CCM MSP 16-19 Sept 2025

Geneva

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Cluster Munitions:

Nearly 2 decades after the CCM:

“reaffirming the case against CMs"

- **Humanitarian perspectives & considerations**

- **Military utility perspectives & considerations**

Humanitarian perspectives & considerations

- The challenge related to distinction, proportionality and precaution in attack
- Is protection of civilians and civilian infrastructure when using cluster munitions at all possible?
- Indiscriminate, ref wide area footprint, especially in urban settings (EWIPA)
- Reverberating effects, critical infrastructure
- The risk to the civilian population long after conflict has ended and becoming an impediment to peace and development

Humanitarian perspectives & considerations cont.

- The 2024 Cluster Monitor Report writes that Cluster munitions and their remnants continued to disproportionately impact civilians. All recorded casualties in 2024 were civilians. However, unreliable reporting on military casualties prevented the number of military casualties from being included in the Monitor's casualty dataset.
- In 2024, sex- and age-disaggregated data on cluster munition casualties was severely lacking, especially in conflict-affected countries where reporting was challenging. However, the majority of casualties continued to be men and boys, where the sex was known.
- Children are at particularly high risk of harm from cluster munition remnants, especially submunitions. Children accounted for 42% of all recorded casualties from cluster munition remnants in 2024.
- Data of military casualties specific to CM is hard to find, but the CM reports makes clear and compelling arguments.

Humanitarian perspectives & considerations cont.

- During the negotiations of the Cluster Munitions Convention, it was argued that stockpile destruction would be the biggest problem as it would be slow, difficult and very expensive
- This however turned out not to be the case
- In March 2014, Denmark completed the destruction of a stockpile of 42,181 cluster munitions and 2.45 million submunitions
- These were 155 mm cluster munitions with M85 submunitions and the cost was approximately € 1 per explosive submunition for reverse engineering, recycling and destruction

Humanitarian perspectives & considerations cont.

- The impact area from one or more cluster munitions covers a relatively large area and requires post conflict significant survey and clearance resources
- The explosive submunitions from cluster munitions often have a particularly fragile fuze mechanism, and it is difficult to assess with certainty the condition of the submunition
- This has resulted in high accident rates among those involved in clearing such weapons, especially for cluster munitions designed after 1980
- The Convention on Cluster Munitions is and has been a great success and has helped significantly curb the accident rates of civilians

Military utility perspectives & considerations

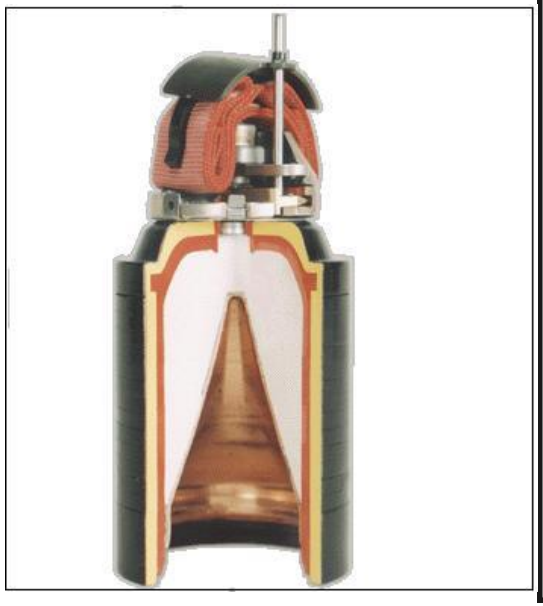
- New weapons with unitary warheads have longer range and are more accurate. In operational terms, therefore much of the rationale behind the investment and rational for use of cluster munition has become somewhat outdated and the technology obsolete
- ISTAR (Intelligence, Surveillance, and Reconnaissance) capacities have become more common and widespread in use. The battle space has no more blind spots and targeting becomes more accurate
- New fuze systems providing guidance systems for mortars and artillery with the option for proximity settings makes it possible to upgrade legacy weapon systems and avoid high replacements costs
- Network based warfare with 4.5 and 5th Generation fighter aircrafts with stealth capabilities
- A weapon race is ongoing, and low-cost drones are increasingly used in targeting and one-way strike operations

