

DB Original/Organic Mission: Watermelon, tomatoes growing at low temperatures in Leh-Ladakh, to become organic food hub by 2025

- *According to Dr. Stobden, Senior Scientist at the Defense Institute of High Altitude Research, watermelon production in Ladakh is almost double that of plains areas.*
- *Under the Mission Organic Development Initiative, three phases will cost 200 crores; the first phase will cover out of 38 villages out of 113*
- *With a yield of 30 to 40 tonnes per hectare without chemical, DRDO scientists are teaching farming techniques to the farmers*
- *According to Leh's Chief Agricultural Officer Tashi Setan, organic farming will double farmers' annual income.*
- *Currently farmers are earning 10 lakh to 12 lakh per hectare by growing watermelon*

Leh: Prime Minister Narendra Modi said in his August 15 speech that gradually we should reduce the use of urea in agriculture. His point was to increase organic farming, but farmers are not abandoning urea and fertilizer for fear of low yields.

Meanwhile, Leh-Ladakh is emerging as an example for the whole country. It is soon to become an organic food hub. Faced with geographical conditions, the farmers here are growing all the fruits and vegetables that can be grown only in a hot climate and along the river. Farmers in Leh with average temperatures of 5 to 6 degrees Celsius are producing watermelon, melon, and tomatoes the yield is very good.

The team of Defense Research and Development Organization (DRDO)'s Wing Defense Institute of High Altitude Research scientist Dr. T. Stobden, and the Department of Agriculture of Leh are working on this mission. Now Ladakh has also launched Organic Mission 2025. Only organic farming will be done here in the next 6 years. A plan has been prepared for this. Now its final draft is in the works. Its budget is initially Rs 200 crore.



First phase of organic mission will be completed this year

- According to scientist Dr. Stobden, there are 113 villages in Leh. These will be converted into organic farming in three phases. The first phase covers 38 villages. Chemicals are already not in use here. We are working right here to grow crops organically, Stobden said.
- According to Leh's Chief Agriculture Officer Tashi Setan, the first phase will be completed by the end of this year. We will get these villages fully certified in organic farming. For this, we have signed an MoU with the Government of Sikkim. Some people have received training in Sikkim as well, Setan said.

How is organic farming happening in Ladakh?

- Due to the Buddhist culture here, most people do not use chemicals. They believe that the use of chemical pesticides kills organisms. Therefore, most farmers rely only on organic methods.

- The temperature is the biggest obstacle for cultivation of vegetables and fruits. Hence cultivation is done by making greenhouses and polyhouses. By doing this the soil's temperature can be increased by 5 to 7 degrees Celsius.
- Organic manure and vermicompost are being used in place of chemicals. The weather is fit for farming for only 6 months of the year, so every year only one crop is cultivated.
- According to Leh's Chief Agriculture Officer Tashi Setan, we will start the second phase in 2022. It will cover about 30-40 villages. Here training will be provided to the farmers who use chemicals. Our team is already running awareness programmes for the right way of organic farming and team members are visiting villages and reaching out to farmers. After this, in 2025, we will cover the remaining villages. In this way, we will make the entire Leh organic by 2025, Setan said.
- Scientist Dr. Stobden explains that the Hill Council passed the resolution on 9 March 2019 for the organic mission. Its name is Mission Organic Development Initiative (MODI). Organic farming is still practiced in Ladakh, but it is not certified.

Farmers are earning 10-12 lakhs per hectare by growing watermelon, melon

The basic crops of Ladakh are wheat, barley and rajma. Now the production of vegetables has also started by developing the technique according to the environment of Ladakh. Watermelon and melon that are grown in hot climate and on river banks are also being produced here. Its annual yield is up to 30-40 MT per hectare, which is much higher than the rest of the country. Generally, the yield is about 25 metric tons per hectare. Due to this, the farmers here are earning 10 to 12 lakhs per hectare annually. This is almost four times the traditional crops. Apart from this, farmers are also producing other vegetables like cabbage, tomato, capsicum.



