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Decision Taken to Create a Permanent Mechanism of "Standing Intra-Government Technical Collaboration Panel" (SITCOP)

Railway Ministry Takes Major Step towards Scientific and Technical Collaboration Among Major Government Technical and Scientific Agencies for Development of Special Material and Technologies for Improving Railway Rolling Stock

As a major boost for Government of India's Make In India initiative, Minister for Railways, Shri Suresh Prabhakar Prabhu has envisioned unprecedented approach for creation of a Scientific & Technological Collaboration Forum among major Government Technical and Scientific agencies for development of special material and technologies for improving railway rolling stock for providing safer, more comfortable, more efficient and economical services to its customers. The aim is to reduce Indian Railways dependence on other countries and give impetus to creation of new technologies within India by creating an organized synergy between major government bodies in the field of scientific and technological research and production. This will help in developing systems for Indian Railways which are best suited to the country's local conditions and needs. Also, it would create a constantly evolving rolling stock technology development process to create exportable products like coaches, locomotive, wagons, cranes, special vehicles etc.

As a first step in this direction, Ministry of Railways convened a round table session on 25th April, 2016 at Rail Bhawan with Heads of ISRO, CSIR, DRDO, RDSO, Deptt. of Science and Technology and Deptt. of Defence Production. The meeting was chaired by Shri Manoj Sinha, Minister of State for Railways. The areas in which Indian Railways sought collaboration were structural material, paneling material for coaches, germicidal and wear resistant furnishing material, coating and special paints with better cleaning properties and pest control capability, noise and thermal insulation material, fog vision technologies, embedded systems for onboard condition monitoring of rolling stock, facial and gesture recognition software for security cameras on trains, solar heat engines, etc. DRDO made a detailed presentation about special material developed by them for use in defense and space applications which included special high strength alloys of steel and aluminium. Also, special technologies for developing Fog vision and for detection of obstructions on track using laser based imaging systems were shared. Special coatings which have been developed for use on naval warships by DRDO were also shared for possible use by Railways.

Development of Maglev and special alloy aluminium coaches were identified as areas for cooperation for development of prototypes.

The meeting ended with announcement of a permanent mechanism of Standing Intra-Government Technical Collaboration Panel (SITCOP) to converge Government's internal capabilities to create better and futuristic rolling stock for Indian Railways with minimal foreign dependence in critical areas. The SITCOP shall meet twice a year to review progress on collaborative projects assigned to inter-area action teams assigned by the body.

Rafale fighter jet deal with France runs into trouble again

India and France are still negotiating the latter's offer in terms of New Delhi's offset clause regarding the multi-billion dollar deal to purchase 36 French Rafale aircraft.

Talking to FE on condition of anonymity, highly placed sources said:

“The French company Dassault Aviation has offered 17-18 technologies as part of its offsets obligation in various sectors, including civil aviation, homeland security and partially services for the deal which is being negotiated under DPP-2013.”

However, this could create further delay in the process as the ministry of defence (MoD) has so far failed to form a team to evaluate the respective proposals made by vendors for the transfer of technology. The methodology for evaluating and comparing the value of the respective proposals for transfer of technology also remains unformulated and unclear, sources revealed.

This process is expected to be time-consuming as there are no parameters that can be referred to while putting a cost to the technologies being offered. Earlier, the French side had rejected India’s demand for a 50% offset clause, citing sharp cost escalation, but offered to participate in ‘Make in India’ projects to carry forward the talks. There is also a strong lobby of small and medium French enterprises that is against industrial offsets and sees it as a threat to the competitiveness of the French defence industry.

Due to India’s insistence on the offset clause, tweaking of weaponry technology and plans to set up two bases for Rafale fighter planes would lead to cost escalation, which New Delhi is pushing to bring down to around 7-8 billion euro. “While the government is keen to bring down the costs of the aircraft to as low as euro 7-8 billion, there is no way France will give a fully loaded aircraft at that price. India might be forced to then pay just for the platform and for add-ons pay extra money,” a senior official explained.

Offset policy was first introduced as part of the Defence Procurement Procedure (DPP), 2005, under which a foreign company has to invest back a portion of the deal into India.--*Financial Express*

Defence News

26 Apr, 2016

The Legendary A-10 Warthog can add deadly firepower to India's Cold Start Doctrine

By: Darshil Patel

By 2021 India will have raised a new Mountain Strike Corp which will be dedicated for China. Over 75,000 troops along with tanks, artillery, mechanised infantry, support and attack helicopters, special forces and sniper divisions and the deadly BrahMos Missiles will form the backbone of this Mountain Strike Corp.

However there is one thing missing in all of Indian Army's Strike Corps and i.e. a dedicated air-to-ground attack force in the Indian Army Aviation Wing. The only aircraft that could effectively play that role is the legendary A-10 Warthog that was designed to fire armor-piercing depleted uranium and high explosive incendiary rounds that can vaporise enemy ground tanks and troops.

