and trade				
Retail	417	m2	\$650	KIIs
Petrol and fuel retail	421	m2	\$1,000	KIIs
Wholesale	454	m2	\$1,150	KIIs
Petrol and fuel wholesale	441	m2	\$1,000	KIIs
Car wholesale and retail	439	m2	\$1,300	KIIs
Warehouse	388	m2	\$500	KIIs
Trade logistics	644	m2	\$700	KIIs
Hospitality				
Restaurants/cafes/bars	341	m2	\$1,150	KIIs
Car rental	437	m2	\$1,200	KIIs
Short-term accommodation	194	m2	\$700	KIIs
Other tourism services	185	m2	\$700	KIIs
Transport operator	244	m2	\$550	KIIs
Sports center	397	m2	\$800	KIIs



Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Amusement parks and entertainment facilities	194	m2	\$1,100	KIIs
Professional services				
Management/ accounting/ other office services	317	m2	\$700	KIIs
Architecture and design	309	m2	\$750	KIIs
Veterinary	627	m2	\$800	KIIs
Hairdresser	424	m2	\$750	KIIs
Media production and photography	708	m2	\$900	KIIs
Technology	373	m2	\$600	KIIs
Telecommunications	272	m2	\$1,000	KIIs
ICT	309	m2	\$700	KIIs
Services	462	m2	\$700	KIIs
Education				
Public schools	664	m2	\$1,050	Satellite imagery; Team estimates
Private schools	776	m2	\$1,200	Satellite imagery; Team estimates
Universities	1,220	m2	\$1,300	Satellite imagery; Team estimates
Operating hub schools (temporary learning space) – public and private school students	N/A	Number of displaced students	\$80	Team estimates
Yearly private school tuition fees	N/A	Number of students	\$4,000	Team estimates
Hourly cost of catch-up programs	7 hours/week, for 26 weeks/ year	Number of students	\$1	Team estimates
Revised teaching and learning materials (students)	N/A	Number of students	\$100	Team estimates
Psychosocial support	N/A	Number of students	\$100	Team estimates
Teacher training (public)	N/A	Number of teachers	\$50	Team estimates
Revised teaching and learning materials (teachers)	N/A	Number of teachers	\$100	Team estimates
Psychosocial support (teachers)	N/A	Number of teachers	\$100	Team estimates

Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Environment & Debris Management				
Riverine ecosystem	N/A	ha	\$33,000	Proxy (updated Gaza RDNA)
Riverine ecosystem services (per month)	N/A	ha	\$2,513	World Bank. 2025. <i>Cost of Environmental Degradation for 2023 in Lebanon</i> . Washington, DC: World Bank.
Forest including shrubland	N/A	ha	\$2,390	Proxy (Previous Gaza and Libya RDNA)
Forest ecosystem services (per month)	N/A	ha	\$123	World Bank. 2025. <i>Cost of Environmental Degradation for 2023 in Lebanon</i> . Washington, DC: World Bank.
Wetland ecosystem	N/A	ha	\$33,000	Proxy (Gaza RDNA)
Wetland ecosystem (per month)	N/A	ha	\$1,378	Proxy (Updated Gaza RDNA)
Coastline	N/A	ha	\$232,700	Proxy (updated Gaza RDNA)
Coastline services (per month)	N/A	ha	\$2,230	Proxy (Updated Gaza RDNA)
Grassland ecosystem	N/A	ha	\$260	Proxy (Updated Gaza RDNA)
Grassland ecosystem services (per month)	N/A	ha	\$18.42	World Bank. 2025. <i>Cost of Environmental Degradation for 2023 in Lebanon</i> . Washington, DC: World Bank.
Field assessment of damaged forests and shrublands	N/A	ha	\$50	Proxy (Updated Gaza RDNA)
Reforestation of damaged forests and shrublands including maintenance for 3 years	N/A	ha	\$7,200	Proxy (Updated Gaza RDNA)
Restoration of affected riverine ecosystems	N/A	ha	\$4,000	Proxy (Updated Gaza RDNA)
Restoration of affected marine ecosystem and coastline	N/A	ha	\$232,700	Proxy (Updated Gaza RDNA)
Restoration of affected grassland	N/A	ha	\$260	Proxy (Updated Gaza RDNA)
Soil sampling and testing	N/A	Number of tests	\$300	Team estimates
Collection trucks	6 tons sized truck	Unit	\$35,000	Team estimates
Collection trucks	10 tons sized truck	Unit	\$60,000	Team estimates
Waste bins	240 L	Unit	\$50	Team estimates
Waste bins	1,100 L	Unit	\$300	Team estimates
Treatment facility	Capacity of 10 t/d	Unit	\$400,000	Team estimates



Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Treatment facility	Capacity of 250 t/d	Unit	\$3,750,000	Team estimates
Sustainable rubble management	N/A	Ton	\$6.0	Team estimates
Sanitary landfill	1,000,000 m3	Unit	3,500,000	Team estimates
Hazardous waste cell	5,000 m3	Unit	\$2,500,000	Team estimates
Health				
Private medical clinic	70	m2	\$1,200	Based on discussions with health partners and international benchmark for construction of private medical clinic with addition of medical equipment
Dental clinic	100	m2	\$2,000	Based on discussions with health partners and international benchmark for construction of private medical clinic with addition of dental equipment
Dispensary	70	m2	\$900	Based on UNICEF study estimating CapEx for PHCC adjusted for dispensary (as 50 percent of PHCC cost)
PHCC	253	m2	\$1,700	Based on PoB RDNA and UNICEF study estimating CapEx for PHCC with markup
Hospital	2,300	m2	\$3,000	Average size based on Karantina hospital size. Unit cost based on discussions with health partners and PoB RDNA estimates
Laboratory	300	m2	\$1,700	Based on discussions with health partners and consultation with laboratory owners in Lebanon in 2020 with addition of equipment
Pharmacy	100	m2	\$1,000	Based on discussions with health partners and consultation with Order of Pharmacists in Lebanon in 2020 with markdown (included only some medicines as not all were non-viable)
EMS center	300	m2	\$800	Based on dispensary unit cost estimate with mark down
Optometrist	70	m2	\$1,200	Based on medical clinic estimates
SDC	253	m2	\$1,700	Based on PHCC estimates
Average cost of treatment – minor injury	N/A	N/A	\$50	MoPH tariffs
Average cost of treatment – moderate injury	N/A	N/A	\$250	MoPH tariffs
Average cost of treatment – critical injury requiring surgery	N/A	N/A	\$1,200	MoPH tariffs

Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Average cost of treatment - critical injury requiring intensive care without surgery	N/A	N/A	\$1,200	MoPH tariffs
Average cost of treatment – severe injury requiring one surgery	N/A	N/A	\$2,400	MoPH tariffs
Average cost of treatment – severe injury requiring multiple surgeries	N/A	N/A	\$3,600	MoPH tariffs
Average revenue per hospital bed per day	N/A	N/A	\$1,875	Team estimates based on proxy (PoB RDNA)
Average revenue per PHCC per day	N/A	N/A	\$1,250	Team estimates based on proxy (PoB RDNA)
Housing				
House (replacement cost, just construction)	200 m2	m2	\$450	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates; UN-Habitat
Villa (replacement cost, just construction)	300 m2	m2	\$600	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates; UN-Habitat
Apartment (unit) (replacement cost, just construction) – other districts	120 m2	m2	\$400	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates; UN-Habitat
Informal (replacement cost, just construction)	60 m2	m2	\$300	Team estimates; UN-Habitat
House (monthly rent)	N/A	m2	\$450	KIIs; Team estimates
Luxury Villa (monthly rent)	N/A	m2	\$1,000	KIIs; Team estimates
Apartment (unit) (monthly rent)	N/A	m2	\$300	KIIs; Team estimates
Informal (monthly rent)	N/A	m2	N/A	KIIs; Team estimates
House (monthly maintenance)	N/A	m2	\$50	KIIs; Team estimates
Villa (monthly maintenance)	N/A	m2	\$100	KIIs; Team estimates
Apartment (unit) (monthly maintenance)	N/A	m2	\$25	KIIs; Team estimates
Informal (monthly maintenance)	N/A	m2	0	KIIs; Team estimates
House (employed persons monthly wage)	1	m2	\$200	Team estimates
Villa (employed persons monthly wage)	2	m2	\$300	Team estimates
Apartment (unit) (employed persons monthly wage)	0.5	m2	\$200	Team estimates



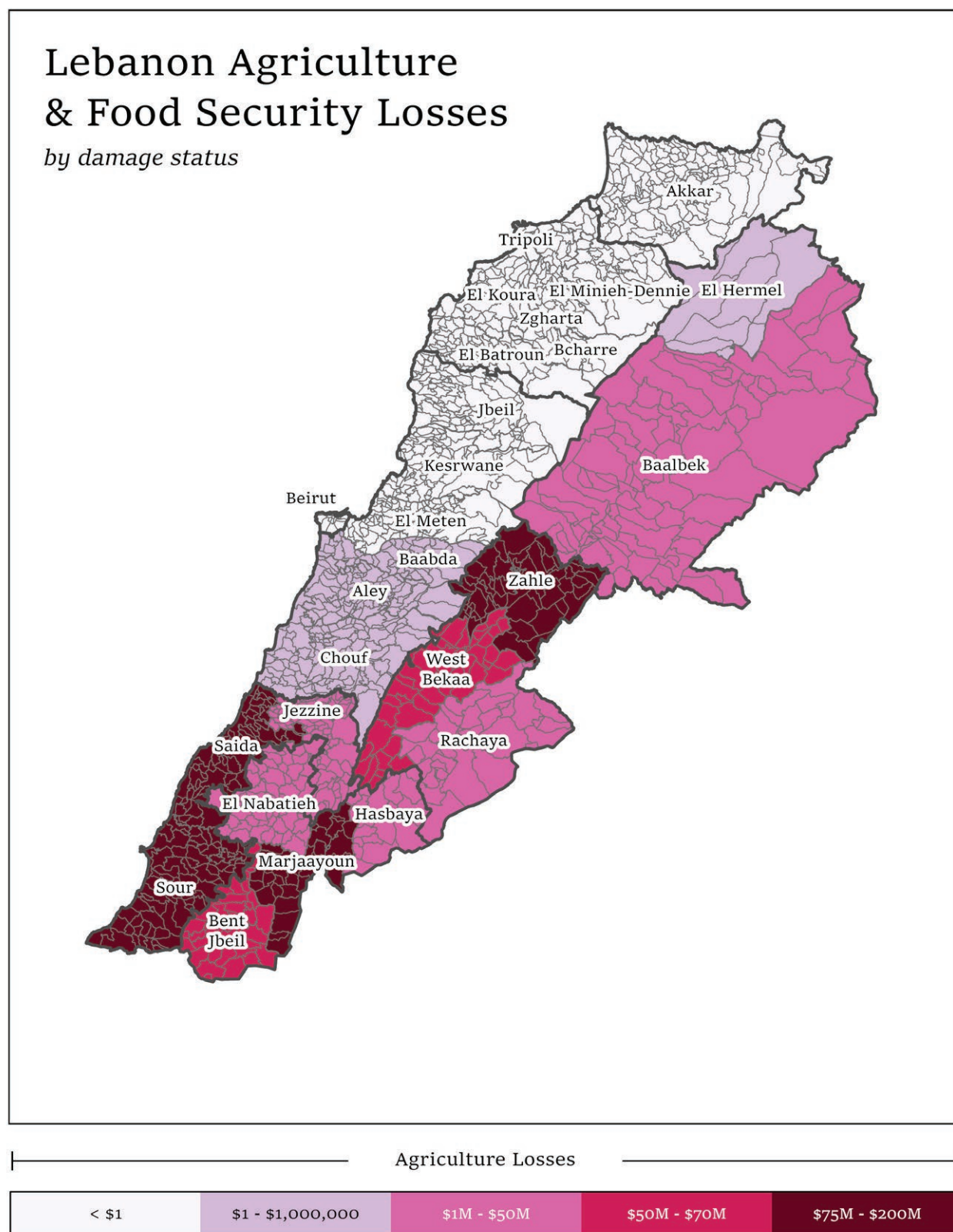
Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Municipal & Public Services				
Community facility	250 m2	Unit	\$192,500	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Community market	200 m2	Unit	\$99,000	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Courthouse	200 m2	Unit	\$154,000	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Fire station	180 m2	Unit	\$408,000	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Municipality building	230 m2	Unit	\$177,100	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Police	350 m2	Unit	\$269,500	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Post office	750 m2	Unit	\$577,500	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Public library	355 m2	Unit	\$244,950	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Public park	300 m2	Unit	\$31,050	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates
Sport facility	300 m2	Unit	\$465,750	OEA (Commissioning Supplement - Building Classification Table, Building Commissioning Guide and Minimum Engineering Fee Allowances); Team estimates