Rajma's price will double after getting organic certificate

According to Leh's Chief Agriculture Officer Tashi Setan, farmers here grow good quality kidney beans, that too organic. But due to not having an organic certificate, this 'Leh Rajma' sells for Rs 120 to 150/ kg. After the certificate, the same 'Leh Rajma' will be sold for Rs 300-400 rupees/ kg. This will increase the income of the farmers here. *(Story by Udit Bursale)*

<https://dbpost.com/db-original-organic-mission-watermelon-tomatoes-growing-at-low-temperatures-in-leh-ladakh-to-become-organic-food-hub-by-2025/>

Defence and security gold standard of bilateral partnership

Backed by a shared history of cooperation in defence technology and capacity building, India and Russia have been naturally inclined to build an enduring partnership to play an increasingly critical role in changing balance of power globally

By Poornima Bajwa Sharma

Defence cooperation has been one of the centerpieces of strategic partnership between India and Russia, which goes deeper than the conventional buyer-seller relationship. Based on mutual trust and respect, it is a special relationship that has endured the test of time. Time and again Russia has proven its worth as an all-weather friend of India, supporting the country whenever the situation demanded it. Be it forced wars, changing balance of power in the world, or a diplomatic situation arising at UN, almost every time Russia and India find themselves side by side lending support to each other to navigate the challenge.

Today, about 60% of Indian military equipment is of Russian origin and India continues to remain the second largest market for the Russian defence industry. With India setting up a roadmap for defence R&D and manufacturing to support ‘Make in India’ and achieve self-reliance in defence procurement, Indo-Russian defence relationship has entered a new paradigm which entails deeper collaborative effort through defence technology transfer and more collaborative effort in the spheres of research, design development and production of state of the art military platforms.



Joint Ventures in Defence

The BrahMos supersonic cruise missile – an Indo-Russian joint venture – remains the gold standard of defence collaboration between India and Russia. The successful test of the longer-range 450-km version is another feather in the cap for the collaboration. It is a joint venture between the Russian Federation’s NPO Mashinostroyeniya and India’s Defence Research and Development Organisation (DRDO), which have together formed BrahMos Aerospace. It is based on the Russian P-800 Oniks cruise missile and other similar seaskimming Russian cruise missile technology.

Some major deals signed have been for five S-400 Air Defence systems, four improved Krivak/Talwar class stealth frigates, and production of at least 200 Kamov- 226T utility helicopters in India. In March 2019, Indian Prime Minister Narendra Modi, dedicated to the nation, the Joint Venture of Indo- Russian Rifles Pvt Ltd, for Kalashnikov Assault Rifle Production, Amethi in Uttar Pradesh.

The new joint venture will manufacture world famous Kalashnikov assault rifles of the newest 200 series and eventually will reach full localization of production. Talking about the venture, Russian President Vladimir Putin said, “The Indian defence-industrial sector will have the opportunity to fulfill the needs of national security agencies in this category of small arms, resting upon advanced Russian technologies.”

Some major deals signed have been for five S-400 Air Defence systems, four improved Krivak/Talwar class stealth frigates, and production of at least 200 Kamov-226T utility helicopters in India.

The agreement is one of the several new defence projects on which the two countries are working on, including under the ambit of 'Make in India' programme. In December 2018, India and Russia agreed to extend bilateral cooperation on defence joint-venture (JV) manufacturing projects at the 18th meeting of the India-Russia Governmental Commission on Military Technical Cooperation (IRIGC-MTC). The two countries also agreed to take forward inter-governmental arrangements for facilitating joint manufacturing of spares for Russian origin equipment in India, under the 'Make in India' initiative.

Technology Transfer

Russia and India share an outstanding level of confidence after decades of fruitful cooperation in the field of defence. In 2018, a number of Russian defence firms broadly agreed to facilitate speedy repair and overhaul of Russian-origin military platforms in India and manufacture their spare parts through joint venture and technology transfer with Indian companies.

The Defence Ministry said that Russian firms showed keen interest in taking 'Make in India' further by involving Indian firms in the process of providing after-sales support of Russian-origin equipment to the Indian Armed Forces through longterm supply agreements, repair, overhaul and manufacturing of some spare parts and components.

