



Socio-Economic Benefit of Mine Action in Lebanon

The case for sustained support





SOCIO-ECONOMIC BENEFITS OF MINE ACTION IN LEBANON

THE CASE FOR SUSTAINED SUPPORT

OUTLINE

- Purpose of the study
- Methodology
- Model
- Main results

PURPOSE

This study aims at studying the **developmental aspects of mine action**, i.e. the long-term economic costs of mines/ERW and benefits of mine action.

This study intends to **translate the benefits** of mines/ERW action in **financial terms**, calculated on the long run.

This calculation is an attempt to include the **human cost of mines/ERW incidents**, as well as the **cost of denied access to contaminated land** and its productive capacities.

Potential Application in Mine Action

Ultimately, the study aims at making the case for **sustained support to mine action**.

The study also links Mine action to SDGs. i.e. how **mine action is contributing to the goals**. (poverty reduction, economic development, peace and security, environment, etc..)

The study results should **inform policy** makers on the importance and relevance of mines/ERW action, as well as allow for meaningful prioritization of clearance and awareness actions.

The model is a **forward looking** model that evaluates cost benefit of mine action at the national, regional, and local levels in the future at any point in time (past, present and future)

It is a **flexible and user friendly** model that can be easily used by operators working in the field

SOURCES OF DATA

This research study is based on several research tools, including, but not limited to:

1. **Literature Review**, in order to best determine the indicators to take into account, the parameters to define, specific country information, etc.
2. **Quantitative Data**, provided by the Lebanese Armed Forces, the Lebanese Mine Action Centre and other stakeholders about mines/ERW contamination and clearance in Lebanon.
3. **Qualitative Data**, gathered during three field visits in each of the selected case studies' locations.



METHODOLOGY

The study builds a **cost – benefit model for assessing the financial return on mine action** in terms of avoided casualties and productivity of reclaimed land.

The parameters of the model are built on the cost of ERW/Mines which are, conceptually, divided into three categories:

1. **The costs associated with casualties from mine accidents:** loss of life, loss of human productivity and human welfare, medical costs of injuries, etc.
2. **The costs associated with the loss of access to mine-contaminated areas** (agricultural, residential, roads, economic activity, etc) and loss of associated production or consumption
3. **The costs associated with behavioural changes** due to the existence of mines, such as longer travel distances, refusal to undertake journeys, etc.



