Managing Residual Clearance: Learning From Europe's Past

Lessons learned from residual clearance in post-1945 Europe may apply to long-term clearance efforts after more recent conflicts.

by Samuel Paunila [GICHD]

In light of current conflicts, it is easy to forget that many European countries still manage World War I (WWI) and World War II (WWII) explosive remnants of war (ERW) contamination. Over decades, these countries developed practices and policies that could help shape priority setting and risk management in countries more recently affected by ERW. Post-conflict countries could learn from the early mistakes in European responses and benefit from practical approaches that address residual threats at varying depths and with differing time frames.

The historical evolution of best practices since WWII can also assist countries in policy design beyond the fulfillment of commitments under the international *Convention for Cluster Munitions* (CCM) and the *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on Their Destruction* (Anti-personnel Mine Ban Convention or APMBC). Understanding when to start and stop the implementation of proactive clearance serves as an excellent foundation for residual clearance policies.[1]

Understanding Before Acting

One of the immediate challenges facing countries recovering from armed conflict is the prevention of further casualties from ERW contamination. After addressing immediate concerns, including protecting citizens and critical national infrastructure from explosive hazards, governments strive to secure safe environments for daily life and socioeconomic recovery.[2] With internal and external pressures in play, the following limitations often characterize this early stage:

- No time for planning comprehensive surveys
- Inadequate information on the scale and impact of ERW contamination
- Policymakers' inability to approach the threat of ERW through risk management.

As a result, some countries provided ambiguous estimates regarding years of ERW clearance required, adding to the confusion.[3]

From Proactive to Responsive

Responsible governments logically adopt a proactive approach to ERW during and immediately after armed conflict. Implementation usually involves a rapid survey covering large areas with clearance operations aiming for exhaustive eradication of ERW, at least in priority areas. With time and progress, these operations usually report a decline in ERW encountered and make priority and highly-contaminated areas safe from surface and shallow ERW. Meanwhile, institutional knowledge within the responsible authority improves on typology, extent and implications of the remaining contamination.[4] With less ERW to address, the high costs of proactive clearance yields decreasing marginal returns and, in absolute terms, often debatable increases in public safety. The reduced threat from remaining ERW raises the need for the country to readjust its priorities and response policy to better reflect modern risk management.[5]

World War II Lessons

Several European and Asian countries experienced extensive and prolonged bombardments from air, sea and land during WWII, resulting in significant ERW contamination per square kilometer (247 ac) of territory.[6] In fact, more than 30 countries continue to discover and clear WWII-era ERW. For instance, the U.K. regularly recovers deeply buried bombs from the greater London area. Many ERW remain at the bottom of the River Thames. Germany's experience of bombing during WWII was more intense and sustained, leaving a widespread legacy of surface and shallow contamination in cities and the countryside. Two million tons of ordnance were dropped, with an estimated 100,000 unexploded bombs remaining in present-day Germany.[7] Up to 10 aircraft bombs are still found yearly in Berlin alone.

The intensity of the destruction in specific areas of the U.K. and Germany compares with the shelling and bombing of Laos and Vietnam, which began with the battle of Dien Bien Phu in 1954 and continued through the end of the Vietnam

Balham underground station in Southwest London after a raid on the evening of 14 October 1941, when 68 people died after pipes burst causing water and silt to fill the station.
Photo courtesy of Imperial War Museum.

War in 1973.[8] Sixty years after the First Indochina War and 40 years since the war in Vietnam, the management of residual ERW in this region is highly relevant and could benefit from a fresh perspective and transfer of knowledge.

After WWII, European governments had to make major decisions on prioritization and public safety, assessing economies of scale in dealing with residual abandoned and unexploded ordnance. The primary regulator for the evolution of policies prior to establishment of the International Small Arms Control or International Mine Action Standards was common sense; not every square meter could or should be cleared in each area suspected of containing ERW. The contamination had to be treated differently depending on if the ERW was at the surface or buried. Economic and infrastructure pressures often resulted in release of land to the population before it was guaranteed that the land was safe to a specified depth. It was, and still is, every citizen's responsibility to be vigilant and report ERW findings to local authorities.