Cluster weapons – military utility and alternatives - Norwegian Defence Research Establishment 2007/02345

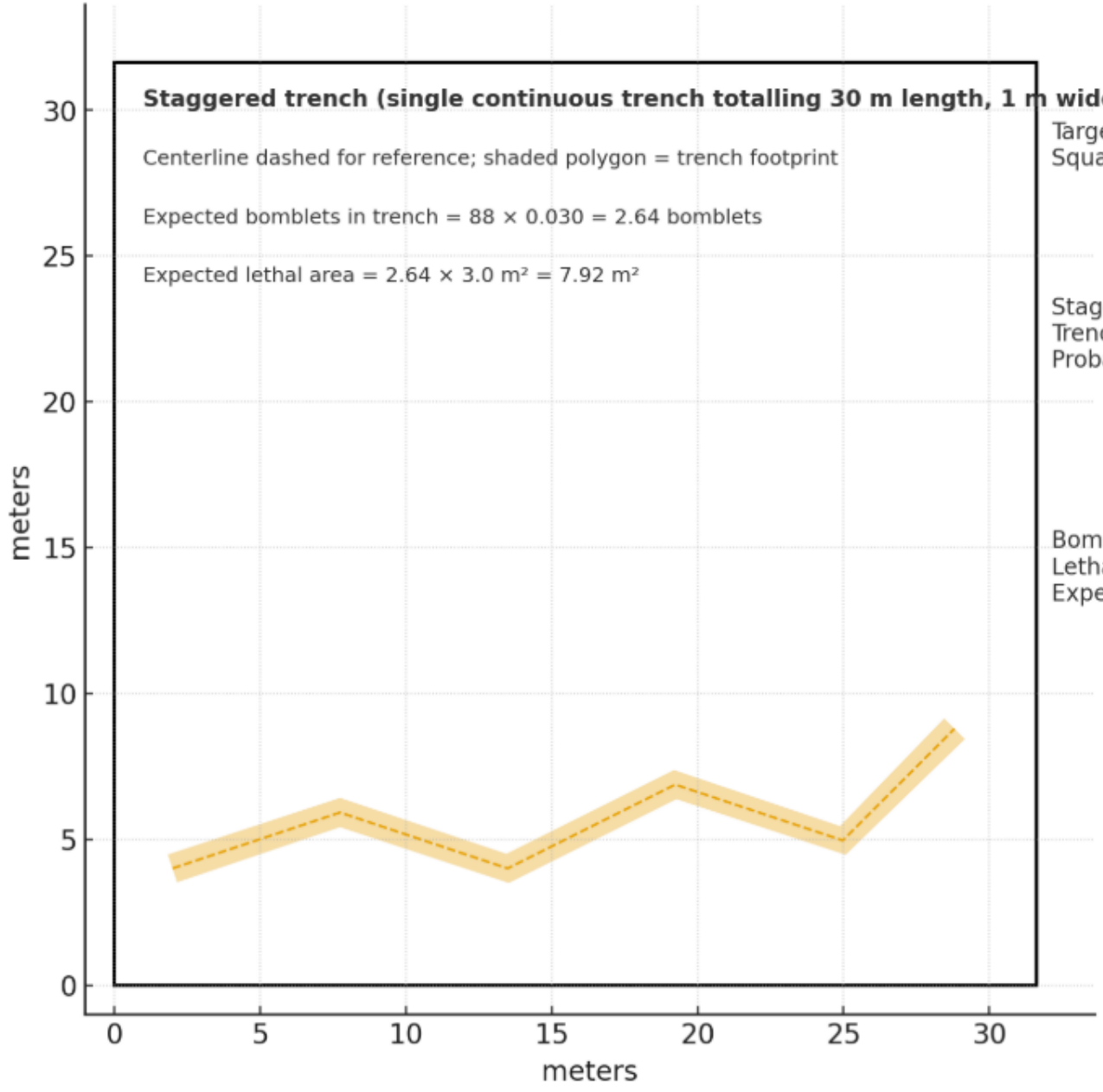
"It has been a general belief that DPICM cluster weapons have an advantage over unitary weapons by a factor of 2 – 5 against most targets. The analyses herein make it hard to confirm that an advantage of that magnitude is present. Unitary weapons still are effective weapons against soft targets, especially when such warheads are fitted with proximity fuzes. In some cases, such a concept will be as effective as, or even more effective than, DPICM warheads. Against hard targets, neither unitary nor cluster weapons are very effective."