India is currently inducting the Air dominance Su-30 MKI fighters and will also soon induct 36 Rafale fighters in the next 2 years in fly-away condition from France. The last A-10 rolled off the assembly lines in the year 1984 and there is talk in the U.S. Military establishment to retire the entire fleet of the A-10s. India should think about inducting dedicated air-to-ground precision strike fighters like the A-10 to support the Army's strike corps.

Each A-10 cost an average of US 26.6 million dollars or less than 1/6th of a new F-35 Lightning II. The fact that both the Su-30MKI and the Rafale are highly expensive jets to be exposed to a high intensity ground battle that could involve SAMs and other ground to air missiles to take on fighter jets. In such a scenario it would be wise for India to acquire a plane dedicated for high intensity ground conflicts that could hit targets on the ground with precision and speed.

During the Kargil conflict in the summer of 1999, air-to-ground strikes by fighter ground attack (FGA) aircraft of the IAF had played an important role in neutralising Pakistan Army defences. The destruction of a logistics camp at Muntho Dhalo was shown repeatedly on national television.

India already has a huge technological and numerical superiority over the Pakistani Air Force. The induction of the A-10 Warthog in the Indian Army's Aviation Corp will free up resources of the Indian Air Force thus giving them more room to breathe.

Having a dedicated ground-attack fighter jet like the A-10 Thunderbolt will literally pave the way for a quick and decisive victory for advancing Indian forces against the enemy. Use of battle tanks in the event of an India-China conflict is highly unlikely because of the treacherous mountainous terrain of the Himalayan region and hence the A-10 Thunderbolt will effectively be used only in an Indo-Pak conflict.

India's Cold Start Doctrine that can conduct highly effective and offensive operations as part of unified battle groups can become even more deadlier and a nightmare for Pakistan if the A-10's are added to India's offensive weapons capability.

It was the sustained, accurate and high-volume concentrated artillery firepower and air-to-ground strikes by the IAF during the Kargil War that eventually turned the tide for India by completely decimating enemy hideouts thus enabling the infantry to assault virtually unopposed.

Other comparable aircraft to the US made A-10 Thunderbolt / Warthog is the Russian made SU-25 which is currently bombing ISIS targets in Iraq and Syria.

A dedicated ground strike aircraft cost only a fraction of a multi-role fighter aircraft such as Mirage-2000, Rafale etc. It is certain that in the coming decades, the IAF will continue to be called upon to launch ground strikes with precision munitions in support of an advancing Indian Army.

India's current defence budget stands at \$51bn most of which goes into salaries and weapons acquisition. A small part of that budget can be sanctioned to raise a minimum of 1 or 2 squadrons of these deadly weapon platforms for our western border with Pakistan.

The Hindu
27 Apr, 2016

Naval detachment set up at Lakshadweep

As part of measures to enhance surveillance of crucial shipping lanes, the Navy on Tuesday established a new naval detachment at Androth islands of Lakshadweep.

“Lakshadweep and Minicoy Islands occupy a strategic location in the Arabian Sea. A number of shipping lanes pass close to these islands. Setting up of a Naval Detachment at Androth Island will enhance the Navy’s reach and surveillance, and contribute significantly to strengthen maritime security and stability,” Vice-Admiral Girish Luthra, Flag Officer Commanding-in-Chief, Southern Naval Command, said after inaugurating the facility. Naval officials said the detachment would extend the naval presence at Androth Island, part of the Lakshadweep & Minicoy group of islands in the Arabian Sea, provide communication network connectivity with mainland, enable Sea Lanes of Communication monitoring and function as an observance and reporting post, besides radar surveillance.

As part of larger measures the naval detachment at Kavaratti was commissioned as a naval establishment, INS Dweepakshak, in 2012.

A number of infrastructure facilities at naval units located on Kavaratti, Minicoy, Agatti and Androth islands are also being progressively upgraded, the officials added.

Indian private defence industry divided over strategic partnership

W DELHI: The Indian private defence industry is divided over the issue of the government's proposed "strategic partnership" agreement with entities in critical projects, with some big players batting for it while others pushing to delay it by at least five years.

The differences came out during a meeting of representatives from various industry chambers and defence minister Manohar Parrikar on Monday evening.

Parrikar had met members from CII, FICCI, Assocham and PHD Chamber of Commerce and Industry, besides small and medium defence enterprises' grouping Defence Innovators and Industry Association (DIIA), to take their views on the partnership agreement that the government plans to enter into with private firms in critical defence projects like manufacturing of submarines and fighter planes. Defence sources said the meeting went off "very well" and it was "very positive".

The minister was of the view that since it was only the first meeting, more meetings would be required over the next two months before some sort of decision is firmed up.

Parrikar will now meet individual companies, sector-wise over the next few weeks and try to allay any apprehensions and get fresh inputs.