Asset	Unit Size	Unit of Measurement	Unit Cost (US\$)	Source(s)
Transport				
International roads	N/A	km	\$900,000	Team estimates
Primary roads	N/A	km	\$800,000	Team estimates
Secondary roads	N/A	km	\$400,000	Team estimates
Tertiary roads	N/A	km	\$200,000	Team estimates
Bridges	N/A	km	\$80,000,000	Team estimates
Tunnels	N/A	km	\$45,000,000	Team estimates
Water, Wastewater & Irrigation				
Water supply and sanitation				
Pumping station (drinking water)	N/A	Unit	\$2,500,000	Proxy (Beirut RDNA, Gaza RDNA)
Pumping station (sewage)	N/A	Unit	\$1,545,116	Proxy (Beirut RDNA, Gaza RDNA)
Wastewater treatment plant	N/A	Unit	\$30,000,000	Proxy (Beirut RDNA, Gaza RDNA)
Water pump stations	N/A	Unit	\$2,500,000.00	Proxy (Beirut RDNA, Gaza RDNA)
Water reservoir	N/A	Unit	\$3,500,000	Proxy (Beirut RDNA, Gaza RDNA)
Community cistern	N/A	Unit	\$35,000	Proxy (Beirut RDNA, Gaza RDNA)
Water spring	N/A	Unit	\$50,000	Proxy (Beirut RDNA, Gaza RDNA)
Water tower	N/A	Unit	\$9,900,000	Proxy (Beirut RDNA, Gaza RDNA)
Water treatment plant	N/A	Unit	\$40,000,000	Proxy (Beirut RDNA, Gaza RDNA)
Water well	N/A	Unit	\$37,871	Proxy (Beirut RDNA, Gaza RDNA)
Irrigation				
Irrigation canals	N/A	km	\$300,000	Consultation with experts
Drains	N/A	km	\$30,000	Consultation with experts
Networks	N/A	km	\$200,000	Consultation with experts