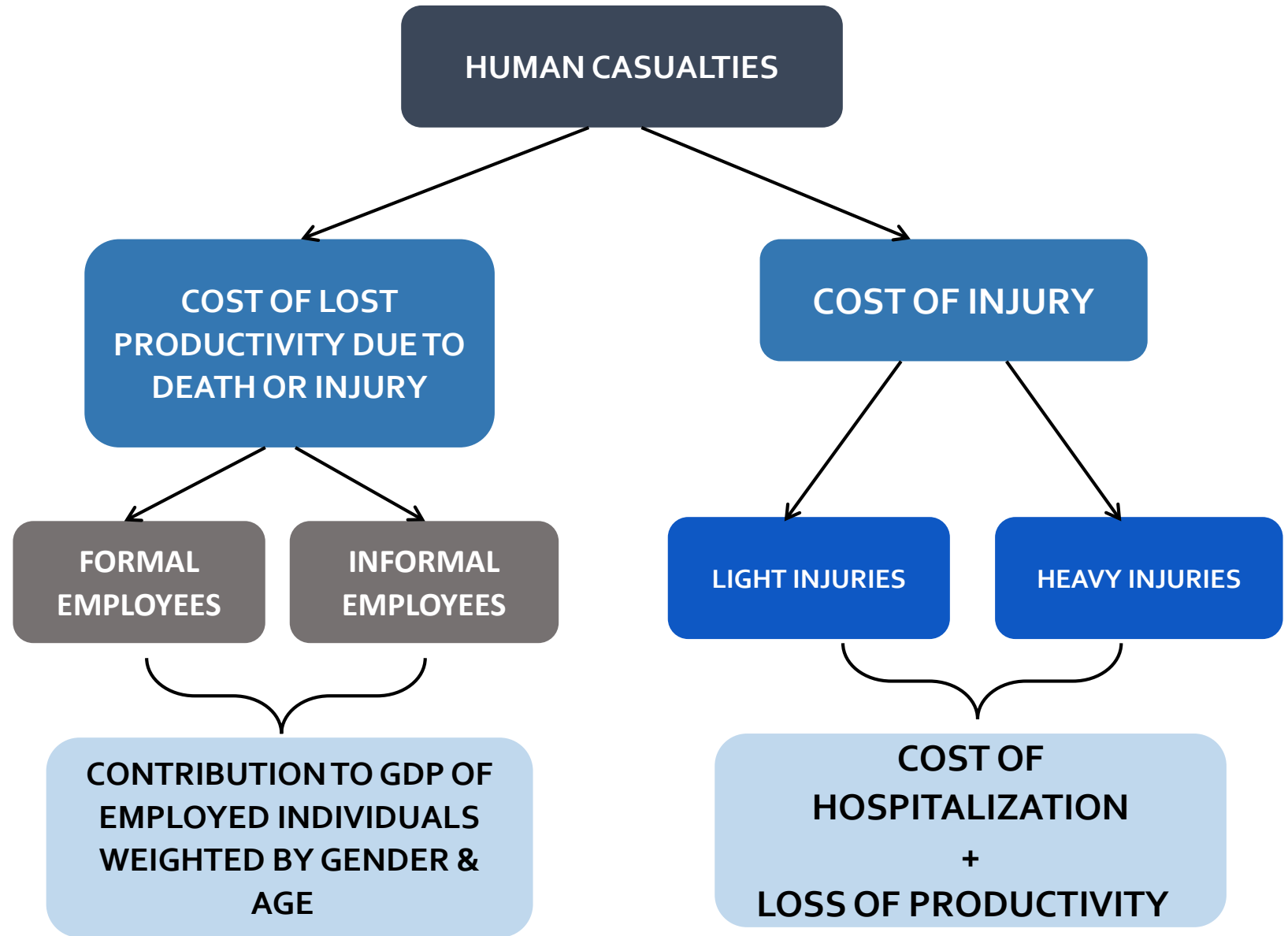
The costs associated with casualties from mine accidents

With regards to valuation of lives saved, the model does not seek to attribute a monetary value to human lives, which authors and the agencies commissioning the report consider as priceless and inestimable.

However, the model does assess monetary value to the loss of productive capacity of mine/ERW victims, as well as the loss of enjoyed welfare incurred by a mine/ERW accident



THE MODEL



HUMAN BENEFIT COST ESTIMATION

Human Lives Saved



Type of outcome	Share of casualties	Estimated degree of disability
Death	24.20%	100%
Blindness	7.00%	70%
Amputation / Heavy injuries	56.60%	60%
Light injuries	12.20%	10%
In US\$	Employed	Not employed
Productive contribution to Gross Economic Product	23,763	8,524
Victim's loss of welfare	23,763	8,524
Estimated annual loss for one fatal casualty	47,526	17,048

In total, clearance carried out between 1998 and 2017 caused society to save **227,296,903 US\$** in human costs, i.e. medical costs and costs of lost productivity and welfare. Future clearance, from 2018 to 2037 is expected, in turn, to save society **105,370,823 US\$** in human costs.

Mine Risk Education

With the awareness factors for each year, the human benefit related to Mine Risk Education can be estimated. This benefit amounts to **116,694,150 US\$** from 1998 to 2017 and is expected to amount to **10,803,072 US\$** from 2018 to 2028



Land Reclamation



LAND RECLAMATION

AGRICULTURAL

ESTIMATED REVENUE
FROM VARIOUS
CROPS

GRAZING

ESTIMATED
VALUE OF
RUMINANTS
GRAZING THE
LAND

FORESTS

ESTIMATED USD
PEOPLE ARE
WILLING TO PAY
FOR
PRESERVATION
+
VALUE OF FOREST
PRODUCTS

RESIDENTIAL

ESTIMATED
VALUE OF BUILT
AREA

ECONOMIC
ACTIVITY

ESTIMATED
SALARIES OF
JOBS CREATED
RESULTING
FROM NEW
ECONOMIC
ACTIVITY
(INDUSTRY,
TOURISM,
TRADE,
AGROFOOD)

THE MODEL
LAND RECLAMATION BENEFIT

Agricultural Land Reclamation

THE RESULTS SHOW THAT PAST MINE CLEARANCE (PRIOR TO 2018) HAS GENERATED AN ESTIMATED **381 MILLION USD**, AND FUTURE CLEARANCE IS EXPECTED TO GENERATE AN ADDITIONAL **174 MILLION USD**, FOR A TOTAL OF **556.3 MILLION USD**