Industry sources said the minister was "very keen" to get the feedback and has told them to give strong arguments for or against the strategic partnership. The sources said Parrikar was of the view that he will do what is needed in the interest of the country. They said two companies wanted strategic partnership to be pushed fast especially in two critical sectors.

However, some were of the view that the whole process should be pushed back by five years so that Indian companies are able to understand and bring out their core strength and stop creation of any monopoly.

"There are so many Indian companies that are rearing to go. If we limit specific projects to only a handful of companies, nobody would even try to get into that sector because strategic partnership would be for 20 years. It can be done in acutely critical projects but rest should be delayed by at least five year," a source said.

The feeling among several private industry players is that only the big firms will benefit out of this move.

However, many large firms are not open to the idea since they feel they would be restricted to just specific fields and, therefore, their overall investment and plans will get affected.

The issue of a consortium approach to big defence projects was also discussed, sources said, adding, the majority view was to give the newly-introduced IDDM (indigenously designed, developed and manufactured) norm in the defence procurement procedure (DPP) time to materialize.

Captain (retd) Amrinder Singh, a member of the parliamentary standing committee on defence, had recently written to Parrikar against the proposed step saying this would only lead to "crony capitalism".

At the recently held Defexpo in Goa, various industry leaders had expressed their reservation against the move to create strategic partnership.

Industrialist Anil Ambani, who is eyeing the defence sector through his newly set up Reliance Defence, had welcomed the concept of strategic partners, but said, there needs to be competition in inter and intra segments.

The big players are concerned over a clause that would restrict one company each to the ten broad areas of manufacturing like warships, land systems and submarines. This means if one company goes into a strategic partnership for projects like submarines, it cannot go in for surface projects like making ships.

A top executive of another defence firm had left everyone surprised with his strong remarks against the concept of strategic partnership. His argument was that "strategic partnership will lead to a new caste system within the defence sector" and only few companies will benefit.

Former DRDO chief VK Aatre had earlier this year submitted a report to the Defence Ministry recommending guidelines for selecting domestic private firms for strategic partnership.

The Aatre Committee was set up by Parrikar following recommendation by the Dhirendra Singh Committee, which had come out with a report detailing the changes needed for the new defence procurement procedure.

The committee had recommended that for "Make in India" initiative to become wider in the defence sector, the government should adopt a strategic partnership model, whereby a private firm is chosen for the development of a specific identified platform.

Defence News
26 Apr, 2016

An Underwater Glider by IIT Delhi Students can become Indian Navy's New Age Secret Weapon against Enemies

It's no mean feat that our IIT students are being recognized globally for their innovations. From creating machines that can quench thirst and reduce waste simultaneously to innovating devices for the blind (like Smartcane now sold commercially) - this young lot is not only sensitive to the daily problems an Indian goes through, but is also at par with some of the best international research institutes abroad when it comes to working on some path-breaking technological innovations.

There is round-the-clock effort inside these campuses to work on the modern-yet-safest technologies like fuel-efficient electric cars and hydrogen-run autos. It's drones are now used by the Indian Army during combat operations. In yet another such recent innovation that can help our NAVY, a group of IIT students at the Naval Construction Wing have now come out with what they say is an Underwater Glider - a much needed force multiplier in the age of invisible enemies and future autonomous, sustainable advance navies.

"Such gliders are efficient mobile sensor platforms that can be deployed for months at a time, traveling thousands of kilometers. They are low cost and can survive prolonged deployment in excess of nearly 6 months without even recharging. When deployed in large numbers they can do persistent uninterrupted surveillance," the team headed by Prof.R Vijayakumar says.

Their best use can be in both military as well as commercial applications like Intelligence gathering, Surveillance, and Reconnaissance, Mine Countermeasures, Anti-Submarine Warfare, Inspection / Identification, Oceanography, Communication/Navigation Network Node, Payload Delivery, Information Operations and Time Critical Strike.

A working full-scale model was designed recently, constructed and tested in IIT Delhi by this team. Even as work has been on to make a foolproof underwater glider since 2012 at IIT under the guidance of Prof.R Vijayakumar, the present version of the glider - PD IV - is the fourth generation design. It follows a saw-tooth pattern across the ocean depths at low speeds with minimal energy consumption, periodically transmitting the data collected by on-board sensors to satellites. Thus it can cover wide range of operations and responsibilities without getting detected.

Moreover, the communication and data transfer is based on cheap mobile phone based satellite communication.

Presently, it has undergone pool trials and further improvement of the control systems is still in progress. Further, hydrodynamic trials will be conducted with assistance from IIT Madras and perhaps in the next two years, we may be seeing Navy deploying these secret weapons down below in the ocean!

The Indian Express
27 Apr, 2016

As US pushes defence intelligence sharing pact, India says ‘not ready yet’

Two senior American officials from the US Defence Intelligence Agency are scheduled to visit Delhi next month to deliberate over the agreement.

