

## इस्राइली मदद से देश में बनेगी घातक मिसाइल

■ नई दिल्ली : भारतीय सेना के एयर डिफेंस सिस्टम को मजबूत करने के लिए इस्राइल के सहयोग से मीडियम रेंज की सरफेस टु एयर मिसाइल सिस्टम विकसित करने का फैसला किया गया है। इसकी रेंज 70 किलोमीटर होगी। इस मिसाइल सिस्टम को भारतीय सेना की अजेंट ऑपरेशनल जरूरत के तौर पर देखा जा रहा है।

सेना और रक्षा संगठन डीआरडीओ ने मिसाइल सिस्टम के लिए हाल में सहमति पत्र पर साइन किए हैं। 17 हजार करोड़ रुपये के इस प्रोजेक्ट में 3-3 मिसाइल

वाले 4 लॉन्चर होंगे। यह प्रोजेक्ट फिलहाल एक रेजिमेंट को कवर करेगा, जबकि पांच रेजिमेंटों में इसकी जरूरत समझी जा रही है। फिलहाल मीडियम रेंज में भारत के पास दो मिसाइल सिस्टम हैं, 10 किलोमीटर क्षमता वाला ओएसए-एके और 24 किलोमीटर क्षमता वाला क्वाड्रथ सिस्टम।

मिसाइल सिस्टम का विकास इस्राइल की कंपनी आईएआई के सहयोग से होगा। इसे न सिर्फ आर्मी के एयर डिफेंस की क्षमता को मजबूत करने के लिए, बल्कि तीनों सेनाओं की क्षमता को एकसार

बनाने के लिए जरूरी समझा जा रहा है। मिसाइल सिस्टम 50 किमी की दूरी से एक साथ कई हवाई निशानों को साध सकता है। सूत्रों ने बताया है कि यह सिस्टम बेहद अडवांस्ड और हर मौसम में काम करेगा। इस मोबाइल सिस्टम में 360 डिग्री मूवमेंट की क्षमता होगी। यह बलिस्टिक मिसाइलों, एयरक्राफ्ट, हेलिकॉप्टर और ड्रोन नष्ट कर सकता है।

THE ECONOMIC TIMES

## Israel to Partner DRDO for Developing the System: - Army Signs Pact with DRDO for Phase I of Missile Defence System

By Shaurya Gurung

*The project will have 5 regiments with 60 missiles and is worth Rs 17,000 cr*

In a major upgrade to its defences, the Indian Army has signed a MoU with the Defence Research and Development Organisation (DRDO) to raise one regiment of the advanced Medium Range Surface to Air Missiles (MRSAM). The army plans to have a total of five regiments of this air defence system, which will be deployed opposite to China and Pakistan.

The MRSAM marks a paradigm shift in the capabilities of the Indian Army. The system can shoot down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and Airborne Warning and Control System (AWACS) aircraft. Meant for the Army Air Defence, the MRSAM is an advanced, all weather, mobile, land-based air defence system. It is capable of engaging multiple aerial targets at ranges of more than 50 km. Each MRSAM system comprises a command-and-control system, a tracking radar, missiles, and mobile launchers. Each regiment consists of four launchers with three missiles each. So five regiments will have 60 missiles.

A MOU has been signed between the army and the Defence Research and Development Organisation (DRDO) for one regiment. "The MOU marks the beginning of the development of the MRSAM in the configuration required by the army," said a defence ministry official, adding that the entire project is worth `17,000 cr. Earlier this year, the Cabinet Committee on Security headed by PM Narendra Modi approved a proposal for procuring the MRSAM system for the army. According to the proposal, the army will induct five regiments of

the system. The system will be jointly developed by Israel Aerospace Industries (IAI) and DRDO with the involvement of private sectors and DPSUs. "The system will have majority indigenous content, giving boost to the Make-in-India initiative. The participation of Indian companies in producing MRSAM will empower them in the field of high-tech weapon technology.

