

## Annex

### Methodological note on estimating damage to physical capital

Estimating the damage to physical capital in the Syrian Arab Republic is an exhausting task for stakeholders analysing the implications of the conflict. This is due to the absence of systematic official records for the damage. Given the available resources, the authors estimated the value of the damage during the period 2011-2017 using the following sources:

- Desk review, and data collection and aggregation from scattered official statements and reports by NGOs and international organizations.
- Various data collection techniques, and consulting field and sectoral experts, to estimate the figures and their development and to bridge identified data gaps at sectoral and geographical levels.
- Simple field assessments using the geographic information system (GIS) for Raqqa and Deir Ezzor, inaccessible at the time of study, to analyse direct damage incurred by the conflict.

While dealing with the first data source, the authors realized various ministries and public administrations had tried to keep records but without consistent accounting and evaluation procedures. Thus, some records were based on the historical values of the damaged assets,<sup>160</sup> others on the replacement value. More distortions were the result of evaluating incurred damages in Syrian pounds.<sup>161</sup> It was continuously depreciating against the United States dollar, and in 2017 was down to 10 per cent of its 2010 value. This underestimates the damage recorded at book values, or in the early years of the conflict in Syrian pounds.

To adjust the figures, the authors tried first to estimate an index for relative conflict intensity in each of the conflict years 2011-2017, then had total damage value in Syrian pounds distributed over the years accordingly (table A.1). The annual conflict intensity index was compiled by chronologically mapping the average of the following

proxy indicators:

- History of reporting on the damage volumes and values by tracking official statements and reports and studies published by local and international organizations.
- Historical evolution of estimated number of casualties resulting from military operations as an indicator of the intensity of military operations and, thus, the scale of the damage to physical capital, based on the fact most battles took place in heavily inhabited/capital intensive areas.
- Geographical size and spread of the military operations, and volume of assets deployed and intensity of weapons used.

The next step was to convert the annual damage into United States dollars by dividing them by the annual average free market exchange rate of the dollar against the Syrian pound. To reach the value of the damage in dollars at constant 2010 prices in the international market, the sum of the 2010 present values of the annual damage figures was calculated using the IMF's world annual inflation rate as the discount rate.

Two further points must be noted to understand the sectoral damage figures:

- The damage of physical capital was incidence-based rather than stock-based. For example, the number of damaged houses in 2010-2017 does not necessarily equal the difference between the housing stock in 2017 minus the stock in 2010, because many houses were repaired during those years or newly constructed. The same applies to schools, hospitals and vehicles, among others.
- The value of the damage was estimated based on the average cost of repair or replacement.

**Table A.1.** Relative conflict intensity index, 2011-2017

Year	2011	2012	2013	2014	2015	2016	2017
Percentage	2	6	7	10	30	20	25

Source: ESCWA, NAFS estimates and calculations.