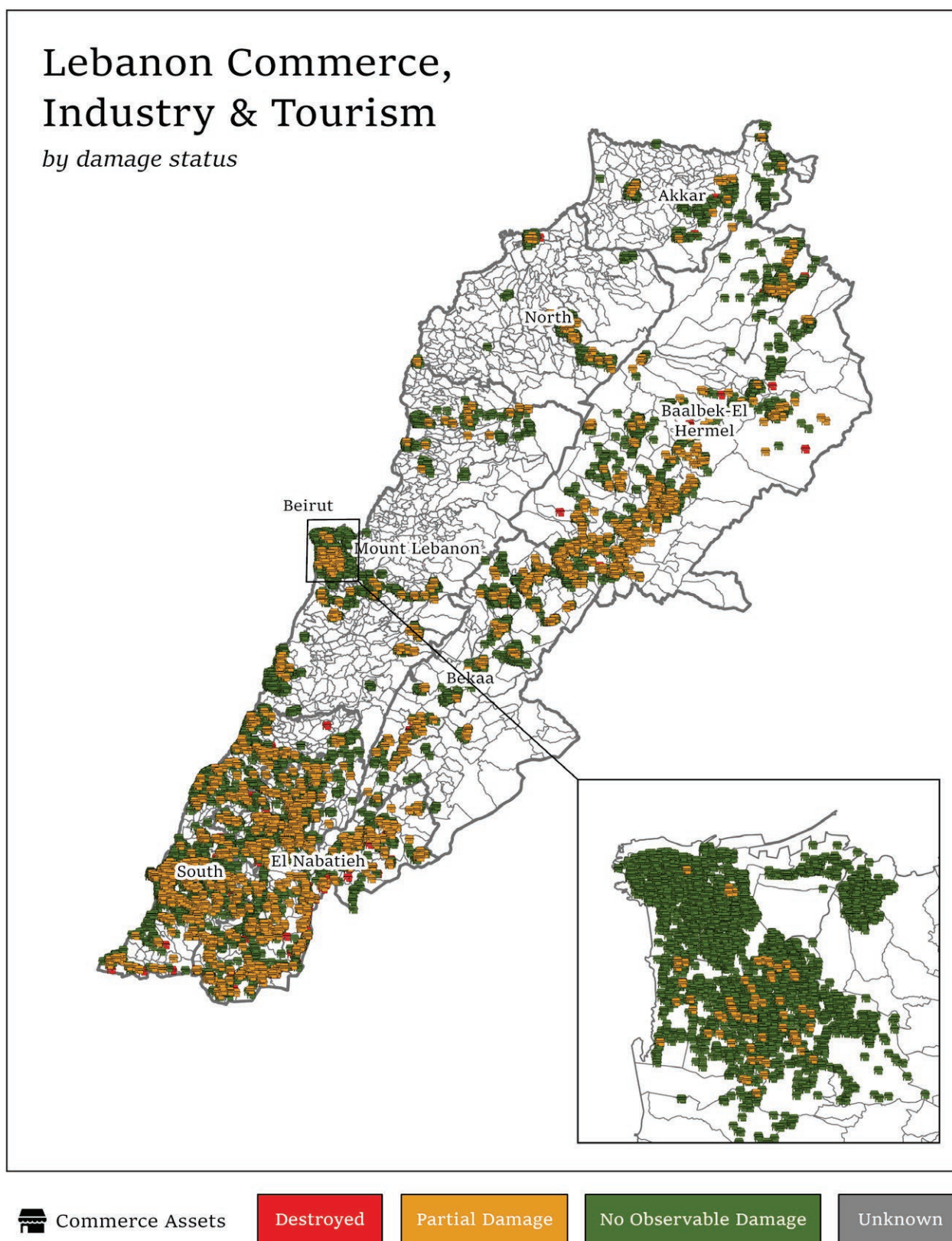
Annex C: Maps and Figures

Figure C1: Agriculture & Food Security sector aggregated losses per district



Source: Map generated for the World Bank, Ipsos

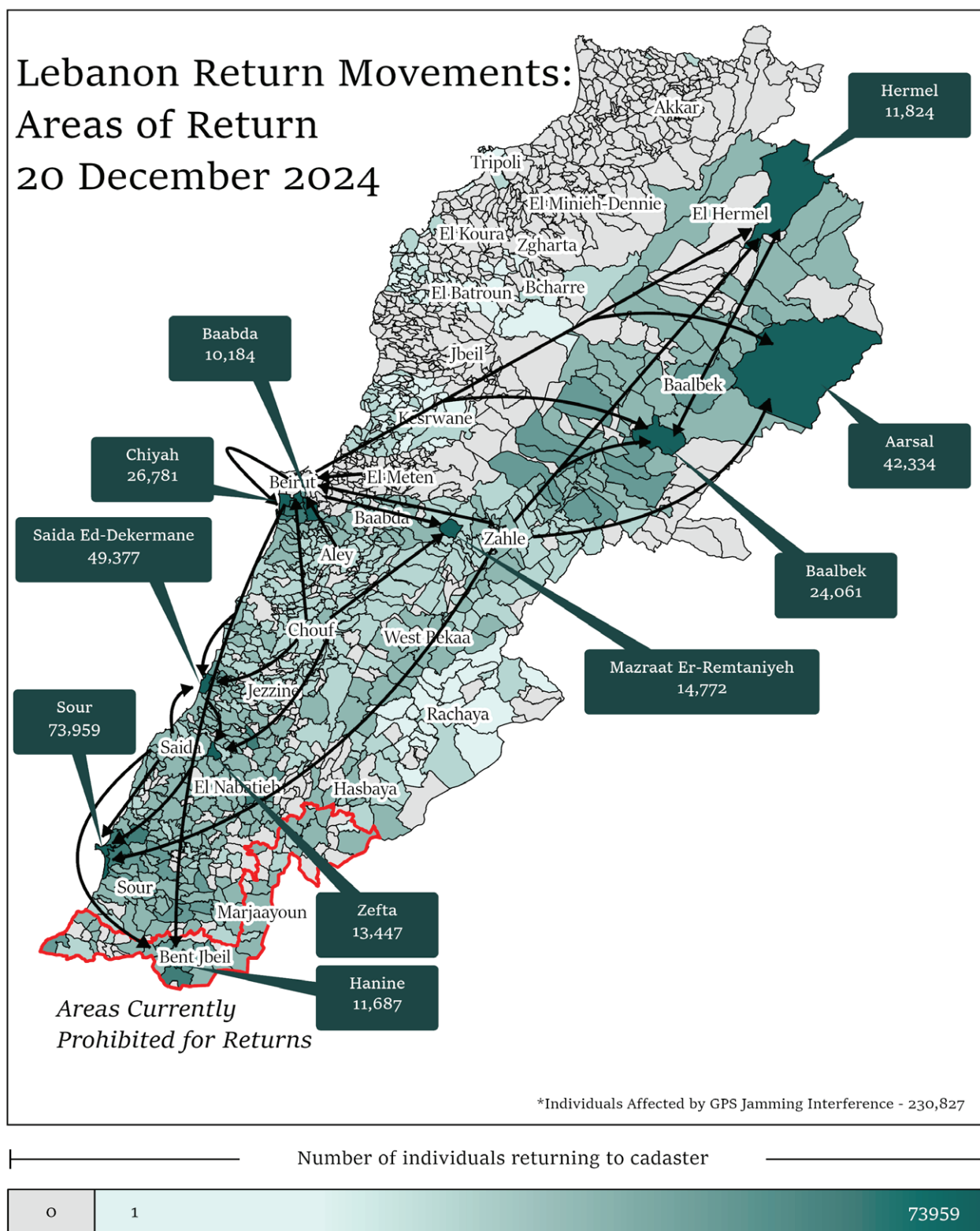
Figure C2: Damaged Commerce, Industry & Tourism sector establishments