Last July, the IAI and DRDO conducted three flight tests of the MRSAM at the integrated test range off the Odisha Coast. The missile successfully intercepted moving aerial targets in all three tests. The MRSAM is a land-based variant of the long-range surface-to-air missile (LRSAM) or Barak-8 naval air defence system, which is designed to operate from naval vessels.



*Fri, 21 July, 2017*

## **Israel to partner DRDO for developing missile defence system for India**

*By Shaurya Karanbir Gurung*

New Delhi: In a major upgrade to its defences, the Indian Army has signed a MoU with the Defence Research and Development Organisation (DRDO) to raise one regiment of the advanced Medium Range Surface to Air Missiles (MRSAM). The army plans to have a total of five regiments of this air defence system, which will be deployed opposite to China and Pakistan.

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(Online)*

## **Indian Army to get medium-range surface to air missile produced by DRDO with Israel**

*Israel's state-run IAI said it signed a contract with India worth over \$1.6 billion.*

The Defence Research and Development Organisation (DRDO) has signed a pact with the Army for developing a medium-range surface to air missile (MRSAM) which will be capable of shooting down ballistic missiles and aircraft.

“The MoU heralds the commencement of development of MRSAM system in the configuration as required by the Army,” a senior Army official said.

He said the missile will be produced by the DRDO in collaboration with the Israel Aerospace Industries (IAI). The missile will be capable of engaging multiple aerial targets at a range of more than 50 kms.

In April, Israel's state-run IAI had said it signed a contract with India worth over \$1.6 billion for providing the missile to the Army.

“The MRSAM system will be capable of shooting down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and AWACS (Airborne Warning and Control Systems) aircraft,” the official said on condition of anonymity as he is not authorised to speak to the media.

He said procurement of the MRSAM will mark a paradigm shift in the Army's strike capability.

The Army has been pressing the government for the MRSAM to enhance its strike capability.

MRSAM's current version is operational with the Indian Air Force and Navy.



*Fri, 21 July, 2017  
(Online)*

## **Indian DRDO, Israeli IAI to Develop Medium Range Missile Defence System**

Indian Army and Defence Research and Development Organisation (DRDO) have signed a memorandum of understanding (MoU) for developing a medium-range surface to air missile (MR-SAM) that would be capable of shooting down ballistic missiles and aircraft.

“The MoU indicates the commencement of development of MRSAM system in the configuration as required by the Army,” a senior Army official was quoted as saying by Press Trust of India.

He said the missile will be produced by the DRDO in collaboration with the Israel Aerospace Industries (IAI). The missile will be capable of engaging multiple aerial targets at a range of more than 50 kms.

In April, Israel's IAI had said it signed a contract with India worth over \$1.6 billion for providing the missile to the Army.

“The MRSAM system will be capable of shooting down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and AWACS (Airborne Warning and Control Systems) aircraft,” the official said on condition of anonymity.

The Indian Army has signed a MoU with the DRDO to raise one regiment of MRSAM. The army plans to have a total of five regiments of this air defence system, which will be deployed opposite to China and Pakistan. One regiment consists of four launchers with three missiles each. Hence, five regiments will have 60 missiles.



*Fri, 21 July, 2017  
(Online)*

## **India Partners With Israel to Develop Missile Defense System**

*The Indian Army has signed a memorandum of understanding with the Defense Research and Development Organization (DRDO) to raise a regiment of advanced Medium Range Surface to Air Missiles (MRSAMs) capable of shooting down ballistic missiles and aircraft.*

New Delhi (Sputnik) — The regiment will be eventually raised to five and deployed on the China and Pakistan border. Five regiments will have 60 missiles, with each regiment equipped with four launchers with three missiles each. The total cost of the project is estimated at \$2.5 billion and was approved earlier this year by the government of Prime Minister Narendra Modi.

The security environment around India's borders with Pakistan is deteriorating, and a standoff with China in the tri-junction area is ongoing.

