

# **Terminal High Altitude Area Defense System (THAAD)**

Terminal High Altitude Area Defense or THAAD is an anti-ballistic missile system of the US army that can shoot down short, intermediate and medium-range ballistic missiles in their terminal phase.

## **Origins of Terminal High Altitude Area Defense System**

Following the Gulf War of 1991, the United States military saw fit to develop a missile system capable of shooting down enemy missiles while in their terminal phase itself. This was due to the damage caused by Iraqi Scud missile attacks.

Starting out as a United States Army program, THAAD came under the supervision of the Missile Defence Agency. Similarly, the US Navy had a missile program of their own, namely the Aegis Ballistic Missile Defense System. THAAD was originally scheduled for deployment in 2012, but initial deployment took place in May 2008. THAAD has been deployed in Guam, the United Arab Emirates, Israel, Romania, and South Korea.

### **How does the THAAD system work?**

The missile system uses a hit-to-kill approach. It doesn't carry a warhead, rather depends on the impact's kinetic energy to annihilate the incoming missile. A kinetic energy hit reduces the risk of explosion of the conventional warhead ballistic missile. In addition, a nuclear-tipped ballistic missile doesn't explode on such a hit. But, a biological or chemical warhead could explode or disintegrate upon a hit and cause a risk of contaminating the environment. THAAD, previously called Theater High Altitude Area Defense, was designed to target Scuds and similar arms.

### **Assessment of THAAD**

The vulnerability and lethality analyses of the THAAD have been conducted by the U.S. Army Research Laboratory (ARL). The vulnerability assessment for the THAAD featured an evaluation of the effects of major electromagnetic elements. This included EM interference, EM radiation operations, EM radiation hazards, EM pulse, electrostatic discharge, and lightning effects on components of the THAAD system.

The ARL assessments were designed to determine the THAAD system's growth potential given its tactical design as well as provide survivability analysis against threats such as conventional weapons, chemical weapons, and electronic warfare countermeasures. The data collected from the analyses were used to develop trajectory models for targets and missiles as well as target trajectories using infrared scene generation of infrared countermeasures (IRCMs).

The THAAD system is being designed, built, and integrated by Lockheed Martin Missiles and Fire Control acting as prime contractor.

## Questions Related to THAAD

### **How does the Russian S400 fare against the THAAD?**

With its specifications, S-400 provides the same defense system as both Patriot and THAAD combined which enables it to target and hit at distances up to 60km. Whereas, S-400 can target aircrafts as well as cruise missiles and ballistic missiles which makes it more effective than THAAD.

### **How much does the THAAD system cost?**

The GPALS price tag for those systems: \$12 billion in today's dollars. The current estimate for just THAAD and PAC-3 is more than \$20 billion and is likely to rise further.

### **How effective is the THAAD system?**

THAAD is claimed to have a limited capability for low-altitude ICBM interception. That is to say, it can try, but the odds of success would likely not be high. Another issue is that THAAD has an effective range of around 124 miles—and possibly less versus an ICBM threat.