Amidst talks over Prime Minister Narendra Modi’s forthcoming visit to the United States in June, American officials are grappling with Indian government’s reluctance to sign the Defence Intelligence Sharing agreement between the two countries.

Indian officials confirmed that US Defence Secretary Ash Carter had raised this issue in delegation-level talks with Defence Minister Manohar Parrikar at Delhi earlier this month. Senior government officials, however, said that while the US had been insistent on it — and has raised it at political, bureaucratic, and military levels — they have told the US that “we are not ready for it yet”.

Two senior American officials from the US Defence Intelligence Agency are scheduled to visit Delhi next month to deliberate over the agreement. However, sources said, their meetings with senior Indian officials were yet to be confirmed.

“Defence intelligence cooperation is mentioned in the Defence Framework Agreement signed between the two countries in 2015. Enhanced exchange of military intelligence has also featured in all the discussions between PM Modi and President Obama but we have seen no progress in operationalising it,” a US official told The Indian Express.

Senior Indian military officials dealing with intelligence said that while they have regular meetings with US military officials, signing the agreement was a political decision in which they had little say.

India and the US had signed a defence intelligence sharing agreement in 2003, which focused on exchange of intelligence pertaining to terrorism and countries supporting terrorism. No countries were mentioned by name, although even at the last moment, US officials had wanted the draft to be amended to include ‘rogue states’ like Iran, Libya and North Korea, which India flatly refused to do.

“What was signed in 2003 in Washington DC was after consultations and acceptance of all the other ministries here, and it took care of India’s strategic interests without compromising our autonomy or interests in any way,” said Lt General (retd) Kamal Davar, who was the founder chief of the Defence Intelligence Agency and signed the 2003 agreement.

When that agreement expired in 2008, the UPA government, with AK Antony as defence minister, did not extend the agreement. Following the return of BJP government in 2014, and discussions between Prime Minister Modi and President Obama, US officials were hopeful of India signing another agreement similar to the 2003 one.

Our service chiefs may earn more than US generals

New Delhi: For the first time, the Indian Army chief and his counterparts in the IAF and the Navy will draw more salary than the top general and equivalent in the US based on purchasing power parity (PPP) terms when the recommendations of the 7th Central Pay Commission are implemented.

A comparison drawn by the Institute for Defence Studies and Analyses (IDSA), a defence ministry think tank, on the pay packets of Army chiefs and equivalent in the US, the UK and India said a general and equivalent in the US was paid \$181,500 per annum (in PPP terms). The salary in the UK for similar ranks was \$269,868. In India, the three services chiefs, who enjoy pay equivalent to the Cabinet secretary, received \$140,520.

If the recommendations of the 7th pay panel are implemented, the Indian Army chief's annual salary will jump to \$189,482 (in PPP terms), almost \$8,000 more than what a general and equivalent ranks draw in the US. The huge salary hikes will apply equally to civilian officers too.

India's annual per capita income is \$5,833 (in PPP terms) while it is \$54,630 in the US and \$39,137 in the UK.

The purchasing power parity conversion factor, used worldwide to compare income levels in different countries, is "the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as a dollar would buy in the US".

The pay panel observed, in light of protests by the three Service chiefs asking for more money and perks, that "defence service officers and JCO/ORs in India, based on 6th CPC pay scales, are placed quite well in terms of pay, even in relation to defence personnel in countries like US and UK, where the GDP per capita in PPP terms for the country as a whole is significantly higher than that of India".

These conclusions are, however, equally applicable to civilian employees of the government who are similarly placed. The pay panel's analysis did not take into account the augmentation of pay being recommended by the 7th CPC.

The IDSA, an autonomous institution funded by the government, was in 2015 commissioned by the Pay Commission to study how well the military and the generals were paid.

Italy papers reveal dalals' links to netas, military brass

Judgment Cites Michel's Note On Kickbacks

The judgment of the Milan Court of Appeals in the VVIP chopper deal reveals a big nexus of middlemen and so-called defence consultants who had easy access to politicians, bureaucrats and military brass in India and Italy.

The order also shows that middlemen dropped names of politicians on both sides, suggesting influence up to the top, and their conviction that the right connections were essential in landing the deal.

The judgment lists taped conversations, handwritten notes by accused and statements to Italian prosecutors of European middlemen Christian Michel, Guido Haschke and Peter Hullet, the then India head of AgustaWestland. One handwritten note in particular provides an estimate of expenditure in paying Indian officials for swinging the Rs 3,600 crore deal in favour of AgustaWestland.

The handwritten note of Michel, using abbreviations for names of Indian officials and designations, says the IAF was allotted 6 million euros and the bureaucracy, including defence ministry officials, were to be allotted 8.4 million euros. The note differentiates the designation of bureaucrats like DG (acquisitions), defence secretary (DS) and joint secretary (JS).