Source: Map generated for the World Bank, Ipsos

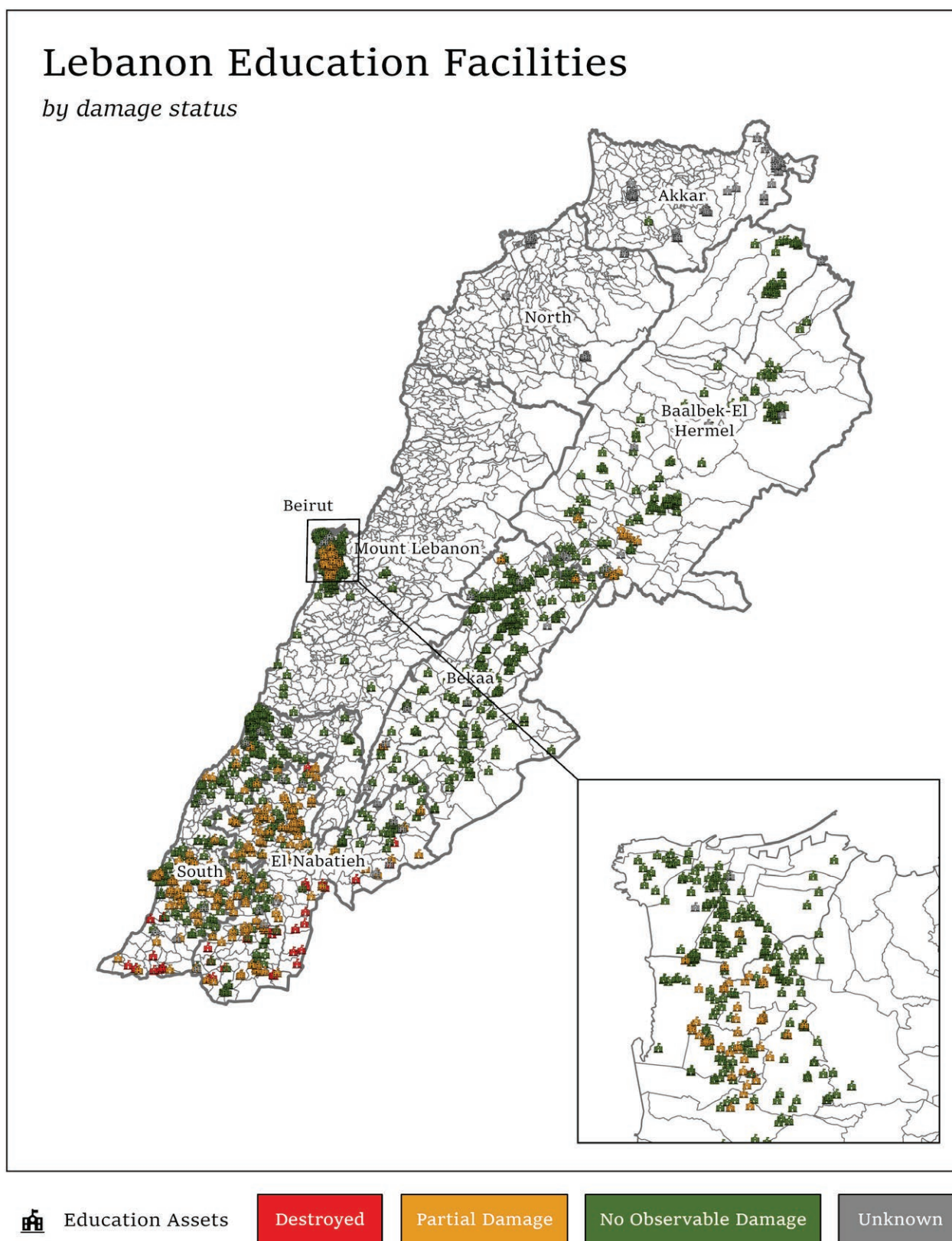


Figure C3: Lebanon return movements



Source: Map generated for the World Bank, Ipsos

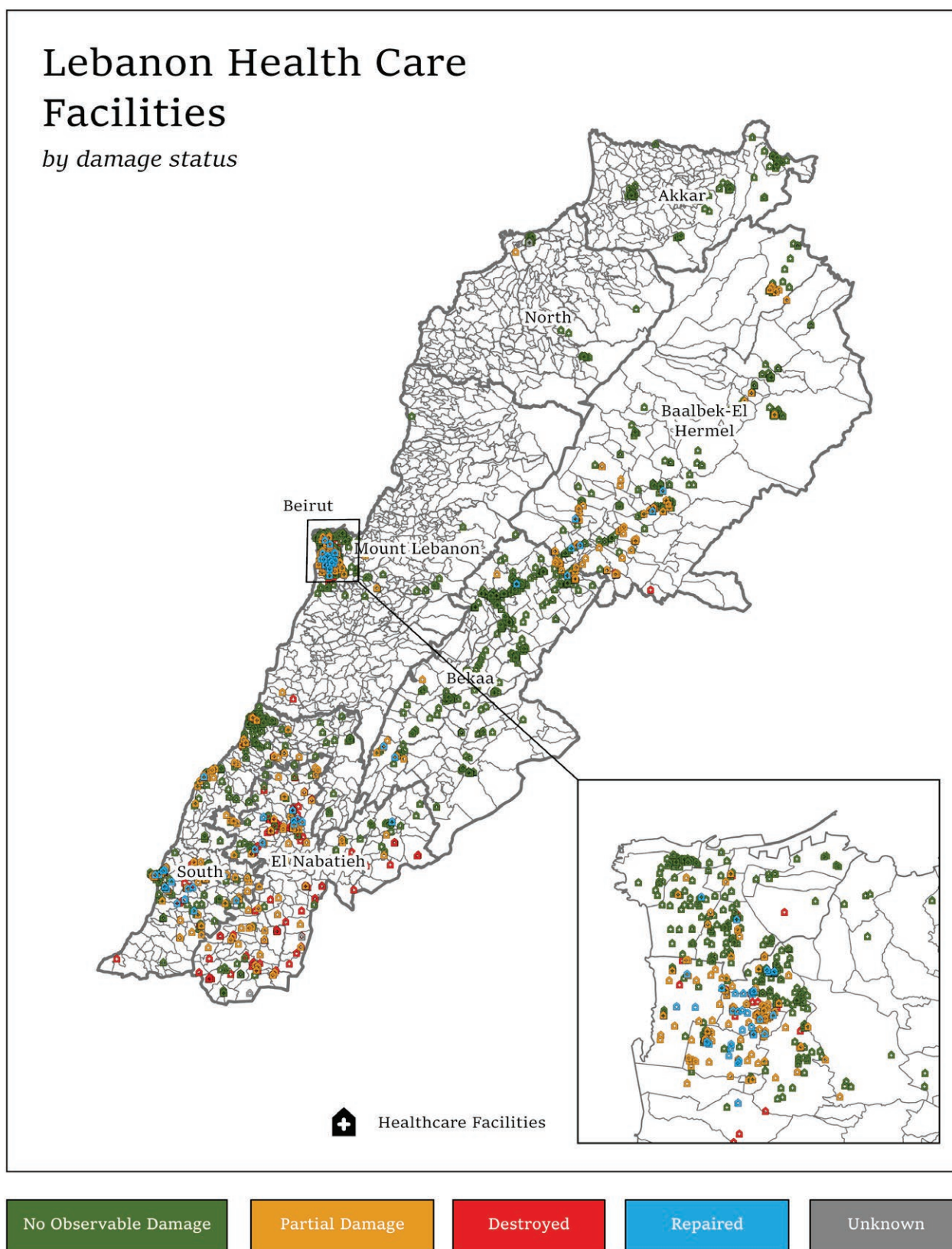
Figure C4: Damaged Education sector facilities