Russia's technology transfers to India in the defence sector have been without any strings attached and there is a scope for further deepening the ties, Vice Chief of the Indian Air Force Air Marshal S B Deo, said in July 2018.

In December 1988, an India– Russia co-operation agreement was signed, which resulted in the sale of a multitude of defence equipment to India and also the emergence of the countries as development partners. It also resulted in joint ventures projects to develop and produce the Fifth Generation Fighter Aircraft (FGFA) and the Multirole Transport Aircraft (MTA), between the two nations.

Make in India

'Make in India' programme is being used by the Government for defence procurements by categorising the capital acquisition proposals under 'Buy (Indian-IDDMM)', 'Buy (Indian)', 'Buy and Make (Indian)', 'Make' and 'Strategic Partnership Model' categories of Defence Procurement Procedure (DPP)-2016.

Government has notified the 'Strategic Partnership (SP)' Model which envisages establishment of long-term strategic partnerships with Indian entities through a transparent and competitive process, wherein they would tie up with global Original Equipment Manufacturers (OEMs) to seek technology transfers to set up domestic manufacturing infrastructure and supply chains.

India and Russia have deepened their 'Make in India' defence manufacturing cooperation by signing agreements for the construction of naval frigates, KA- 226T twin-engine utility helicopters, Brahmos cruise missile (JV with 50.5% India and 49.5% Russia). In a move aimed at boosting India's defence sector, 200 helicopters will be manufactured in the country with Russian collaboration as part of intensification and diversification of their strategic ties. The agreement, reached recently, is one of the several new defence projects on which the two countries are working on, including under the ambit of 'Make in India' programme.

BrahMos

BrahMos is a supersonic cruise missile that can be used against ship and land targets. It has a range of upto 300 kms and is uniquely configured for installing in ships, submarines and aircraft and on ground vehicles.

It is a joint venture between the Russian Federation's NPO Mashinostroyeniya and India's Defence Research and Development Organisation (DRDO), which have together formed BrahMos Aerospace.

It is based on the Russian P-800 Oniks cruise missile and other similar sea-skimming Russian cruise missile technology. The name BrahMos is formed from the names of two rivers, the Brahmaputra of India and the Moskva of Russia. India holds 50.5% share of the joint venture and its initial financial contribution was US \$126.25 million, while Russia holds 49.5% share with an initial contribution of US \$123.75 million.

In 2016, as India became a member of the Missile Technology Control Regime (MTCR), India and Russia are now planning to jointly develop a new generation of Brahmos missiles with 600 km-plus range and an ability to hit protected targets with pinpoint accuracy. Going by the latest development, the first prototype of the Brahmos-NG, a lighter sleeker variant of the Indo-Russian cruise missile, will be fielded in 2024. The NG or next generation will mark a quantum jump in the offensive abilities of the Indian armed forces. The five-metre-long, 50-centimetre-thick, and 1.5 ton Brahmod-NG is half the dimensions of the Brahmos missiles currently in service today with the Indian Air Force (IAF), Army, and the Navy.

Initially, Russia supplied 65% of the BrahMos' components, including its ramjet engine and radar seeker. Currently 65% of the missile is manufactured in India and there are plans to increase this to 85%. India and Russia intend to make 2,000 BrahMos supersonic cruise missiles over the next ten years through their joint venture company, and nearly 50% of them are expected to be exported to friendly countries.

Kalashnikov factory in Amethi

Prime Minister Narendra Modi recently inaugurated a factory that will manufacture modernised versions of the Kalashnikov rifle at the Korwa Ordnance Factory in Kauhar, Amethi, Uttar Pradesh. A shining example of Make in India, the joint venture Indo-Russia Rifles Private Limited—established between the Ordnance Factory Board (OFB), Kalashnikov Concern, and Rosoboronexport, the Russian state agency for military exports—is considered a milestone in Indo-Russian defence cooperation which will give a tremendous boost to the Uttar Pradesh Defence Corridor Project.