Among others whom Michel spoke of in terms of making payments for a 'share' of kickbacks include a category called 'POL' (politicians) -where 3 million euros were earmarked for a person identified as 'AP', while 15-16 million euros were shown against 'FAM' (allegedly family of a top IAF officer).

The judgment also lists a conversation where Michel discusses Congress members. "As Mrs Gandhi is the driving force behind the VIP, she will not fly any more in the Mi-8 (the Russian-origin helicopters the President, PM and other VVIPs currently use)," says the note. It identifies her "key advisers" as "Manmohan Singh, Ahmed Patel, Pranab Mukherjee, M Veerappa Moily, Oscar Fernandes, M K Narayanan and Vinay Singh".

Even though the trial didn't deal with corruption charge against IAF ex-chief S P Tyagi, it observed that his specific act of allegedly favouring AgustaWestland is contrary to his duty and constituted "wrongfulness of his conduct" for cooperating with the company. The judgment listed details of meetings and conversations between AgustaWestland officials and Tyagi on several occasions, as produced by Italian prosecutors.

The Statesman
27 Apr, 2016

The China factor in Indo-Pak relations

The last fortnight saw India-China engagements at fairly high levels. The foreign minister interacted with her Chinese counterpart on the sidelines of the Russia-India-China summit. The defence minister was in China for five days and interacted at various levels with both the military and civilian hierarchy. The NSA interacted with his counterpart in Beijing as part of the nineteenth round of the Special Representative talks. A common agenda point in all three meetings was the issue of the Chinese veto on the UN attempt to ban the JeM leader as an international terrorist. The action by China was seen as a rebuke to the growing Indo-Chinese relationship. India was compelled to retaliate by granting a visa to the World Uyghur Congress leader who China dubs a terrorist.

For China watchers, who have seen Beijing support Pakistan in every international forum, irrespective of the reason, this action was no surprise. Close bonhomie has always existed between the two. In all Indo-Pak wars, Chinese support to Islamabad has remained steadfast. The reason is obvious. It is based on an old but familiar maxim, 'my enemy's enemy is my friend'. This relationship, nurtured over the years, has prompted India to develop military capabilities to counter a possible 'two-front war'.

China sees Pakistan as a counter-balance to India in the South Asian strategic space. Presently a larger Indian military deployment exists against Pakistan than against the Chinese, where India plans only defensive actions to deny China the ability to penetrate deep. Majority of India's military commands are directed towards Pakistan, while only one of each service faces China. India's main strike capabilities are deployed to counter Pakistan, where we always aim to maintain a conventional military edge. The Indian mountain strike corps, directed towards China, is still years away from being operational in the true sense. It was an ambitious project that was stalled due to financial constraints. For China this is ideal, as it continues to enjoy the strategic advantage of superior force, as Indian military concentration remains westwards. Therefore, it makes strategic sense for the Chinese to continue to arm Pakistan.

Pakistan gains its ability to continue with its anti-India policy due to diplomatic support from China. China in spite of facing insurgency in Xinjiang, an outflow from Taliban actions in Afghanistan, has never openly criticized Pakistan for its selective terrorism policy. While the Taliban continues to wreck carnage in Afghanistan, China remains quiet, never criticizing. Its recent action in vetoing the ban on the JeM chief, automatically gave Pakistan the green signal to 'bash on regardless' with its state-sponsorship-of-terrorism policy. China provided Pakistan with ballistic and nuclear technology support, which enabled it to balance India's conventional military power. While the US provides arms to Pakistan under the anti- terrorism banner, China provides the same to enable it to strategically balance India. This unhindered supply of military hardware provides Pakistan's military with the ability to continue its anti-India stance and stop any elected government from commencing peace dialogue with India.

China is presently investing \$46 billion on developing the China Pakistan Economic Corridor (CPEC). This is linked to the Chinese development of Gwadar port in Pakistan's Baluchistan province. The corridor would link Gwadar to the Chinese region of Xinjiang. This would give an economic boost to Pakistan, while opening avenues for enhancing Chinese trade. For Pakistan protection of the corridor assumes high importance, as Chinese investment is based on conditions of security. Chinese nationals working on projects in Pakistan have been specifically targeted in the past and increase in such incidents could affect Chinese investments. The CPEC provides Pakistan with an opportunity to play the anti-India card, claiming that Indian support to the Baluch movement is fuelling militant action on the corridor. China would never permit its investment to be affected or disrupted by any hostile militant actions, hence there could be pressure on India, which would only benefit Pakistan.

China also seeks to play a major role in Afghanistan's future, thereby enhancing its hold over South Asia. Close links with Afghanistan would help it curtail the rising militancy in the Xinjiang province, as also economically open Afghanistan's natural resources for exploitation. It therefore has to keep India away. With Pakistan being a key player and possessing leverage with the Taliban, India was pushed out. The core group for talks with the Taliban presently comprises of the US, China, Pakistan and Afghanistan.