Source: Map generated for the World Bank, Ipsos

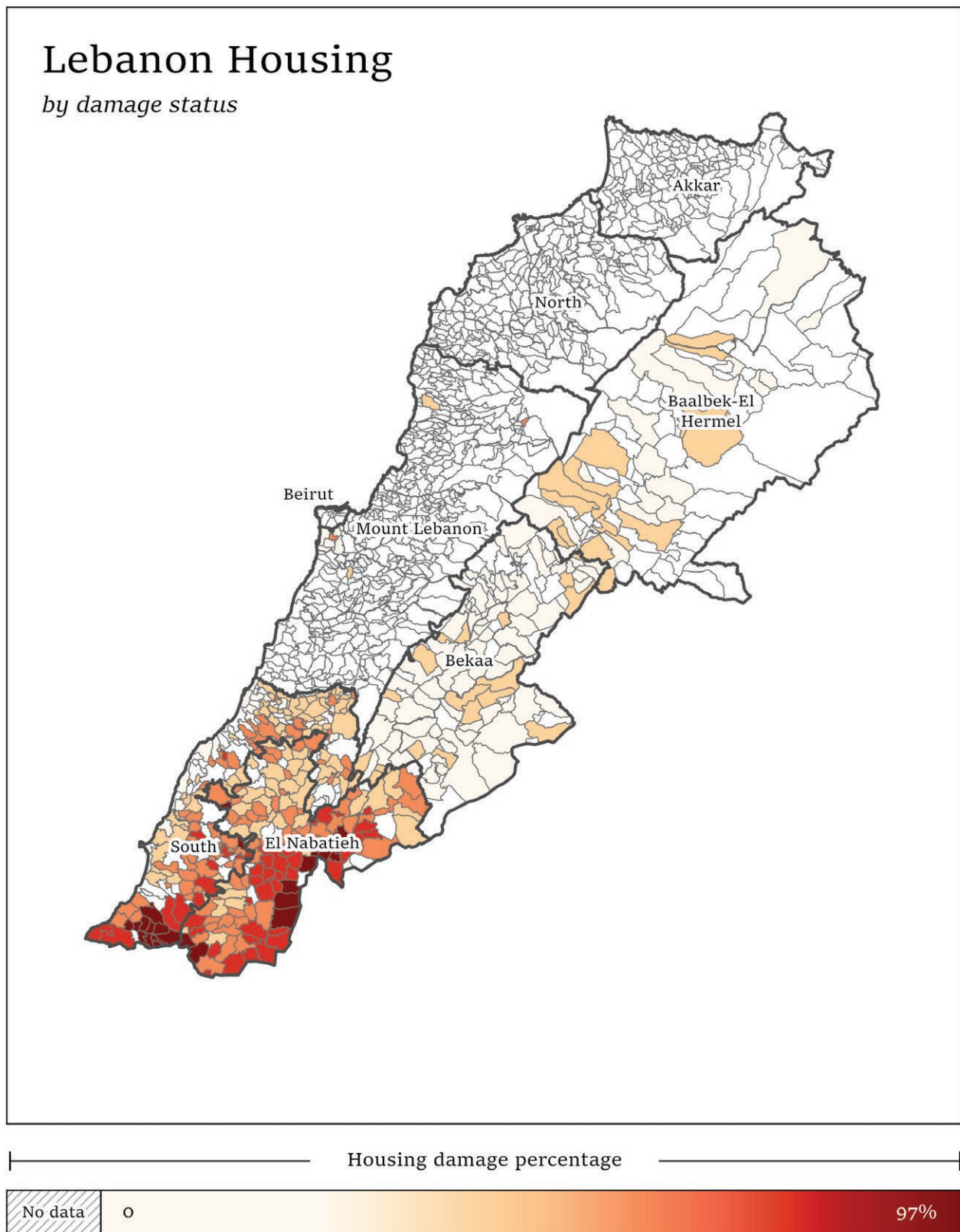


Figure C5: Damage to Health sector facilities



Source: Map generated for the World Bank, Ipsos

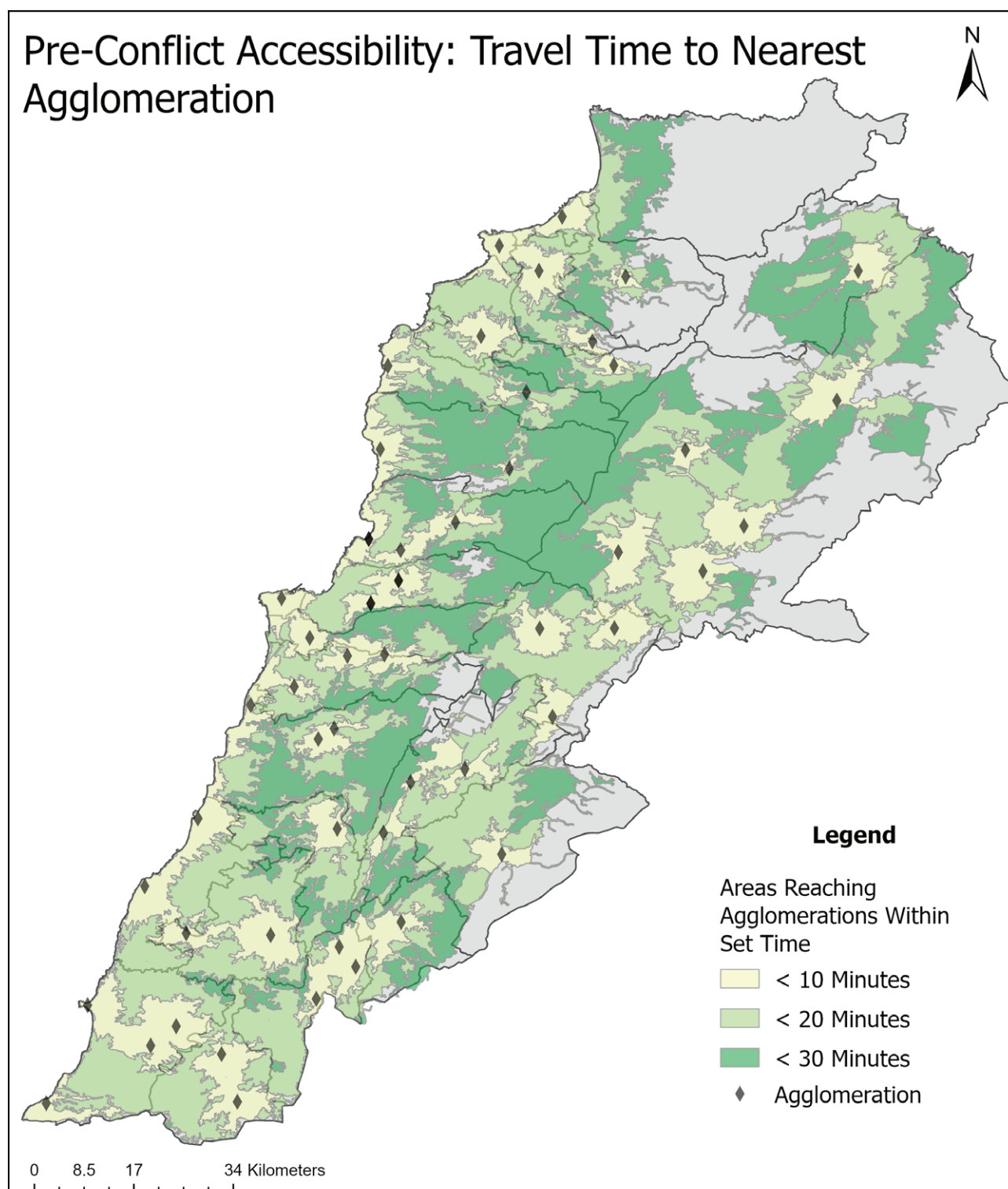
Figure C6: Housing sector damage: percentage of damaged residential buildings at municipality level



Source: Map generated for the World Bank, Ipsos



Figure C7: Pre and post-conflict accessibility: travel time to nearest agglomeration