DRDO will partner with Israel Aerospace Industries (IAI) and private sector players to deliver this air defense system, which marks a paradigm shift in the capabilities of the Indian Army. It also fits well with PM Modi's Make in India initiative and help Indian companies empower in the field of high-tech weapon technology.

An advanced, all-weather, mobile, land-based air defense system for the army, the MRSAM can shoot down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and Airborne Warning and Control System (AWACS) aircraft. It can engage multiple aerial targets at ranges of more than 50 km.

Each MRSAM system comprises a command-and-control system, a tracking radar, missiles and mobile launchers. Its current version is already operational with the Indian Air Force and Navy.

Indian experts note the progress in co-development of missile defense system between India and Israel as positive.

*"From the weapons point of view, it is akin to upgrading the existing version of the system which is operational with the Air Force and Navy. But it is definitely positive from Indian point of view as Israel will be transferring technology to India like Russia has been doing for years. Both Russia and Israel are tremendously contributing to technological advancement of India's weapon systems. The focus on Make in India will contribute to improving local capabilities, especially in creating supply chain, fostering innovation and job creation at the private sector level," Group Captain (Retd.) Ajay Lele, Senior Fellow and Head of Centre on Strategic Technologies at the New Delhi-based Institute for Defence Studies and Analyses told Sputnik."*

Last July, the IAI and DRDO conducted three flight tests of the MRSAM at the Chandipur integrated test range off the Odisha coast.

The missile successfully intercepted moving aerial targets in all three tests. The MRSAM is a land-based variant of the long-range surface-to-air missile (LRSAM) or Barak-8 naval air defence system, which is designed to operate from naval vessels.



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## **India inks missile deal with Israel**

India signed a commercial deal with Israel to buy the medium-range surface-to-air missiles. The Defence Research and Development Organisation (DRDO) and Israeli Aircraft Industry signed an implementation pact a few days ago to kickstart the purchase deal, Ministry of Defence sources said.

The Rs 17,000-crore deal had been cleared by the Cabinet Committee on Security in February. Sealing of the deal has happened weeks after Prime Minister Narendra Modi became the first Indian leader to visit Israel.



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(Online)*

## **Indian Army to Get Mrsam Missiles Capable of Shooting down Ballistic Missiles, Aircraft**

The Defence Research and Development Organisation (DRDO) has signed a pact with the Army for developing a medium-range surface to air missile (MRSAM) which will be capable of shooting down ballistic missiles and aircraft. “The MoU heralds the commencement of development of MRSAM system in the configuration as required by the Army,” a senior Army official said.

He said the missile will be produced by the DRDO in collaboration with the Israel Aerospace Industries (IAI). The missile will be capable of engaging multiple aerial targets at a range of more than 50 kms. In April, Israel’s state-run IAI had said it signed a contract with India worth over \$1.6 billion for providing the missile to the Army.

“The MRSAM system will be capable of shooting down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and AWACS (Airborne Warning and Control Systems) aircraft,” the official said on condition of anonymity as he is not authorised to speak to the media.

He said procurement of the MRSAM will mark a paradigm shift in the the Army’s strike capability. The Army has been pressing the government for the MRSAM to enhance its strike capability. MRSAM’s current version is operational with the Indian Air Force and Navy.



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## **DRDO to produce medium range surface-to-air missile in collaboration with Israel**

The Defence Research and Development Organisation (DRDO) and Israel Aerospace Industries (IAI) will be developing a medium-range surface to air missile (MRSAM) for the Army which would be capable of defending against any type of airborne threat such as missiles and aircraft.

The Indian Air Force and Navy already have their versions of MR-SAMs and the Army has been pressing the government to enhance its strike capability.

"The MRSAM system will be capable of shooting down enemy ballistic missiles, aircraft, helicopters, drones, surveillance aircraft and AWACS (Airborne Warning and Control Systems) aircraft," PTI quoted an Army official as saying.

