**Protecting the right to adequate housing during and after violent conflict**

*Using new technologies to ensure the safety of returning families*

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After a violent conflict has ended, families are eager to return home, and understandably so. Though the danger from the conflict may have ended, families may face additional dangers and vulnerabilities hidden in the structural composition of buildings. Time and time again, we see tragedies [linked to returning to an unsafe home](https://www.bbc.com/news/world-middle-east-47103109).

Damage after violent conflict, especially in the case of bombings, closely resembles the damage caused by an earthquake. Severe destruction to the built environment means that the safety of buildings must be assessed before families can move back into their homes.

Undertaking a building-by-building assessment is critical to ensure that families return to safe structures and have access to the knowledge needed to safely repair their homes. This knowledge is even more critical in areas prone to seismic activity. Without the implementation of proper resiliency measures, minor shocks to houses could lead to more fatalities during the next disaster.

Thanks to new technologies, assessments can be completed rapidly, and families can return home faster. Here are some examples from the field of disaster risk reduction (DRR) that could, and should, be applied to the evaluation of home safety following a war or disaster.

**Leveraging machine learning and drones to do high-level assessments**

After major destruction to the built environment, high-level assessments can be done quickly by using satellite imagery, drones or drive-by cameras capturing street view images of the buildings, and machine-learning technology. Using this combination of advanced and new technologies, a rapid damage assessment of entire neighborhoods and cities can be completed in just a matter of [weeks](https://documents1.worldbank.org/curated/en/178021624889455367/pdf/Gaza-Rapid-Damage-and-Needs-Assessment.pdf).

To reduce costs and expedite recovery from disaster or conflict, different players, including the [World Bank](https://www.worldbank.org/en/topic/disasterriskmanagement/brief/global-program-for-resilient-housing), are now using drones and street-view cameras to capture images of homes and entire neighborhoods. These images can then be process through machine-learning algorithms to categorize and identify buildings in a matter of hours and issues an ID for each one, providing occupants and policymakers with specific characteristics around which to plan and implement investments that will upgrade homes and neighborhoods.

**Using mobile technology to do detailed assessments**

Though high-level assessments can be a useful way to estimate damages and repair needs, they do not offer granular information on individual households, which is needed to ensure the safety of every returning family. Undertaking a detailed risk assessment of individual homes should be considered in order avoid further tragedies and repair homes according to resilient practices so they can withstand future shocks.

Thanks to the ubiquitous use of cell phones, mobile apps can be developed to automize detailed damage assessment processes and allow engineers – both on site or remotely – to quickly assess individual homes, estimate repair costs, and log data, all in real time. After the 2021 earthquake in Haiti, UNOPS and Miyamoto International [evaluated over 180,000 houses](https://news.trust.org/item/20220107121213-clsko/) in just a few months. By tagging each house with a QR code, the government, donors, and households themselves quickly gained access to individual damage, repairability assessments, and building repair guidelines. Using the QR codes, households were able to access their own housing information and empowered with the know-how to repair them. Putting critical safety and repair information in the hands of households themselves has been a critical element of expediting recovery as households are eager to return home and often cannot wait for government or donor aid.

The replication and deployment of new technologies can improve the speed of disaster response and reconstruction while enhancing the accuracy of data collection and analysis. Continued application of technological innovation will facilitate access to safe, resilient, and affordable homes through a swift and sustainable recovery effort.

The field of disaster risk reduction and post disaster reconstruction are ripe with innovations and programs that should be leveraged to repair and rebuild housing after violent conflict. Technology can empower households by facilitating access to the information and processes necessary to repairing homes. Ensuring the safety of returning families after conflict is critical, and we now have the tools at our disposal to do so efficiently.