

# What are cluster bombs?

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**In news**– Russia has been accused for using cluster bombs and vacuum bombs in the ongoing war against Ukraine.

## What are cluster bombs?

- As per the 2008 Convention on Cluster Munitions, a cluster munition means a “**conventional munition that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions**”.
- They are non-precision weapons that are designed to injure or kill human beings indiscriminately over a large area, and to destroy vehicles and infrastructure such as runways, railway or power transmission lines.
- They can be dropped from an aircraft or launched in a projectile that spins in flight, scattering many bomblets as it travels.
- Many of these bomblets end up not exploding, but continue to lie on the ground, often partially or fully hidden and difficult to locate and remove, posing a threat to the civilian population for long after the fighting has ceased.
- The first significantly operationally used cluster bomb was the German SD-2 or *Sprengbombe Dickwandig 2 kg*, commonly referred to as the Butterfly Bomb, used in World War II to attack both civilian and military targets.
- Countries that have ratified the Convention on Cluster Munitions are prohibited from using cluster bombs.
- The Convention entered into force and became binding international law upon ratifying states on 1 August 2010.
- As of date, there are 110 state parties to the convention, and 13 other countries have signed up but are yet to ratify it. Neither Russia nor Ukraine are

signatories.

### **What is vacuum bomb or thermobaric weapon?**

- Thermobaric weapons, also known as **aerosol bombs, fuel air explosives, or vacuum bombs use oxygen from the air** for a large, high-temperature blast.
- A thermobaric weapon causes significantly greater devastation than a conventional bomb of comparable size.
- It is capable of producing a blast wave of a significantly longer duration than that of a conventional explosive and is capable of vaporizing human bodies and crushing internal organs.
- The weapons, which go off in two separate stages, can be fired as rockets from tank-mounted launchers or dropped from aircraft.
- As they hit their target, a first explosion splits open the bomb's fuel container, releasing a cloud of fuel and metal particles that spreads over a large area.
- A second explosion then occurs, igniting the aerosol cloud into a giant ball of fire and sending out intense blast waves that can destroy even reinforced buildings or equipment and vaporise human beings.
- While most conventional explosives consist of a fuel-oxidizer premix such as black powder which contains 25% fuel and 75% oxidizer, or a decomposition-type explosive such as RDX, thermobaric weapons are almost 100% fuel and as a result are significantly more energetic than conventional condensed explosives of equal weight.
- **Their reliance on atmospheric oxygen makes them unsuitable for use underwater, at high altitude, and in adverse weather.**
- **In India, based on the high-explosive squash head (HESH) round,** a 120 mm thermobaric round was developed, which packed thermobaric explosives into the tank shells to increase the effectiveness against enemy bunkers and

light armoured vehicles.

- **The design and the development of the round was taken up by Armament Research and Development Establishment (ARDE).** The rounds were designed for the Arjun MBT.
- **Vacuum bombs are not prohibited by any international law or agreement,** but their use against civilian populations in built-up areas, schools or hospitals, could, attract action under the Hague Conventions of 1899 and 1907.