

Precision Guided Munitions and Reduced Collateral Damage

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There is a need to dwell on the much publicised development in precision guided munitions for strikes from the air during military conflicts, at least in examining the thesis that "collateral damage" could be vastly reduced by using such weapons. Precision guided munitions are bombs which are guided to the intended target to enhance accuracy of hits. "Collateral damage," a term coined in recent times, has been generally used to describe the damage and destruction caused well beyond the intended objectives of an attack on a target. Political leaders of states have resorted to using this term to explain the embarrassment resulting from wanton death and destruction unleashed by their military forces. Used without clarity of understanding, it has also emerged as a euphemism for condoning damage, which could have been avoided in an armed conflict. Paradoxically, military leaders have chosen to include the term in their lexicon unmindful of the emerging divergence if viewed against the cardinal objective of waging a war. This needs elaboration.

Military theologies, world wide, have evolved from the principle that the purpose of waging a war is to destroy the adversary's capacity to inflict or perpetuate the conflict. This classical mandate includes the destruction of the enemy's military machine, the economic infrastructure which it can utilise to support its war effort and, among other objectives, its will to continue the war. Militaries endeavour to prepare for this task by raising a fighting machine which could inflict damage beyond the capacity of the adversary to endure whilst their own apparatus remain unscathed as far as possible.

Is the development relevant?

Weapons development flows from this basic concept. The available literature on design criteria for evolution of air dropped precision munitions, for example, extols several virtues in their development, some of which are:

- The operational air effort is substantially reduced by accurately striking targets and thus economy of effort is achieved. (Note: This essentially does not construe financial economy).
- It would provide reduced exposure to enemies' air defence weapons like surface to air missiles including man portable air defence systems, or anti-aircraft fire and thus ensure an enhanced safety environment for the striking aircraft.
- The main criteria of assured destruction of the target is achieved.
- It would demonstrate an ability to strike with pinpoint accuracy.
- Virtual force multiplication is achieved. There is a smaller strike package per target/mission; hence, a greater number of targets can be addressed by the same aircraft in the same timeframe. Similarly, the maintenance turn around of the aircraft would be reduced and quicker revisits to the targets would be possible.
- Greater endurance and strike ranges will be achievable with reduced weapon loads.
- Targets atop sharply tapering hill ranges can be struck with greater certainty thus avoiding a situation where a mere five metres overshoot can result in a 10 kms error.

The rewards of a much reduced “collateral damage,” therefore, are peripheral gains merely as a consequence of the development but not a qualitative objective considered at the planning stages of the developmental process. This claim does not acknowledge the enhancement in the destruction capacity of modern weapon systems, target selection criteria and the failure rates of weapon systems.

Focus on destruction

The progress in the destruction potential of air dropped munitions is best illustrated by developments in the US. In the realm of strategic bombing during the Second World War, there was a perception that “the bombs were always too small to be effective.” There was also a belief within the US military system that gradual application of air power was essentially to blame for the lack of success in the Vietnam War. It deprived the air instrument of some of its virtues: shock power, surprise, speed and flexibility. And further, “a sudden and sustained massive attack would have coerced [the enemy] before they could have reacted.” Thematically, therefore, a concept was taking root that the application of overwhelming destructive force was the ultimate objective of using air power. It seemed to fulfill an ominous prophecy by the air power Guru, Guilo Douhet, who had envisioned that an air war in the new era would be much more violent and be

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ventures, the US air force introduced the Tall Boy, a twelve thousand pound bomb, in its bid to simulate an earthquake. This bomb was evolved from a designer’s concept that a ten ton bomb dropped from 40,000 feet would impact the earth at supersonic speeds, and would be driven as

visited upon civilians who would no longer be perceived as noncombatants.

In the history of the development of bombs, this philosophy was clearly evident even before the Vietnam era. In 1943, in one of its first innovative

much as 130 feet underground; the consequent earthquake like pressure would damage even the most heavily constructed buildings by displacement of the foundation. The only problem was that there was no way in those days to deliver such a heavy bomb on the target. The concept, therefore, could only be included into a doctrine with the advent of the B-52 bombers of the US Strategic Air command. The US air force had dropped as many as 845 Tall Boys by the end of April 1945 over German fortifications, including a rail road system. The bombs used Tritonal explosive which was a combination of TNT and Aluminum. The 22,000 lbs Grand Slam followed which, along with its predecessor, was dropped over a viaduct in Germany. Although it missed the target in a direct hit, it succeeded in destroying the target with its earthquake effect. The traffic on the road and rail route remained disrupted for several years as a result. A total of 41 Grand Slams were dropped during the war. The evolutionary process had ultimately led to the production of the 42,000 lbs bomb, the general purpose T-12.

