

## **Agni-I Ballistic Missile Test-Fired Successfully**

The user trial of the nuclear-capable, surface-to-surface intermediate range Agni-I Ballistic Missile was carried out successfully from the Integrated Test Range (ITR) at the Abdul Kalam Island off the Odisha coast on Monday.

Under the supervision of DRDO scientists, the single-stage missile, powered by solid-propellants, was test fired from a mobile launcher of LC-IV by India's Strategic Forces Command at 9.15 am.

The trajectory of the trial was tracked by a battery of sophisticated radars, telemetry observation stations, electro-optic instruments and naval ships from its launch till the missile hit the target area with accuracy, said sources.

The missile covered 700 km distance within nine minutes and 36 seconds, sources added.

The last trial of the Agni-I had successfully been carried out on November 27 last from the same base. Weighing 12 tonnes, the missile is capable of carrying a nuclear warhead of one tonne.

The indigenous 15-metre-long missile was developed by Advanced Systems Laboratory, the premier missile development laboratory of the Defence Research and Development Organisation (DRDO) in collaboration with Defence Research Development Laboratory and Research Centre and integrated by the Bharat Dynamics Limited, Hyderabad.

The missile which has already been inducted in armed forces, has proved its excellent performance in terms of range and accuracy.

## **Odisha: Agni missile test fired successfully**

Balasore, March 14: The indigenously-built nuclear capable Agni-I ballistic missile was test fired off Odisha's coast as part of a user trial by the army. The surface to surface, single stage missile is powered by solid propellants and can hit targets 700 kilometers away.

The trial was a huge success, said an Army official. The sophisticated missile covered a distance of 700 kilometers in 9 minutes and 36 seconds.

"The launch was undertaken as a part of periodic training activity by SFC to further consolidate operational readiness," the official added.

The trajectory of the trial was tracked by a battery of sophisticated radars, telemetry observation stations, electro-optic instruments and naval ships from its launch till the missile hit the target area with accuracy, officials said.

The missile, which has been inducted into armed forces, proved its performance in terms of range, accuracy and lethality.

Agni-I was designed and developed by Agni-I was developed by Advanced Systems Laboratory, which is a premier missile development laboratory of DRDO, in collaboration with the Defence Research Development Laboratory and Research Centre Imarat. It was integrated by Bharat Dynamics Limited, Hyderabad.

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## **DRDO's robot system can handle mines, IEDs from afar**

Armed forces and security agencies, including paramilitary forces and police, often face situations where suspicious objects need to be identified, handled and transported to some distance.

Research and Development Establishment (R&DE), a laboratory of the Defence Research and Development Organisation (DRDO) based in Pune, has developed an intelligent and rugged robotic system that can handle mines and IEDs and can be controlled from very far distances while operating in hostile conflict conditions.

Armed forces and security agencies, including paramilitary forces and police, often face situations where suspicious objects need to be identified, handled and transported to some distance. The Electro-Mechanical Systems Group, from the R&DE, which is based in Dighi in Pune, has recently developed a Mobile Autonomous Robot System (MARS), a rugged vehicle which in its basic form looks like golf cart with green armour, but is actually a very useful tool in conflict scenario.

Speaking to Newline, R&DE scientist MK Roy who is part of the team that has worked on the development on MARS, said, "The word 'autonomous' in its name is there for a reason. The machine can operate on its own and has an in-built programme that guides the mechanical system. MARS can see, identify and then pick up the suspicious object which can then be transported to a designated location. With some add-ons, this system can even be used to dig the ground for the object and defuse the Improvised Explosive Device by various methods. MARS actually creates a 3-dimensional image of the object before it handles it."

Scientists say that with basic mechanical additions, it can take several roles and can adapt for any terrain to operate in.

MARS was displayed at the Multinational Field Exercise that concluded in Pune recently and had Humanitarian Mine Action (MHA) as one of its focus areas and will also be displayed in the Defence Expo to be held in Goa.

Several countries in the South East Asia have the problem of Explosive Remnants of War (ERW) and in such scenarios MARS can be very useful.

In India, several insurgency and terrorism affected areas and regions affected by Left Wing Extremism, face the problem of IEDs. MARS can be a useful tool for paramilitary forces, central police agencies and local police in these regions.

MARS can be operated from very long distances once a telecommunications system is fitted on it.

Along with Roy, the core team comprises of group leader VV Parlikar and MM Kuber. Roy says that everything that MARS uses, right from the algorithm and programme which runs it to the body and arms, have been developed in-house, thus giving the laboratory the liberty to make changes as per specific requirements of the security agencies.

The R&DE will transfer the technology of MARS to the industry for manufacturing in the future, scientists from the laboratory said.

## **User trial of Agni-I missile successful**

Balasore: India on Monday successfully test-fired nuclear-capable medium range Agni-I ballistic missile having a strike range of over 700 km from a defence test range off the state coast.

Defence sources said the surface-to-surface and single-stage missile, indigenously developed by the DRDO, was test-fired from a mobile launcher at 9.15am from launch pad-4 at Abdul Kalam Island (formerly Wheeler Island) of the Integrated Test Range.

The test as a part of a user trial was conducted by the strategic forces command (SFC) of the army. The sophisticated missile covered about 700 km within nine minutes and 36 seconds, SFC sources informed.

The launch was undertaken as a part of periodic training activity by SFC to further consolidate operational readiness. The trajectory of the missile was tracked by a battery of sophisticated radars and naval ships from its launch till it hit the target area with accuracy.

Agni-I missile is equipped with sophisticated navigation system which ensures it reaches the target with a high degree of accuracy and precision. The missile, which has already been inducted into armed forces, has proved its excellent performance in terms of range and accuracy, a DRDO scientist said.

Weighing 12 tonnes, the 15-metre-long Agni-I, powered by solid propellants, is designed to carry a payload of more than one tonne. Its strike range can be extended by reducing the payload. If fired with reduced warhead, the missile can strike a target at more than 1,000 km away.