



MILITARY UTILITY AND HUMANITARIAN IMPACT OF CLUSTER MUNITIONS IN COMBAT CONDITIONS

During the Oslo process leading up to the 2008 Convention on Cluster Munitions, C King Associates Ltd (CKA), Norwegian Defence Research Establishment (FFI) and the Norwegian People's Aid (NPA) investigated the combat performance of the M85 bomblet, a key component in discussions about mitigating the humanitarian impact of cluster munitions.

During the negotiations, the M85 bomblet, equipped with a self-destruct (SD) mechanism, was considered the benchmark among SD-equipped bomblets due to its perceived reliability and lower failure rate. It was proposed as a solution to reduce cluster munition failure rates to below 1%, and an alternative for a proposed international treaty, where only cluster munitions without SD mechanisms or those exceeding a specified failure rate, would be banned.

The findings in the 2007 study, however debunked the myth of the effectiveness of cluster munitions with SD mechanisms and disputed the presumption these munitions ensure low failure rates with minimizing post-conflict contamination.

The report concluded that the discrepancy between testing and operational results of the M85 bomblet underscored the need for a robust, verifiable international treaty that goes beyond quality-based prohibitions. This was achieved through the Convention on Cluster Munitions.

KEY FINDINGS

1. Field Performance vs. Testing Results:

- The M85's failure rate in combat significantly exceeds expectations based on test results. In Lebanon, the failure rate was approximately 10%, far higher than the anticipated <1%.
- Failure rates from analyzed sites were 9.6%, 11.5%, and 12.2%, indicating a substantial discrepancy between controlled testing and actual combat conditions.
- Factors contributing to failures include mechanical damage, improper functioning of SD mechanisms, and environmental conditions.

2. Limitations of Testing Protocols

- The testing practices were inadequate predictors of real-world performance. Testing conditions often did not replicate the complex variables of combat, such as environmental factors, human error, and aging of munitions.
- The reliance on hard ground conditions during tests did not adequately challenge the SD mechanisms, leading to misleadingly optimistic performance metrics.

3. Humanitarian Impact

- The M85 bomblets produced significant post-conflict contamination, with dud rates creating hazards for civilians and deminers. Even a 1% failure rate would result in large numbers of unexploded ordnance (UXO), given the scale of cluster munition usage.
- The distinction between 'hazardous' and 'non-hazardous' duds is flawed. All duds pose risks, as unarmed bomblets can become armed and detonate under certain conditions. **Full report: [M85 An analysis of reliability](#)**



URGENT APPEAL TO UPHOLD THE CONVENTION ON CLUSTER MUNITIONS

Norwegian People's Aid (NPA) urges all state parties to the Convention on Cluster Munitions (CCM) to uphold the principles and obligations of the CCM. Upholding the treaty is essential to protecting lives and preventing future humanitarian disasters.

NPA's extensive operational experience of clearing cluster munitions in Bosnia and Herzegovina, Cambodia, Iraq, Kosovo, Lao PDR, Lebanon, Syria, Tajikistan, and Vietnam among others, confirms the overwhelmingly high failure rates, humanitarian consequences and long-term harm and suffering of civilians, caused by cluster munitions.

High failure rates:

- Despite claims of a failure rate no higher than 2.35%, based on our experience from clearance, we estimate that a more realistic failure rate for these submunitions is at least 20%, and in some cases - i.e. soft ground conditions - as high as 50%.
- This means that on average, for every 10 million cluster munition bomblets fired there are minimum 3-4 million duds.
- For example, M85 with an SD has a minimum 10% dud rate, M42/M46 DPICMs have no SD, are older with an even higher failure rate (i.e. Iraq, Lebanon); Multiple Launch Rocket Systems (MLRS) fully loaded with CM have a potential to deliver hundreds or thousands of unexploded submunitions; M864 rounds can result in millions of duds (if hundreds of thousands CM rounds are fired containing 8.2 mil submunitions it means around 1.64 million will be duds).

Military (in)utility:

- Cluster munitions are most effective against forces and vehicle convoys that are spread out over open terrain, while they have little use against precise targets.
- Dual Purpose Improved Conventional Munitions (DPICMs) have a dual function to penetrate armour using a shaped charge and to create fragmentation for an anti-personnel/anti-materiel effect.
- DPICM shells are useful for fragmentation effect in open terrain, but so are unitary munitions.
- The DPICM shells are not useful for anything that modern unitary shells (which have high fragmentation) can't do just as well or even better.
- Advantages of modern unitary munitions mean that they have better impact against trenches and harder targets, and can be fired at greater ranges.

Any argument of potential military utility of cluster munitions, when better less harmful alternatives exist, must be made with a conscious choice of a high cost of unnecessary and indiscriminate harm to civilians and thus must remain unacceptable.



URGENT APPEAL TO UPHOLD THE CONVENTION ON CLUSTER MUNITIONS

Grave humanitarian impact:

- 95% of casualties from cluster munitions are civilians. 71% are children.
- Submunition duds pose significant risks, especially to children, due to the smaller and more vulnerable children's bodies at the time of impact as well as after due to their attractive size, shape, and color.
- These unexploded ordnances (UXOs) strain healthcare systems, hinder humanitarian access, agricultural productivity, and impede economic development.

We ask states parties to:

- Reaffirm Commitment: State parties must uphold their obligations under all articles of the CCM.
- Promote Global Adherence and Universalisation: Condemn use, transfer and any action in breach with the Treaty provisions and norms by any actor, at anytime, and under any circumstances. Urge states not-party to join the CCM and commit to its principles.

By maintaining and strengthening the CCM, we can prevent a humanitarian crisis and safeguard future generations from the enduring harm caused by these indiscriminate weapons.