If recent interactions between India and China and subsequent statements are analysed, it becomes clear that while China is desirous of developing ties with India, as also resolving border issues, it would never be at the cost of its 'all-weather friend' Pakistan. The Chinese statement after India objected to the veto was that it acted on the facts provided. This reveals nothing, nor does it indicate any likely change in their stance.

For Pakistan, military hardware flows from both the US and China. But US-provided equipment comes with riders. Diplomatic support continues from China. Economically, the CPEC has given it more Foreign Direct Investment than the sum total of the last ten years. Development along the corridor could be a game-changer for an economically starved nation. Therefore, support from China provides Pakistan with confidence, enabling it to continue to target India.

For India, it is a wait and watch period. While it seeks to enhance its relations with China, it would always be wary of Chinese support to Pakistan. Terrorist strikes on the CPEC, casualties to Chinese workers or disruptions at Gwadar, could affect Pakistan-China relations. Greater economic cooperation between India and China would only bring us closer and only then could we even hope to attempt to limit their support to Pakistan. Till then, we need to continue to maintain a two-front capability.

US challenged China, India on navigation rights

The US military conducted “freedom of navigation” operations against 13 countries in 2015, including several to challenge China’s claims in the South and East China seas, according to an annual Pentagon report released on Monday.

The operations were against China, India, Indonesia, Iran, Libya, Malaysia, the Maldives, Oman, the Philippines and Vietnam, the report said. It did not specify how many such operations were conducted against each of those countries. The US military carried out single operations against Taiwan, Nicaragua and Argentina, for a total of 13 countries, the two-page report said.

The freedom of navigation operations involve sending US Navy ships and military aircraft into areas where other countries have tried to limit access. The aim is to demonstrate that the international community does not accept such restrictions.

The US military has repeatedly conducted operations disputing China’s maritime claims in recent years and did so again in 2015, a year in which Beijing’s island-building activity in the resource-rich areas of the South China Sea led to rising tensions in the region.

A US guided-missile destroyer conducted a freedom of navigation patrol near one of China’s man-made islands in the Spratly archipelago in October. US military flights near the islands have been warned off.

US defence secretary Ash Carter said the Navy would continue to operate in the region despite China’s condemnation of the patrols.

China’s defence ministry said late on Monday that it was deeply concerned by such operations.

“The US carries out militarisation in the South China Sea in the name of freedom of navigation and overflight, threatens coastal nations’ sovereignty and security and destroys regional peace and stability,” the ministry said. It made the comment in response to what it said were reports of recent US military flights near Scarborough Shoal, known by Beijing as Huan-gyan Island, an area China seized control of after a stand-off with the Philippine Coast Guard in 2012.

Admiral Harry Harris, the head of US Pacific Command, said the Navy would step up the freedom of navigation operations in the South China Sea because of concerns China is attempting to assert its dominance there.

Pakistani, Chinese and N. Korean Missile Launchers are the same: US Expert

Pakistan held its annual military day parade and displayed its new medium-range nuclear missiles last month, and it barely made a splash in Washington. But at least one analyst was paying close attention.

Richard Fisher, an expert on Chinese military technology at the International Assessment and Strategy Center, began studying the public satellite photographs of the Shaheen III missiles and came to an alarming conclusion: The transport-erector-launcher, or TEL, for the Pakistani mobile rocket matched a Chinese design that Beijing had exported in 2011 to North Korea.

Specifically, Fisher found that the Chinese, North Korean and Pakistani TELs shared the same foothold shape, the same chassis slope and the same exhaust processing system over the engine compartment.

Now, two leading Republicans in Congress are asking the Pentagon, the State Department and the director of national intelligence to look into Fisher's findings. I obtained a copy of the letter from Representative Mike Rogers of Alabama, chairman of the House Armed Services subcommittee on terrorism and strategic forces, and Ted Poe of Texas, chairman of the House Foreign Affairs subcommittee on nonproliferation and trade.

Poe and Rogers are alarmed. While China and Pakistan have cooperated on military technology for decades, and China's government announced in 2013 it would be assisting with the construction of nuclear power plants in Karachi, the extent of China's cooperation with Pakistan's nuclear weapons program has always been murky. Since the 1980s, the U.S. government has had its suspicions that China assisted Pakistan's nuclear weapons program. But U.S. presidents have also certified publicly since the 1980s that China was not a nuclear proliferator.

If Fisher's research is confirmed, then it would be evidence that China has been assisting Pakistan's nuclear program and continues to do so to this day.