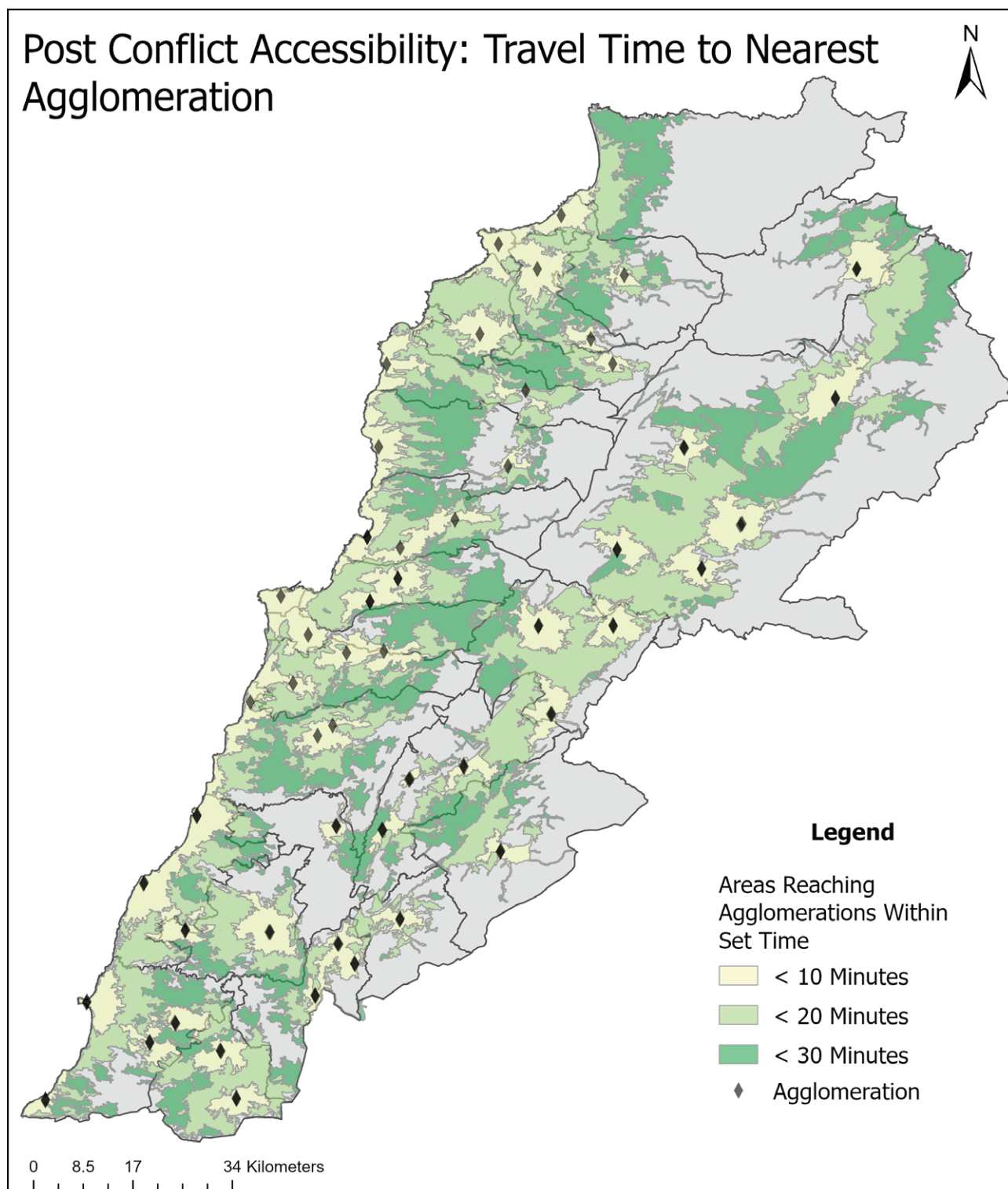
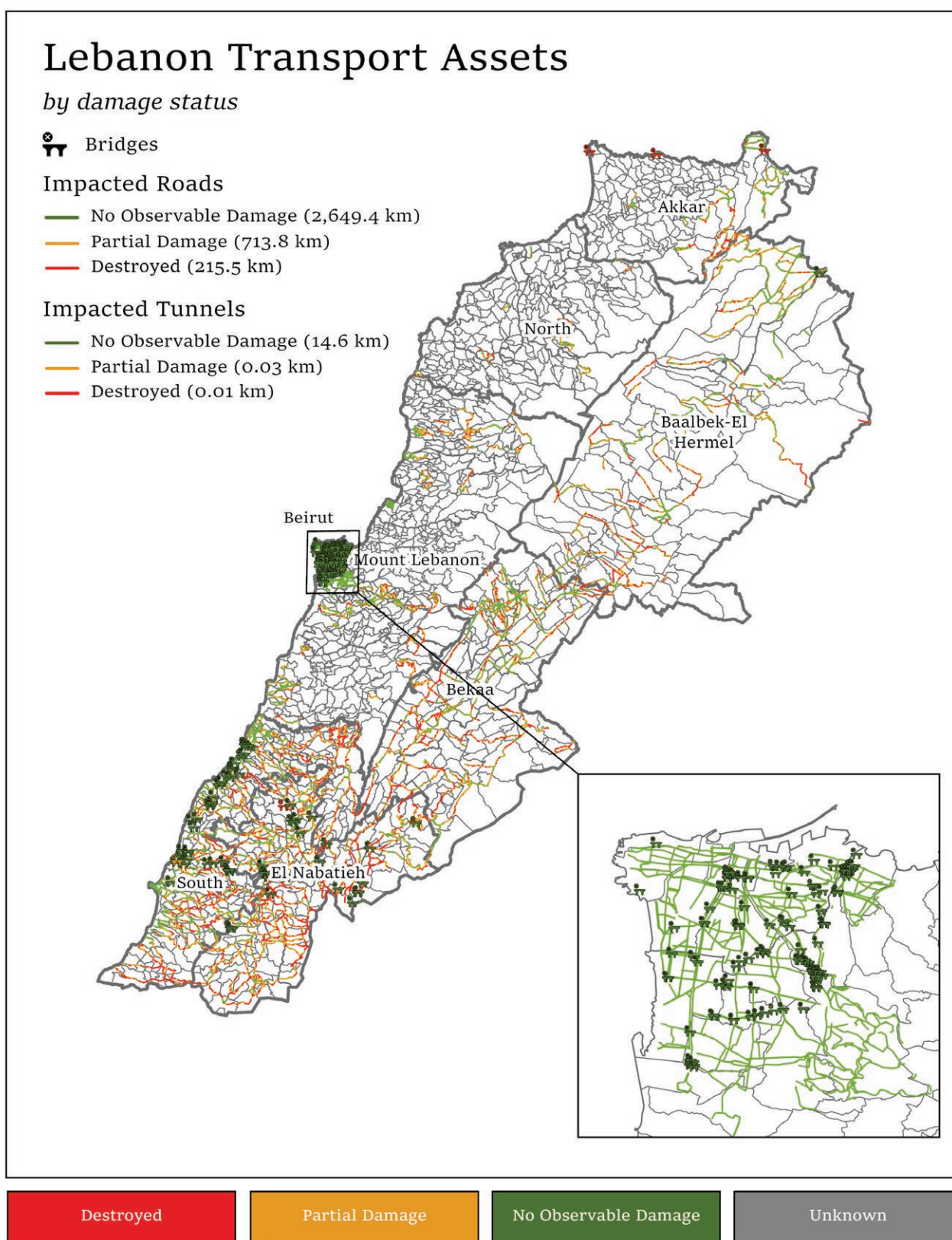