Grazing Land

- PRIOR CLEARANCE OF GRAZING LANDS HAS RESULTED IN **27.6 MILLION USD** OF BENEFITS, WHILE FUTURE CLEARANCE IS EXPECTED TO GENERATE AN ADDITIONAL **11.8 MILLION USD**, RESULTING IN AN OVERALL TOTAL OF **39.4 MILLION USD**

Forest



Forest

CLEARANCE OF FORESTS REPRESENTS A DOUBLE BENEFIT, THAT ENCOMPASSES BOTH THE FOREST'S INTRINSIC VALUE AND THE LIVELIHOOD BENEFITS BROUGHT TO POPULATIONS BY FORESTRY PRODUCTS

THE ECONOMIC BENEFITS OF PAST CLEARANCE OF FORESTS CONTAMINATED BY MINES/ ERW (BENEFITS OF FORESTRY PRODUCTS EXCLUDED) AMOUNT TO **187.4 MILLION USD**, WHILE BENEFITS OF FUTURE CLEARANCE ARE ESTIMATED AT **80.3 MILLION USD** FOR A TOTAL OF **267.7 MILLION USD**.

IT IS ESTIMATED THAT PAST CLEARANCE OF FORESTS HAS RESULTED IN A TOTAL BENEFIT OF **34.4 MILLION USD**, WHILE FUTURE CLEARANCE IS EXPECTED TO GENERATE **14.7 MILLION USD** FOR A TOTAL OF **49.1 MILLION USD** IN FORESTRY PRODUCTS



Forestry Products

IT IS ESTIMATED THAT PAST CLEARANCE OF FORESTS HAS RESULTED IN A TOTAL BENEFIT OF 34.4 MILLION USD, WHILE FUTURE CLEARANCE IS EXPECTED TO GENERATE 14.7 MILLION USD FOR A TOTAL OF 49.1 MILLION USD IN FORESTRY PRODUCTS

NWFP	AREA OF CULTIVATION (HA)	2016 BENEFITS IN USD (HA)	2017 BENEFITS IN USD	ESTIMATED CLEARED AREA (HA)	ESTIMATED REMAINING AREA (HA)	BENEFITS/HA (IN USD/HA)
PINES	5,864	53,000,000	55,385,000	63.92	27.39	9,444.9
SYRIAN OREGANO	88,000	10,000,000	10,45,000	959.23	411.10	118.8
SAGE	8,000	2,400,000	2,508,000	87.20	37.37	313.5
CAROB	240	2,800,000	2,926,000	2.62	1.12	12,191.7
LAUREL	1,559	12,000	12,540	16.99	7.28	8.0
FOREST HONEY	139,376	23,000,000	24,035,000	1519.30	651.10	172.4

Table 18: Estimated contamination, clearance and annual revenue per ha of forestry products



Residential Area Clearance

- THE TOTAL HOUSING INVESTMENT, I.E. THE BENEFITS OF FULL CLEARANCE AMOUNTS TO 310,7 MILLION USD ON CLEARED AREA AND 111.2 MILLION USD ON STILL CONTAMINATED AREA.
- THE SUM OF BENEFITS OF CLEARANCE OF RESIDENTIAL AREAS, AT THE END OF THE CLEARANCE PROCESS IS EXPECTED TO AMOUNT TO 421.9 MILLION USD.



Road Clearance

THE BENEFITS OF PAST
CLEARANCE OF ROADS
FROM MINES/ ERW
AMOUNT TO 12.0
MILLION USD, WHILE THE
BENEFITS OF FUTURE
CLEARANCE ARE
EXPECTED TO AMOUNT
TO 7.6 MILLION USD FOR
AN ESTIMATED TOTAL OF
19.7 MILLION USD.
This



