

The Implications of the Reverberating Effects of Explosive Weapons Use in Populated Areas for Implementing the Sustainable Development Goals

SDG Goal 11: Resilient infrastructure for safe, inclusive and sustainable settlements

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This factsheet is an extract from a longer UNIDIR report on Reverberating Effects of Explosive Weapons Use.

Target:

11.1: By 2030, ensure access for all to adequate, safe and affordable housing (...)

11.4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage

Widespread destruction of residential buildings by explosive weapons has deprived many people of safe, adequate and affordable housing. Explosive weapons can damage transport systems, historical sites, and the environment. Damage or destruction of electricity plants has far-reaching effects on living standards and causes many downstream effects on access to food, water and health care, as well as damage to the environment. The use of explosive weapons in urban areas is also a major driver in forced displacement.

The goal of providing safe, inclusive and sustainable settlements requires a clean environment, good quality housing, and access to electricity and water. Sustainable settlements need a good transport system and access to key services for health and culture. Cultural sites enhance the value of cities. Functioning cities prevent large-scale migration.

There has been no comprehensive study on how explosive weapons undermine these broad requirements of safe, inclusive and sustainable settlements. Effects on some sectors, such as the environment and cultural monuments, are well documented. Other impacts, such as explosive damage to transport systems and power plants, are not well studied.

The effects of explosive weapons on settlements

The use of explosive weapons in populated areas destroys housing. Accurate data on the extent of housing destruction usually only becomes available sometime after the end of the conflict. In 2013, the United Nations estimated that one-third of the housing stock in the Syrian Arab Republic had been destroyed by the ongoing conflict.¹ During the 2014 hostilities in Gaza, 18,000 housing units were destroyed and 108,000 people were made homeless.² Historical data from the Second World War show that bombing raids on London damaged or destroyed approximately 1 million homes.³ By 1945, around 40 per cent of all civilian housing in Germany and Japan was destroyed. Seven million Germans had lost their homes. One study of German re-development from 1945 demonstrated that it took several years for towns to reach their pre-war population levels. Moreover, substantial public investment for rebuilding was shown to be vital—as was underlined by contrasting rates of recovery between East and West German towns.⁴

The effects of explosive weapons on transportation systems are generally poorly documented. Terrorist attacks using IEDs on underground or rail structures have received much attention, such as the bombings in

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Madrid (2004), London (2005) and Moscow (2010). Although, these caused significant loss of life, disruption to the transport system was temporary. More long-lasting effects occur in countries with weaker institutions and resilience. The effects are most serious when transport hubs and crucial supply routes are damaged. Destruction of bridges with explosives can cut off populations from exit or supply routes.⁵ For example, in Iraq in 2009 the destruction of a bridge outside Ramadi affected a major civilian traffic link between Iraq, the Syrian Arab Republic and Jordan, and a route that many Iraqis took to escape the violence.⁶

Damage to electricity supply can cause serious environmental effects, in addition to affecting water supply and health care. For example, in Donetsk, Ukraine, the ventilation system and water pumps in several coal mines failed when damage from explosive weapons above ground cut electricity. This resulted in flooding of some mines, which damaged installations, polluted the groundwater, and released toxic gases after ventilation restarted.⁷

Repairs are made difficult by **blockades** and damage to transport routes that prevent importation of replacement parts, and by dangers and difficulties in accessing damaged sites.

Explosive Remnants of War (ERW) can render urban areas unsafe. In the city of Kobani, Syrian Arab Republic, for example, the NGO Handicap International documented in April 2015 an average of ten visible pieces of munitions per square metre in the city centre following the use of explosive weapons in ground fighting and air strikes.⁸ Remnants of explosive weapons can contaminate long after the fighting has ended. Unexploded ordnance from the Second World War is still being discovered during building work in European cities in 2016, 70 years after the war ended.⁹

The use of explosive weapons can also have other environmental effects. In some cases, the damage and disruption has led to accidental releases of pollutants from damaged facilities. In other cases, the rubble and dust from destroyed buildings can be hazardous.¹⁰ Many environmental effects are the result of a chain of events set in motion by the reverberating effects of explosive weapons. For example, when the bridge in Kondrashevskaya-Novaya, Ukraine, was destroyed, coal supply to the power plant in Luanska was curtailed. When an electrical substation was shelled, the Luanska power plant was cut off from Ukraine's electricity grid. As the power plant was vital to the area, production was increased with lower-grade coal from its reserve stock. This caused a deterioration in air quality.¹¹

Fighting with the use of explosive weapons has damaged many important historical sites. In the Syrian Arab Republic, bombing and tank shelling damaged historical monuments in Aleppo and the archaeological site of Bosra.¹² In Yemen, air strikes hit the historic old city of Saada, damaging several centuries-old mosques¹³ and the eighth century B.C. Marib Dam, considered a wonder of the ancient world.¹⁴ The destruction of historical monuments destroys the connection to values and beliefs which allow people to identify with the town and previous generations, and undermines the heritage of all humankind.

The reverberating effects of explosive weapons on the safety of settlements

The destruction of towns is one of the main driving forces of mass displacement, forcing people to leave their homes to avoid the effects of violence.¹⁵ Conflict has displaced some 7 million people across the Middle East.¹⁶ This directly impinges on the objectives of the SDGs, as becoming displaced often poses a series of additional challenges in achieving access to food, water, health care, and protection from the threat of sexual violence. As for those who stay, a survey of the living conditions of 1 million Syrians showed that at least 42 per cent lived in substandard or informal housing in 2015.¹⁷

In summary, the use of explosive weapons in urban areas destroys housing and the economic foundation. It increases the direct and the indirect casualty rate. Displacement in particular creates severe vulnerabilities. Rebuilding cities after widespread urban bombing is extremely costly, in particular when a large percentage of housing stock has to be rebuilt. Affected communities are often marginalized globally and within their country, and are rendered considerably more vulnerable to threats and abuse of various kinds.

Endnotes

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