Military utility perspectives & considerations cont.
Norwegian Defence R&D Establishment example 1:

- Consider a target area where there are 30 m of trenches per 1000 m2 of target area
- The trenches are all 1 m wide. The probability that a bomblet will fall into a trench is then 3%
- We may further assume that the design of the trench is such that a bomblet dropping into it will have a lethal area of 3 m2
- For a cargo shell having 88 bomblets the total lethal area will then be 88 x 0.03 x 3 m2 =8 m2
- The possibility that a soldier may be injured by two or more bomblets is then negligible in the larger scale of things



Sketch: Single Staggered Trench (30 m total) in 1000 m² Target Area



Target area = 1000 m²
Square side = 31.62 m

Staggered trench length = 30 m
Trench width = 1.0 m
Probability bomblet in trench = 3.0 %

Bomblets per cargo shell = 88
Lethal area per bomblet in trench = 3.0 m²
Expected lethal area = 7.92 m² ≈ 8 m²

Military utility perspectives & considerations cont.
Norwegian Defence R&D Establishment example 2:

- Against an armoured target, like an IFV, requires around direct 10 hits by an M85 to inflict damage with a reasonable probability of setting the vehicle permanently out of operational order
- When such a vehicle is inside the dispersion area of an M483A1, the probability of one or more hits is around 5%. This means that the target should be inside the dispersion area around 200 times before it is likely to be destroyed
- When firing at such vehicles in combat formations, three or four vehicles may be inside the dispersion area at the same time, but still around 50 – 70 shells must be fired for each terminal effect
- Each M483A1 contains 88 M85 explosive sub-munitions

Military utility perspectives & considerations cont.

AI generated - Comparative Quick Reference: Legacy ATACMS (cluster warhead) vs PrSM (unitary warhead)

Feature	Legacy ATACMS — cluster munition warhead	PrSM — unitary warhead
Warhead type & effect	Cluster/submunition dispenser — many bomblets; area-effect saturation.	Unitary high-explosive/fragmentation — point-target destructive effect.
Accuracy & guidance	INS/GPS; CEP typically in the tens of metres (area effect tolerates lower precision).	INS/GPS with tighter CEP; designed for high precision (complements unitary warhead).
Range	Varies by variant (~160–300 km for many blocks).	Designed for extended standoff (Increment 1 >400 km; later increments longer).
Launcher capacity / logistics	Larger missile — typically 1 per MLRS/HIMARS pod.	Smaller form factor — 2 per pod, increasing salvo density for same launcher count.
Collateral & UXO risk	High — bomblet failure creates long-term UXO hazard; legal/political controversy.	Low — single warhead, no bomblet field; reduced post-conflict UXO risk.
Tactical implication	Effective for area denial and massed-target suppression; less suitable for precise point strikes without unitary variant.	Suited for precise, discriminating strikes with lower collateral effects; enables HVT engagement from longer standoff.
Political / legal considerations	Cluster use attracts international condemnation and potential legal/reputational costs.	Fewer legal/humanitarian issues (unitary), simpler political employment.

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Thank you!

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