The Ordnance Factory Board in Amethi will produce AK-203, the latest derivative of legendary AK-47 rifle. The guns would replace the existing India-made INSAS assault rifles used by the Army, Air Force, and Navy. The rifle manufacturing project, worth around Rs 12,000 crores, came into being after India signed a deal with Russia to manufacture 750,000 of these assault rifles.

S-400

The S-400 Triumph, previously known as the S-300PMU-3, is an anti-aircraft weapon system developed by Russia's Almaz Central Design Bureau as an upgrade of the S-300 family, in the 1990s. It has been in service with the Russian Armed Forces since 2007. S-400 has been described as “one of the best air-defence systems currently made” by economists.

On 15 October 2016 during the BRICS Summit, India and Russia signed an Inter-governmental Agreement (IGA) for the supply of five S-400 regiments. The deliveries are expected to commence in 24 months, by the end of 2020, by which the S-400 is expected to be inducted into Indian service. An advanced surface-to-air missile system, S-400 Triumph can shoot down hostile aircraft and ballistic missiles. It has an estimated range of 250 kms and a possible upgrade is speculated to extend it to 400 kms.

<https://egov.eletsonline.com/2019/09/defence-and-security-gold-standard-of-bilateral-partnership/>

Russia, already India's biggest arms supplier, in line for more

\$12 billion of Make In India projects in hand, Moscow eyeing \$25 billion more

By Ajai Shukla

New Delhi: On the eve of his two-day visit to Vladivostok for a summit meeting with President Vladimir Putin, Prime Minister Narendra Modi proposed combining Russia's high technology with India's low production cost to build weaponry more cheaply. This is already happening, with contracts worth over \$12 billion in the pipeline.

In March, the Stockholm International Peace Research Organisation named Russia as India's biggest arms supplier from 2014-18, accounting for 58 per cent of India's defence imports. While no big defence announcements are slated for PM Modi's visit on Wednesday and Thursday, a slew of "Make in India" contracts could ensure Russia holds its position in the years ahead.

These projects are over and above the \$5.43 billion contract for five units of the S-400 Long Range Surface to Air Missile System, which was announced at the last Modi-Putin summit last October.

Kamov 226T helicopters

In 2015, on Putin's personal request, Modi agreed to buy 200 Kamov-226T utility helicopters for the IAF and army without competitive tendering. The \$2 billion deal involves building 140 Kamovs in Hindustan Aeronautics Ltd (HAL), after its joint venture (JV) partner, Russian Helicopters, supplies the first 60, fully built.

With this in hand, Russian Helicopters is fielding a "navalized" Kamov-226T in the Indian Navy's tender for 111 "naval utility helicopters". With its production facilities amortised over the first 200 Kamovs, Russian Helicopters could offer the navy a compelling price of around \$1 billion.

Kalashnikov AK-203

New Delhi and Moscow have signed an inter-governmental agreement (IGA) to build 750,000 Russian assault rifles for the Indian army, at a likely cost of about one billion dollars. In March, Modi inaugurated an Indo-Russian JV in Korwa, near Amethi, which will soon start manufacturing Kalashnikov AK-203 rifles.

The JV includes the Ordnance Factory Board, with a 50.5 per cent majority stake; Kalashnikov, with a 42 per cent stake, and Russia's state-owned export agency, Rosoboronexport, owning the remaining 7.5 per cent.

Krivak-III frigates

In October 2018, the cabinet approved the purchase of four Russian Krivak-III class frigates. The first two frigates are lying partially built in Yantar Shipyard, Russia and India will pay about \$1.5 billion to complete them, install Ukrainian Zorya gas turbine engines and sail them to India.

Meanwhile, a contract is being negotiated to build the next two Krivaks in Goa Shipyard Ltd.