"We are deeply concerned that the TEL displayed in Pakistan was acquired from China," Poe and Rogers wrote to Secretary of State John Kerry, Secretary of Defense Ashton Carter and Director of National Intelligence, James Clapper. "The transfer of an item as advanced and significant . . . would require the approval from the highest levels of China's government if not also the People's Liberation Army. Such cooperation between the governments of Pakistan and China would represent a threat to the national security of the United States and its allies."

A spokesman for the Office of the Director of National Intelligence declined to comment Monday.

In a letter to Poe and Rogers summarizing his findings, Fisher wrote that if his research is confirmed, it would be grounds to seek new sanctions against China at the United Nations, and would trigger the enforcement of existing U.S. sanctions. He also said that it's a threat in and of itself if China is exporting such equipment or even the design of such technology, because it could end up in North Korea, which in turn could re-export it to Iran.

This is the kind of diplomatic problem President Barack Obama would likely want to avoid in the final months of his presidency. After all, despite his protests and promises to refocus America's defensive posture to the Pacific Ocean, the Chinese have moved ahead with plans to militarize islands it built up in the South China Sea. But the rest of the world may not be able to wait this long. The new Pakistani missiles have a range of 1,700 miles, which would cover all of India. If China helped Pakistan with the technology for these weapons, it raises the question what other nuclear programs China is willing to assist.

The Asian Age
27 Apr, 2016

North Korea planning new missile launch?

North Korea appears to be preparing a test-launch of an intermediate-range ballistic missile, South Korea's Yonhap news agency said on Tuesday, after what the US described as the "fiery, catastrophic" failure of the first attempt.

On April 15, the North failed to launch what was likely a Musudan missile, with a range of more than 3,000 km (1,800 miles), meaning it could, if launched successfully, hit Japan and also theoretically put the US territory of Guam within range.

The Musudan missile, which can be fired from a mobile launcher, is not known to have been successfully flight-tested.

North Korea tested its fourth nuclear bomb on January 6 and launched a long-range rocket on February 7, both in defiance of UN resolutions. The North on Saturday conducted a test of a submarine-launched ballistic missile.

“There are indications that the North may fire a Musudan missile that it launched and failed on Kim Il-Sung’s birthday on April 15,” Yonhap quoted an unnamed government official as saying. Kim Il-Sung is the North’s founder.

North and South Korea remain technically at war after their 1950-53 conflict ended in a truce, rather than a treaty.

*Russia & India Report
25 Apr, 2016*

Russia tests new defence system against space threats

The system consists of separate jamming modules that are capable of influencing the enemy’s command and control system at long distances emitting a powerful and complex digital signal.

Russia’s Concern Radio-Electronic Technologies group of companies (a subsidiary of State Corporation Rostec) has begun testing of components of a ground-based electronic warfare system, capable of protecting the troops and civilian facilities from an air and space attack. The tests will be completed during the year, a representative of the company told TASS on Monday.

"The consortium has launched factory testing of components of a ground-based electronic warfare system, capable of protecting the troops and civilian facilities from air and space attack weapons. The tests will be completed during the year," the source said.

Sources in the consortium said that this electronic warfare system is integrated with anti-aircraft defence systems and means. "It conducts real-time automated exchange of data on the actions of the aerospace grouping for purposes of centralized target assignment," the source said.

According to him, the system consists of separate jamming modules that are capable of influencing the enemy’s command and control system at long distances emitting a powerful and complex digital signal. "Multichannel stations that ensure simultaneous inhibition of various avionics systems have been created", the company representative said.

The consortium’s First Deputy Director General Igor Nasenkov is quoted by the company’s press service as saying that the jamming modules are elements of a hierarchically-structured multilevel system.

"Their energy, frequency and intellectual resources are distributed in an optimal way. In addition, all the modules are equipped with individual defence sets because they are the prime targets for enemy’s attack", he said.

Previously, the company's deputy head Yuri Mayevsky told TASS about the development of this system. According to him, the system will be installed on ground platforms, aircraft and offshore platforms.

Theory of relativity faces satellite test

Einstein's theory of general relativity is to be put to the test by a newly-launched satellite in an experiment that could upend our understanding of physics.

The French Microscope orbiter will try to poke a hole in one of Einstein's most famous theories, which provides the basis for our modern understanding of gravity.

The principle has been tested before, but according to the French space agency CNES, this experiment will be more exacting than any of its predecessors. Microscope is orbiting in Earth's gravitational pull.

Scientists will use the kit to measure how two different pieces of metal, one titanium and the other a platinum-rhodium alloy, behave in orbit. "In space, it is possible to study the relative motion of two bodies in almost perfect and permanent free fall aboard an orbiting satellite, shielded from perturbations encountered on Earth," said Arianespace, which put the satellite into orbit on Monday. Einstein's theory suggests that in perfect free-fall, the two objects should move in exactly the same way. But if they are shown to behave differently "the principle will be violated: an event that would shake the foundations of physics", Arianespace added.