MAIN RESULTS

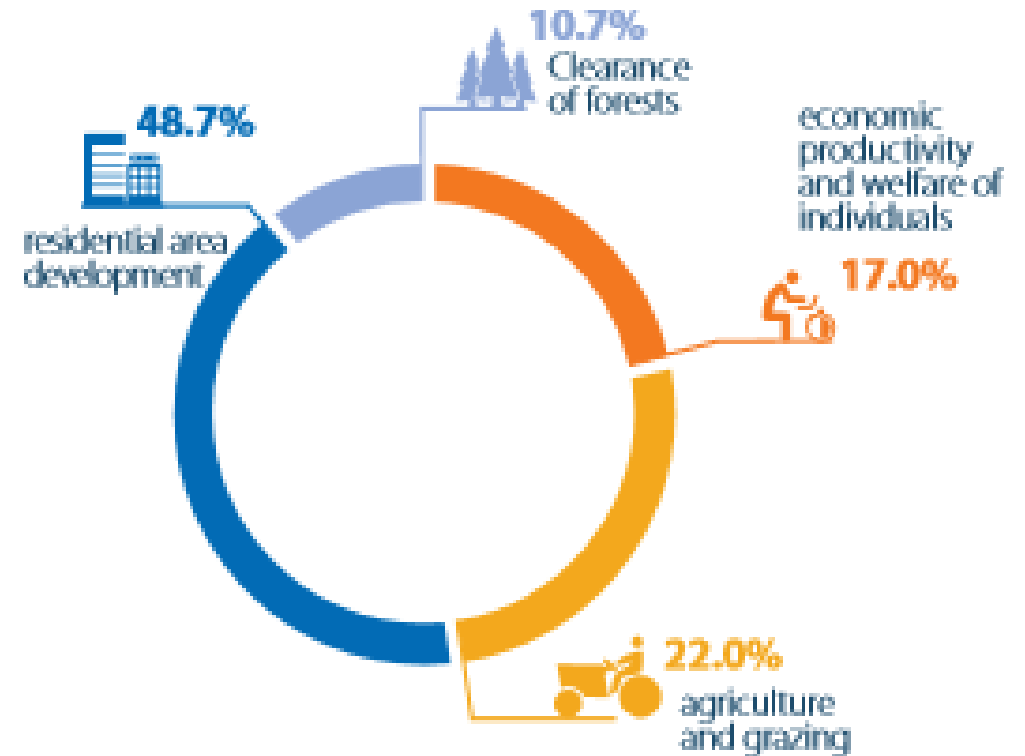
	RESULTS (US D)	1998-2027	Share of total benefit 1998-2027
Cost of Mine/ERW action	\$ 653,568,738		
Benefit of MINE/ERW action	\$ 2,710,441,748		
Total cost to benefit ratio of mine clearance action	24%		
Total benefit of mine clearance for 1\$ spent in USD	\$ 4.15		
Total human benefit of mine clearance action	\$ 332,667,727		12.3%
Total human benefit of mine awareness	\$ 127,497,222		4.7%
Total benefit of agricultural land clearance	\$ 556,287,354		20.5%
Total benefit of grazing land clearance	\$ 39,387,634		1.5%
Total benefit of forest clearance (excluding forestry products)	\$ 267,676,968		9.9%
Total benefit of clearance from forestry products	\$ 49,133,376		1.8%
Total benefit of residential areas clearance	\$ 421,855,381		15.6%
Total benefit of road clearance	\$ 19,681,793		0.7%
Total benefit of from new economic activities	\$ 896,254,294		33.1%

The table indicates that total costs amount to 24% of the accumulated benefits over the entire period of mine/ERW action (1998-2027).

Table 1: Economic benefits of clearance – summary table 1998-2027

Total Benefits

- Economic benefits of lifesaving in terms of economic productivity and welfare of individuals accounted for 17.0% of the total benefits¹, while
- benefits from agriculture and grazing accounted for 22.0% of total benefits,
- while other economics activities, including residential area development, accounted for 48.7% of total benefits. Clearance of forests does yield a non-negligible 10.7% of total benefits.



Recommendations

- The assessment study showed that clearance action has a significant impact on economic growth and everyday life of people in contaminated areas.
- Based on conservative estimations, the report showed that for each dollar spent on clearance generates 4.15\$
- Measurement of these benefits should make the case for sustained support to Mine Action in Lebanon
- The report also showed through the case study, that every location and “type” of land can generate a return if cleared.
- LMAC plans to streamline this model with all implementing agencies and support other countries in developing their own socio-economic analysis.
- Mine Action stakeholders largely aware of the importance of humanitarian clearance as a lifesaving action. However, there is a need to further highlight the social and economic impacts of mine action, and its long term developmental impact.

Thank you