Evolution of Policies

Since 1945, countries' responses to ERW evolved through a series of reality checks. On the one hand, authorities had to weigh the extent and type of contamination with the *de facto* danger to population and infrastructure. On the other hand, they needed to assess available technical and human resources, as well as their efficiency and associated costs. The reality of these competing priorities was no more apparent than in post-WWII London, where more than one million destroyed buildings needed to be rebuilt.[9]

The policies of that era were guided by early applications of risk management and implemented by experienced, yet often poorly equipped, operators and advisers. The first two decades after WWII could be described as a showcase of varying degrees of resilience in London and Berlin, learning from mistakes of unregulated work while pushing for new perspectives and procedures for ERW practices. During the 1970s, civil-reporting mechanisms became more effective by moving data from war archives to the first interactive information-management systems. The management of residual ERW soon evolved as a mechanism of shared responsibility with specified tasks for armed forces, emergency services, civil servants, citizenry, and more recently for commercial contractors.

Proactive, Reactive, Responsive

The U.K.'s early ERW response policies were primarily reactive, and Germany implemented a combination of

Locations of bombs reported to have fallen during the period of the London Blitz in and around the area of the London Olympic Park.
Photo courtesy of www.bombsight.org.

reactive and proactive policies. In both contexts, assessing, treating and reducing risk became a suitable approach to managing residual ERW. The policy implementation had to be transparent to the public, thus reflecting society's values while including liability aspects in light of decreasing public tolerance toward ERW casualties.

Present ERW clearance in European countries is largely responsive compared to operations conducted immediately after WWII. Many of the affected countries now operate on the premise that ERW contamination cannot be totally eliminated, but the hazards associated with remaining ERW can be mitigated through risk education, responsive local threat assessments and explosive ordnance disposal (EOD).[10] This assumption of acceptance of long-term residual risk and differentiation between responses on surface, shallow and deep residual contamination starkly contrasts with the admirable yet abstract policies that continue advocating for total eradication of ERW.[11,12]

Emerging countries that experienced major bombardments following the 1960s, such as Laos and Vietnam, completed most of their post-war reconstruction and now enter long-term development. However, some of their current contracting and budgeting modalities encourage continued proactive ERW clearance over less expensive survey activities, land-use assessments and risk reduction through spot EOD.[13] Moreover, policymakers may overestimate the impact of ERW, in particular that of deeply buried bombs.[14]

For instance, the response requirements for ERW on the surface and at shallow depths vary significantly to that of the U.K.'s deeply buried bombs, wherein the latter are mitigated reactively by default. A good example of this policy's implementation is the construction project of the Queen Elizabeth Olympic Park in London prior to the Summer Olympic Games in 2012. The entire area was heavily bombed during WWII. Based on the bombing data, deeply buried ERW could emerge during the park's construction.[15] A risk assessment deliberately avoided proactive clearance of the park. The level of preparedness was raised for the reactive bomb disposal. After an air bomb was recovered, an expert examined it and, as anticipated, was unable to pinpoint the implications of corrosion in the metal and explosive components. However, the expert was able to establish whether the bomb presented a danger in its current location and the extent of protective works needed.

Lessons Learned

Central to managing residual ERW is strong national ownership of risk and response, and well-performing authorities with solid understanding of liability, operational efficiency and risk management. ERW tasks are best suited to be the shared function and responsibility of civil defense and military that maintain the budgets and mobile-response capacity.[16]

Following the organizational structure, suitable information management and reporting systems differentiate between surface (and shallow subsurface) contamination and deeply buried bombs. Clearance of the former and other surface items with particular humanitarian impact are included in States Parties' obligations toward the CCM and APMBC. Such surface items include cluster munitions banned by the CCM and anti-personnel mines banned by the APMBC. Treaties do not ban other items such as mortar bombs and hand grenades, but they are dangerous and render a humanitarian impact if detonated.

