When a Missile Misfires

What is the issue?

Pakistan has said that an unarmed Indian missile landed 124 km inside its territory on Wednesday which was acknowledged by India stating that a technical malfunction led to the accidental firing of a missile.

What is the procedure for information regarding such tests?

- Under the **India- Pakistan's Pre-notification of flight testing of ballistic missiles agreement (2005)**, each country must provide the other an advance notification on flight test it intends to take for any land or sea launched, suface-to-surface ballistic missile.
- Before the test, the country must issue Notice to Air Missions (NOTAM) or Navigational Warning (NAVAREA) to alert aviation pilots and seafarers, respectively.
- The testing country must ensure that the launch site is not within 40 km, and the planned impact area is not within 75 km of either the International Boundary (IB) or the Line of Control (LoC).
- The planned trajectory should not cross the IB or the LoC and must maintain a horizontal distance of at least 40 km from the border.
- The testing country must notify the other nation no less than 3 days in advance of the commencement.
- The pre-notification has to be conveyed through the respective Foreign Offices and the High Commissions.

A NOTAM is a notice containing information essential to personnel concerned with flight operations but not known far enough in advance to be publicized by other means.

Navigational Warnings (NAVAREA) are issued regularly and contain information about persons in distress, or objects and events that pose an immediate hazard to navigation.

What kind of a missile was it?

- Neither country has spelt what the missile was but Pakistan has only called it a "supersonic" missile.
- It was commented that the missile travelled 200 km, guided mid-air and travelled at 2.5 times to 3 times the speed of sound at an altitude of 40,000 feet.
- Some experts have speculated that it was a test of one of India's top missiles, BrahMos, jointly developed with Russia.
- Other experts have wondered if the missile was a variant of the nuclear-capable Prithvi.

What explains the trajectory it took?

- A striking aspect of the episode is that the missile changed direction mid-air.
- **Possible reasons for change in missile direction**
    - It could be due to incorrect coordinates
    - If somebody was to jam the missile while in flight, by some cyber means
    - If the target data that has been fed into the missile gets corrupted

What are the Brahmos and Prithvi missiles?

- **Brahmos-** Brahmos is a joint venture between the Defence Research and Development Organization of India (DRDO) and the NPOM of Russia.
- Brahmos is named on the rivers Brahmaputra and Moskva.
- It is a two-stage (solid propellant engine in the first stage and liquid ramjet in second) air to surface missile
- The flight range is around 300 km with speed of Mach 2.8, which is 3 times more than the speed of sound.
- India's entry into the Missile Technology Control Regime (MTCR) has extended the range of the BRAHMOS missile to reach 450 km-600km, above its current MTCR capped range of 300 km.
- Brahmos is the heaviest weapon to be deployed on Su-30 MKI fighter aircraft, with a weight of 2.5 tonnes.
- Brahmos is a multiplatform i.e it can be launched from land, air, and sea and multi capability missile with pinpoint accuracy that works in both day and night irrespective of the weather conditions.
- It operates on the "Fire and Forgets" principle i.e it does not require further guidance after launch.
- **Prithvi-** Prithvi is a surface-to-surface missile which was a part of the integrated guided missile development programme (IGMDP).
    - **Prithvi I** - Army Version (150 km range with a payload of 1,000 kg)
    - **Prithvi II** - Air Force Version (250 km range with a payload of 500 kg)
    - **Prithvi III** - Naval Version (350 km range with a payload of 1000 kg)
    - **Dhanush**- Dhanush is reportedly a naval version of Prithvi which can be launched from ships.

References

1. https://indianexpress.com/article/explained/explained-when-a-missile-misfires-india-pakistan-brahmos-7815962/
2. https://military-history.fandom.com/wiki/Prithvi_(missile)
3. https://msi.nga.mil/NavWarnings
4. https://www.faa.gov/about/initiatives/notam/what_is_a_notam



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