Also aboard the Russian Soyuz rocket launched from French Guiana was an Earth-observation satellite equipped with radar to monitor the planet's surface to track climate and environmental change and help in disaster relief operations. That satellite, along with another launched two years ago, is part of the 3.8-billion-euro (\$4.3-billion) Copernicus project, which will ultimately boast six orbiters in all. Three previous launches from Arianespace's Spaceport in French Guiana, an overseas territory that borders Brazil, were delayed by poor weather and technical issues.

A countdown on Sunday was halted after scientists observed an "anomaly", the agency said in an earlier statement, while adverse weather conditions had thwarted other attempts.

The French space agency CNES has not said when the experiment will be finished.

Deccan Herald
27 Apr, 2016

Tiny liquid metal particles for heat-free soldering

Washington: Scientists have developed micro-scale, liquid-metal particles that can be used for heat-free soldering and fabricating, repairing and processing of metals - all at room temperature.

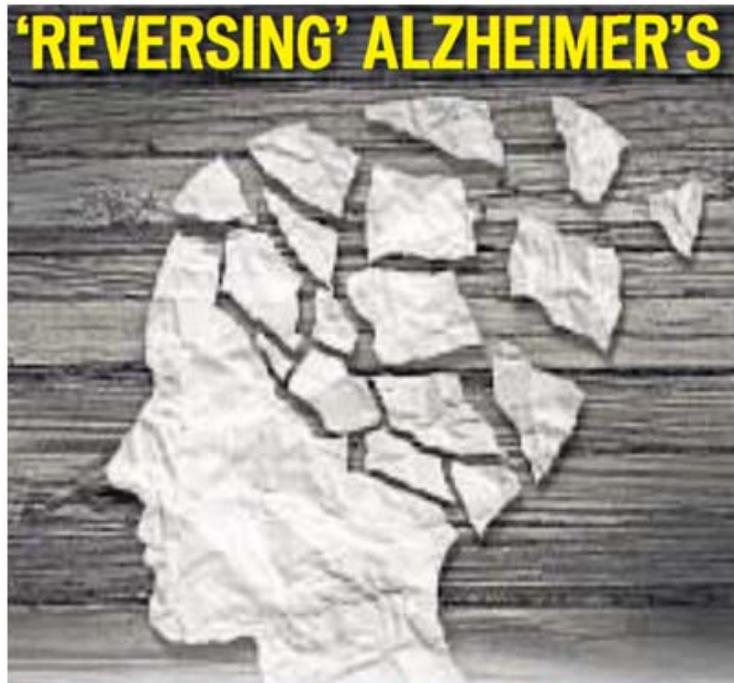
The project started as a search for a way to stop liquid metal from returning to a solid - even below the metal's melting point.

This is called 'undercooling' and it has been widely studied for insights into metal structure and metal processing. However, it had been a challenge to produce large and stable quantities of undercooled metals. Researchers from Iowa State University in the US thought if tiny droplets of liquid metal could be covered with a thin, uniform coating, they could form stable particles of undercooled liquid metal. They experimented with a new technique that uses a high-speed rotary tool to shear liquid metal into droplets within an acidic liquid.

The particles were exposed to oxygen and then an oxidation layer was allowed to cover the particles, essentially creating a capsule containing the liquid metal. The layer was then polished until it was thin and smooth. The researchers proved the concept by creating liquid-metal particles containing Field's metal (an alloy of bismuth, indium and tin) and particles containing an alloy of bismuth and tin. The particles are 10 micrometres in diameter, about the size of a red blood cell.

"We wanted to make sure the metals don't turn into solids," said Martin Thuo, an assistant professor at Iowa State University. "And so we engineered the surface of the particles so there is no pathway for liquid metal to turn to a solid. We've trapped it in a state it doesn't want to be in," said Thuo, who is also an associate of the US Department of Energy's Ames Laboratory. The research was published in the journal Scientific Reports.

The Hindustan Times
27 Apr, 2016



Scientists have found a way to 'reverse' symptoms of neurodegenerative diseases such as Parkinson's and Alzheimer's – using fruit flies as test subjects

THE RESEARCH

The research utilised the common laboratory fruit fly, *Drosophila melanogaster*, in order to explore the role of specific metabolites in the kynurenine pathway that cause loss of nerve cells in Alzheimer's, Parkinson's and Huntington's disease

TOXIC METABOLITES

Earlier studies have shown some of these metabolites are toxic to nerve cells, and their levels are increased in these diseases

WHAT THE STUDY FOUND

Researchers uncovered how

"In Alzheimer's or Parkinson's flies, we see extension of the shortened lifespan exhibited by these flies, and we also reverse the defects they have in movement."

PROFESSOR FLAVIANO GIORGINI, from the University of Leicester in UK

'muting' these two enzymes improves 'symptoms' in flies because of increased levels of a 'protective' metabolite known as kynurenic acid, which counteracts the effects of the toxic metabolites