Several decades later, during Operation Desert Storm, the US Air Force unveiled its new arsenal after a continuous evolutionary process of trials during intervening conflicts. It used a variant of the 4000 lbs guided penetrator bomb to destroy a bunker in a residential neighbourhood that was housing family members of Baath Party officials. Over 300 people, mostly women and children, died in this attack. In the run up to Operation Iraqi Freedom, the 21,000 lbs Massive Ordnance Air Blast bomb (MOAB) emerged, which was capable of deep ground penetration, followed by a series of sensor actuated explosions. In the last days of the war it was carried to an air base in the Gulf to be used on targets in Iraq. During Operation Enduring Freedom in Afghanistan, we heard about the use of the two and a half ton Bunker Buster which bores 100 feet into the ground before detonating with its impact velocity. Capable of turning underground facilities into death traps, the bomb carries programmable detonators to maximize damage. There is a nuclear version under development for hard rock penetration.

The infamous Daisy Cutter, a forerunner of the MOAB, weighed 7.5 tons and was designed to explode in the air over the target and pulverize an area of nearly half a mile. Filled with slurry of ammonium nitrate and aluminum, its explosion

sucked out the air from the vicinity of impact. It was used in Vietnam to clear jungles, and in Afghanistan to root out Al-Quada fighters holed up in caves.

During Operation Iraqi Freedom, the Joint Direct Attack Munitions (JDAMS) more or less replaced the unguided conventional bomb as the staple munitions used in air strikes. These guided bombs were designed for much higher terminal velocities as they raced towards the target. The quantum of destruction, therefore, was higher per bomb compared to its predecessors. During nearly three weeks of operations, more than 40000 tons of munitions were dropped over Iraq. In the last few days of the war, the members of the International Council of the Red Cross reported that 100 wounded persons were being brought to the hospitals every hour.

Selection of targets

With such a large choice of destructive options available, the selection of targets becomes the crucial determinant of damage in air operations during the war. In this context, not merely the target, but its inhabitants, proximity and linkages are equally material if care is to be demonstrated for minimizing damage. The factor that a bomb dropped on a target can damage beyond the designated objective of the mission becomes equally important. This rationale applies to pure military targets since, logically, they are the initial choices for striking aircraft. Anti-aircraft batteries and missile defences for the protection of cities and installations have to perforce be located in the proximity of population centres. Similarly, military cantonments house families, schools and hospitals within their precincts. Urban centres are hubs of infrastructural development and intermesh several facilities in which military systems may be coexisting. In fact, in several countries, including the USA, military systems are a part of the country's National Technical Means.

During the recent conflicts in Kosovo, Afghanistan and now in Iraq, a new concept of "regime targets" has surfaced. These targets are not physical entities but individual members of regimes who were targeted by using air power. Therefore, all structures in which these individuals may be living became designated targets. The decapitation strikes launched on Baghdad by the US Air Force struck several buildings in the heart of

the city to physically eliminate Saddam and members of his team. The B-2 bombers dropped several 4000 lbs guided bombs which killed a large number of innocent victims and destroyed a government building. This was, essentially, overkill.

Accurate; yet, damage beyond

Modern precision guided munitions claim accuracies between 5 to 9 metres in attacking targets. Considering the area of overall destruction, even this would exceed the damage potential. The quantum of destruction could spread well beyond and in some cases to as much as 500 meters beyond the point of impact depending on the physical construct of the target. This analogy applies to the simplest of the munitions currently in use. Carpet bombing raids undertaken by the B-52 bombers in Afghanistan inflicted substantial damage well beyond the fragile defences put up by the Taliban regime. It was well known that they had salvaged weapon systems from the Soviet troops which could have been neutralized without much application of force. The use of cluster bombs in Iraq has left dangerous munitions on the ground which will continue to be a threat to the local population for a long time.

A great deal of caution and circumspection in selection of targets, therefore, is the only method to minimize collateral damage



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