What is a SAM or Surface-to-Air missile?

A surface-to-air missile or ground-to-air missile (GTAM), is a missile designed to be launched from the ground to destroy aircraft or other missiles. The latest versions of the missiles can hit moving targets with great precision with 2-way GPS communication system allowing the missiles' path to be altered at late stages.

There are three classes of SAM missiles; heavy long-range systems that are fixed or semi-mobile, medium-range vehicle-mounted systems that can fire on the move, and short-range man-portable air-defense systems (MANPADS).



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## **Indian Police to Use Chilli Punch to Tame Hostile Crowds in Kashmir**

*Indian security forces will soon use capsicum gel-based tear gas shells instead of PAVA (Pelargonic Acid Vanillylamide) shells to disperse mobs in the state of Jammu and Kashmir.*

New Delhi (Sputnik) — The new tear gas can be used either as a spray or as a shell against stone-pelters. Jammu and Kashmir has recently seen a large number of public protests and stone pelting incidents.

The new tear gas shells will be made at the Tear Smoke Unit of the Border Security Force at the Tekanpur, in the state of Madhya Pradesh, in collaboration with India's premier defense research organisation, Defense Research and Development Organisation (DRDO).

According to the DRDO, the tear gas will be made in two forms, shell form and spray can. The chilli ingredient for these new teargas will come from north-eastern states and Andhra Pradesh.

Indian security forces have been using PAVA (Pelargonic Acid Vanillylamide) tear gas shells after many stone-pelters and protesters were blinded by the use of pellet guns in the Jammu and Kashmir.

“Government is planning to introduce the capsicum-based tear gas shell as there have been complaints about the PAVA tear gas shells. The fact is that these tear gas shells are not effective. But the main point is that the efficacy of these new capsicum-based tear gas shells is yet to be tested. It is likely to be used in a few months on a trial basis and if found useful, then it will be used on a regular basis,” Major General G D Bakshi (Retd.) told Sputnik.



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(Online)*

## **DRDO's mutton bar, chicken biscuit, tulsi bar for personnel**

New Delhi: The DRDO has developed chicken biscuit, anti-fatigue tulsi bar, protein-rich mutton bar for service personnel deployed in high-altitude and snow-bound areas, the government said today.

Besides, the Defence Research Development Organisation (DRDO) has also developed various nutritious and protein-rich foods like composite cereals bars, egg protein biscuits, iron-and-protein-rich food bar, protein-based chocolate and chicken katti rolls.

Minister of State for Defence Subhash Bhamre gave this information in a written response in the Lok Sabha.

He added that there is no food production unit in the DRDO, but after developing these products, the technology has been transferred to various industries for bulk production.

"Development of nutritional food by DRDO for the armed forces is an ongoing process based on their requirements and latest technological research in the area. Some of them are processed food technologies products and test kits (frozen meat test and alfatoxin detection kits)," Bhamre said.



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(Online)*

## **Chicken biscuits, tulsi bars developed by DRDO**

The major food products developed by DRDO are chicken biscuits, mutton bar, composite cereals bars, egg protein biscuits, iron and protein rich food bar, chicken katti rolls and anti-fatigue tulsi bar, Defence Minister Arun Jaitley said.

New Delhi: Various nutritious and protein-rich food items have been developed by the DRDO for security personnel deployed at high altitude and snow-bound areas, Parliament was informed on Friday.

The major food products developed by the Defence Research and Development Organisation (DRDO) in the last three years and the current year are chicken biscuits, protein rich mutton bar, composite cereals bars, egg protein biscuits, iron and protein rich food bar, chicken katti rolls and anti-fatigue tulsi bar, Defence Minister Arun Jaitley said in a written reply in the Lok Sabha.

"There is no food production unit in DRDO. However, after developing these products, production technologies have been transferred to various industries for bulk production," he said.

He added that development of nutritional food by DRDO for armed forces was an ongoing process based on their requirements and latest technological research in the area.