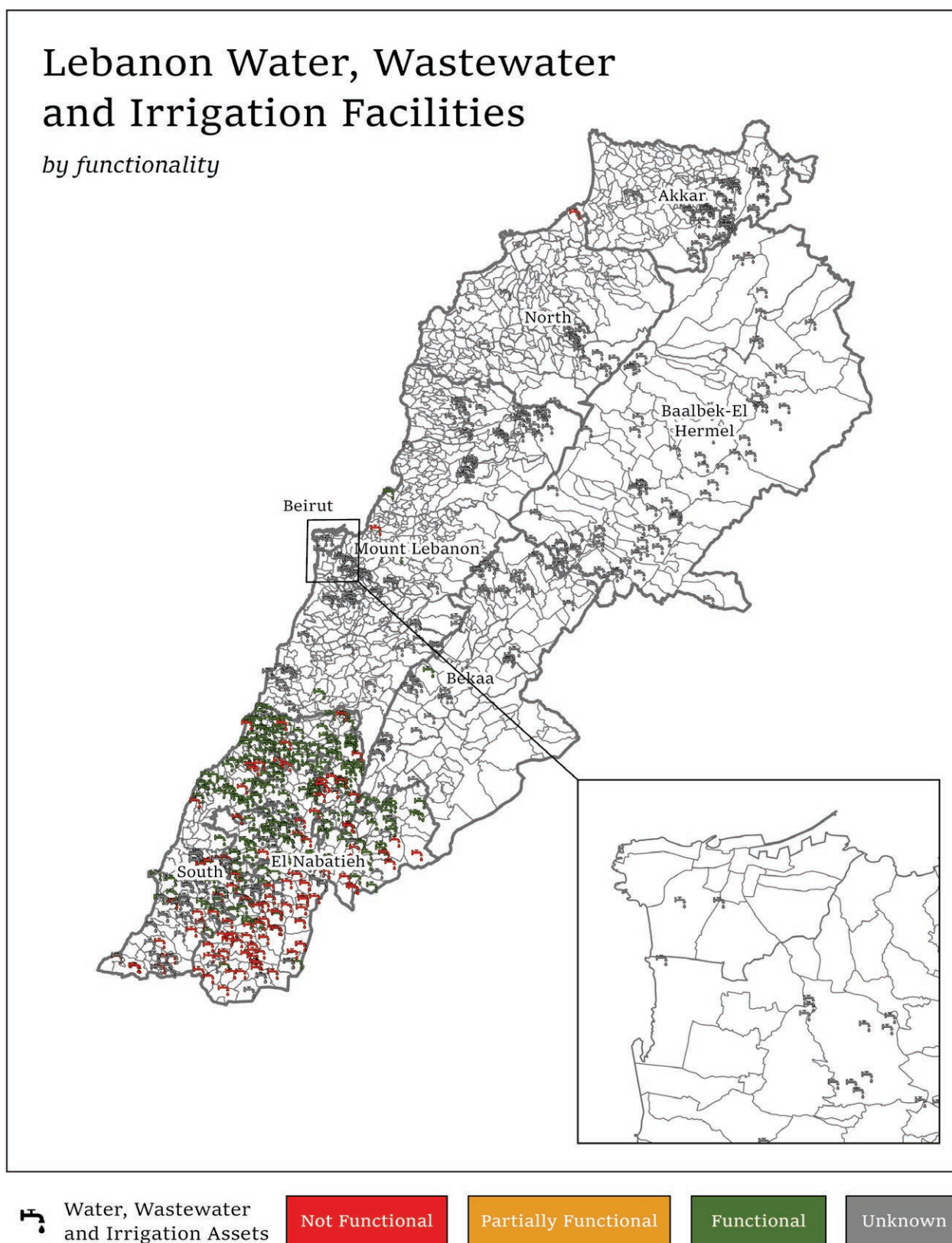


Figure C8: Transport sector impacted Roads and Tunnels



Source: Maps generated for the World Bank, Ipsos

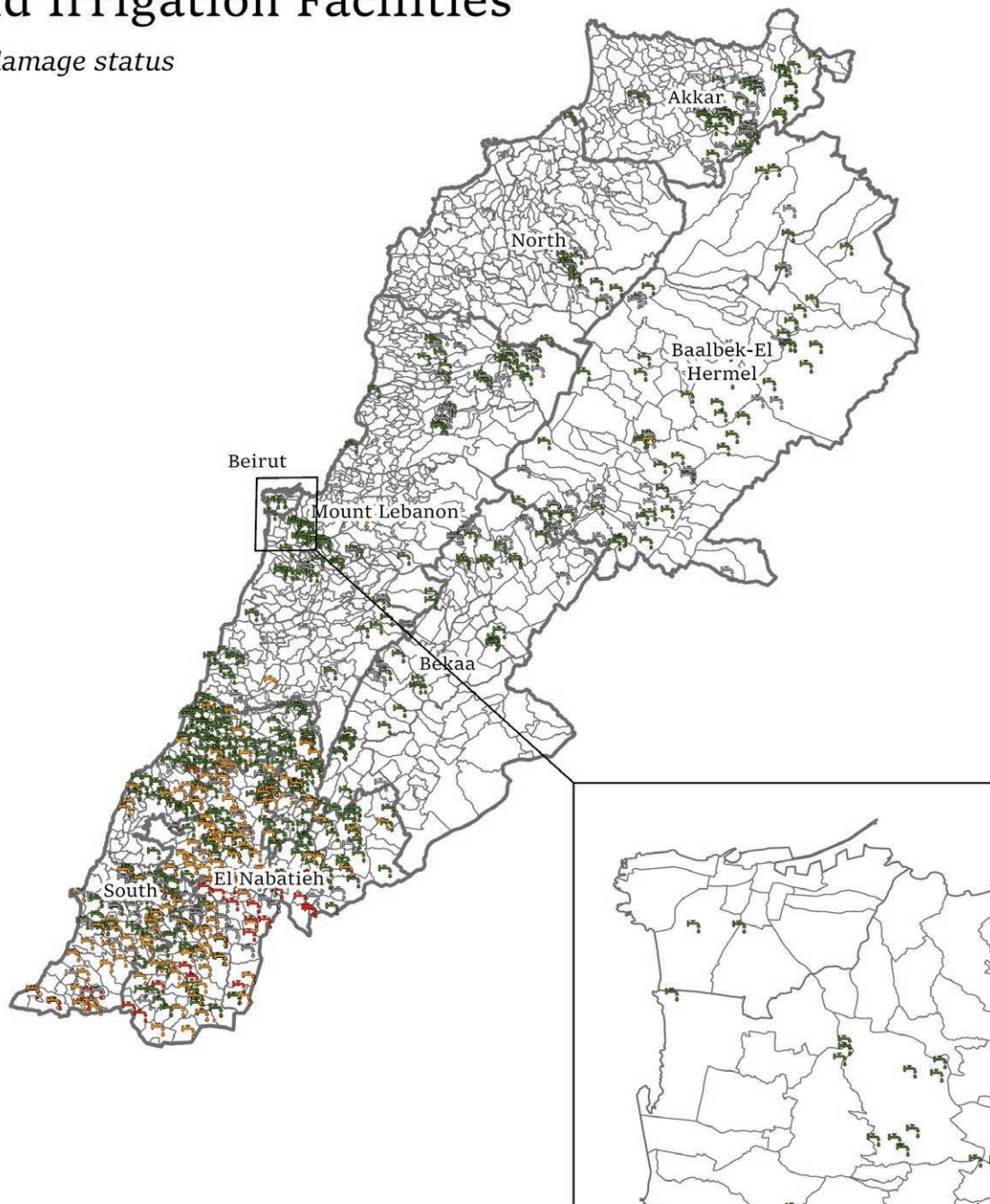
Figure C9: Water, Wastewater & Irrigation sector functionality and damage





Lebanon Water, Wastewater and Irrigation Facilities

by damage status



Water, Wastewater and Irrigation Assets

Destroyed

Partial Damage

No Observable Damage

Unknown

Source: Map generated for the World Bank, Ipsos



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