Deeply buried bombs cannot be easily surveyed over large areas nor can communities readily identify them; often they become a challenge only after being discovered during construction and development activities. Therefore, most long-term contamination that does not pose immediate humanitarian danger could be addressed by adopting a risk-management approach and introducing more sustainable,

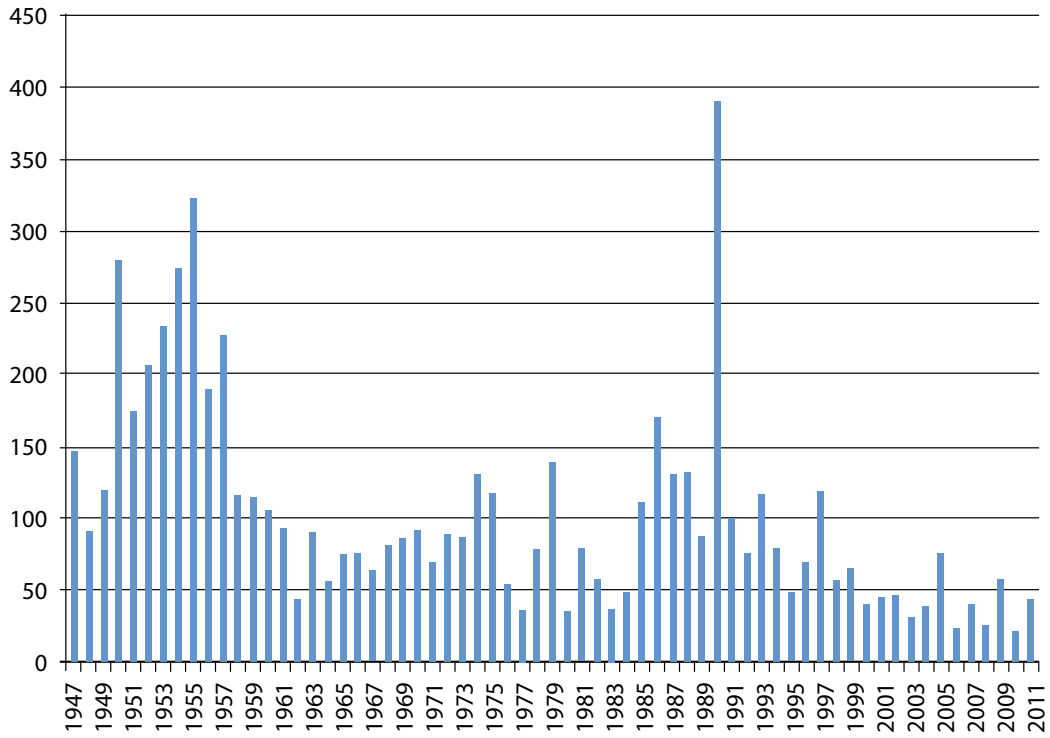

Figure 1. Annual quantity of UXO disposed of in West Berlin (1,000 kg), 1947–2011.
Figure courtesy of GICHD.

commercially viable response models. For financing institutions and donors, selecting such an approach would allow investment to focus on manageable and important tasks, not the all-encompassing clearance of countries.

Conversely, national authorities would be responsible for developing policies to manage long-term residual ERW. In such an environment, progress would be defined in terms other than the sum of square meters cleared and number of ordnance destroyed. Recent propositions for hundreds of years of continued ERW response in Laos and Vietnam should be significantly reduced by dissecting the contamination into its components and assessing the actual degrees of risk.

Lessons from the European WWII experience advocate moving away from proactive clearance practices and policies to responsive long-term survey and clearance mechanisms that are sustainable, proportional to the reduced threat and appropriate to the intended use of the contaminated land. Adoption of such policies would enable efficient resource allocation while providing better developed perceptions of residual ERW and associated risks.

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The Geneva International Centre for Humanitarian Demining (GICHD) began a study of post-1945 ERW response policies and practices in 2013, focusing on management of residual risks. The research project extends to 15 countries and serves to facilitate knowledge transfer and advise policymaking on residual ERW among national governments and donors. Beyond this study, GICHD assists in developing sustainable national leadership and capacities to confront residual contamination while increasing the role, and sharpening the structure of national security services in ERW response.

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