DEFENCE PACT WITH RUSSIA			
Status	Weapons system	Quantity	Cost (\$bn)
Firm	Kamov 226T helicopters	200 + 111	3
	AK-203 Kalashnikov assault rifles	750,000	1
	Krivak-III frigates	4	3
	BrahMos missiles for warships	15 ships	2.6
	Igla-SVSHORADS	800	1.5
	Sukhoi-30MKI fighters	18	1.15
	Total		12.3
Up for grabs	Project 75-I submarines	6	7
	Medium fighters for IAF and navy	114 + 57	18-25
	Total		25-32

India already operates six Russian Krivak-class frigates. The first three, INS Talwar, Trishul and Tabar, were commissioned in 2003-2004. Subsequently, INS Teg, Tarkash and Trikand, were commissioned in 2012-2013.

BrahMos missiles

The BrahMos missile, which India and Russia co-developed and now co-produce in Hyderabad, is on order for several Indian warships. Last December, the MoD announced that the BrahMos would arm the four new Krivak-III frigates. Each vessel's BrahMos system, including the "vertical launch system" and missiles on board, will cost Rs 1,250 crore (\$175 million).

BrahMos missiles are also on order for the navy's four Visakhapatnam-class destroyers and will equip the seven Project 17A frigates under production. The total cost amounts to about \$2.6 billion.

Igla-S

Last November, the ministry of defence (MoD) announced it had chosen Russia's Igla-S missile as the "very short range air defence system" (VSHORADS) for the army, navy and Indian Air Force (IAF).

Russia's export agency, Rosoboronexport (ROE) bid \$1.5 billion for 5,175 Igla-S missiles and 800 launchers, beating out Sweden's Saab and French firm, MBDA.

The Igla-S VSHORADS, with a range of eight kilometres, will protect soldiers from enemy combat aircraft that have sneaked through the IAF's defences. While the Igla-S is an older system, with even the Russian military having switched over to the 9K333 Verba, it presents an affordable option.

Sukhoi-30MKI

With Hindustan Aeronautics Ltd (HAL) Nashik completing delivery of its contract to build 222 twin-engine, heavy Sukhoi-30MKI fighters, negotiations are under way for extending the licence to build an additional 18 aircraft.

At HAL's price of about Rs 450 crore (\$65 million) for each Sukhoi-30MKI, the IAF will pay about \$1.15 billion for 18 new fighters. Delivery of these could start next year and be completed by 2022, increasing the IAF's Su-30MKI fleet size to 14 squadrons, or 290 fighters.

Firm agreements between Moscow and New Delhi underlie the \$12.25 billion worth of Make in India production mentioned above comprise of. However, the real money lies in three procurements that Russia hopes to corner. These include:

Project 75-I submarines

Rosoboronexport is pursuing a navy tender, worth some Rs 50,000 crore (\$7 billion) for six new submarines, with "air independent propulsion", under Project 75-I.

The navy's 30-year submarine plan calls for building 12 vessels with foreign technology, and the next 12 indigenously. So far, only six Scorpene submarines have been built and Project 75-I is the last chance to obtain foreign technology.

Russia has promised a high degree of technology transfer for building its Amur-class submarines in India. It is competing for the contract with Thyssenkrupp Marine Systems from Germany, Naval Group from France and Kockums from Sweden.

Medium fighters

After the 2004 tender for 126 "medium multirole combat aircraft" (MMRCA) was aborted with the purchase of 36 Rafale fighters from Dassault, the IAF initiated a fresh acquisition for 114 medium fighters. Two Russian fighters are competing – the MiG-35 and Sukhoi-35.

Meanwhile, last year the navy initiated the procurement of 57 multi-role carrier borne fighters for its two indigenous aircraft carriers. The MiG-35 is competing for this too.

These are easily the biggest on-going Indian procurements, together worth an estimated \$18-25 billion. The Make in India component amounts to 50 per cent of the contract value

However, an obstacle to India's defence contracts with Moscow is an American law – Countering America's Adversaries Through Sanctions Act (CAATSA). This binds Washington to impose sanctions against countries that engage in “significant transactions” with Russian, Iranian and North Korean entities. While President Donald Trump can grant New Delhi a waiver from CAATSA, there is no certainty that he would.

https://www.business-standard.com/article/economy-policy/russia-already-india-s-biggest-arms-supplier-in-line-for-more-119090401471_1.html