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Battle ready: Dhanush artillery gun clears final trials

Army to acquire 114 in four years

By Dinakar Peri

The indigenously upgraded artillery gun Dhanush has successfully completed final user trials and is



ready for induction into the Army. Dhanush is an upgraded version of the Swedish Bofors gun procured by India in the mid-1980s. “This was the third and final phase of user exploitation firings in which six Dhanush guns were fired in battery formation from May 31 to June 7, 2018 at the Pokhran field firing range. A total of 301 rounds were fired from the six guns, including burst fire,” said Dr. Uddipan Mukherjee, public relations officer of the Ordnance Factory Board (OFB), in response to a questionnaire from this newspaper. The first phase of trials were conducted

between July and September 2016 at the Pokhran and Babina ranges and the second phase was conducted between October and December 2016 at the Siachen base camp with three guns. A total of 1,520 rounds have been fired in all the three phases.

Tested in all terrains

Indigenous firepower

A look at Dhanush, an upgraded version of the Swedish Bofors gun which was procured by India in the mid-1980s



It is a 155-mm, 45-calibre gun with a range of 36 km, and has demonstrated a range of 38 km with specialised ammunition. It is also compatible with all North Atlantic Treaty Organisation (NATO) 155 mm ammunition systems

SPECIFICATIONS

Length 45 caliber

Crew 6-8

Caliber* 155 mm

Breech: Screw type

Recoil: Electro-rheological/
Magneto-rheological

Elevation: -3 to 70 degree

RATE OF FIRE

Burst: 3 rounds in 15 seconds

Intense: 15 rounds in 3 minutes

Sustained: 60 rounds in 60 min

Maximum firing range 38 km

*(DIAMETER OF THE PROJECTILE IT SHOOTS)

During the trials, the guns travelled extensively in towed/ self-propelled mode in desert and high-altitude terrains with each gun clocking over 1,000 km demonstrating their mobility. Dr. Mukherjee said the next step was completion of general staff (GS) evaluation after which Bulk Production Clearance (BPC) will be accorded. The OFB already has an indent from the Army for 114 guns and will start supplying the guns on receipt of the BPC. “The OFB has already supplied six guns for battery firing during the user trials. Another 12 guns will be issued within a year on receipt of the BPC,” he stated. The entire order of 114 guns is to be delivered within four years. To meet the requirement, the Board has undertaken capacity augmentation to manufacture over 400 barrels and 250 ordnances for large-calibre weapon systems, Dr. Mukherjee said, adding that the OFB was confident of producing eight to 10 guns per month within two to three years. As of now, the gun has over 80% indigenous content. The imported systems include the power pack, parts of the electronic suite, and some seals and bearings.

US team of experts in Delhi to discuss key military agreement

By Sushant Singh

The US had granted India the status of a ‘Major Defence Partner’ in 2016 but no tangible benefits on military technology front have come to New Delhi so far. AS PART of preparations for the 2+2 dialogue between the foreign and defence ministers of India and the US in Washington next month, a team of specialists from the Pentagon will be meeting their counterparts on the Indian side in Delhi from Monday to negotiate the text of a “foundational” military communications agreement. Official sources told The Indian Express that the US team, which will include lawyers, and policy and technical experts, is scheduled to meet the Indian experts from Monday to Wednesday. They said that the US officials will try and address Indian observations on the draft Communications Compatibility and Security Agreement (COMCASA) submitted earlier.

The resumption of talks on COMCASA signals a breakthrough in the Indian stance. After signing a military logistics agreement with the US in 2016, the Indian government was not keen on signing the two other “foundational” agreements — COMCASA and Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA). COMCASA essentially provides a legal framework for the transfer of communication security equipment from the US to India that would facilitate “interoperability” between Indian and US forces — and potentially with other militaries that use US-origin systems for secure data links. It was called the Communication and Information on Security Memorandum of Agreement (CISMOA) before the name was changed to reflect its India-specific nature. Official sources said they did not expect the finalisation of the COMCASA text or its signing during the inaugural 2+2 dialogue. But an intention to sign the COMCASA in the near future could figure in the joint statement to be issued by both sides in Washington.

American officials contend that COMCASA is meant to facilitate the use of high-end secured communication equipment to be installed on military platforms being sold to India and fully exploit their potential. India’s military, they argue, is currently dependent on commercially available and less secure communication systems on high-end American platforms like C-130Js and the P8I maritime surveillance aircraft. But the need for signing COMCASA becomes mandatory if India is to get the armed version of the Sea Guardian drones from Washington. New Delhi has been intimated by the US officials that there is no possibility of India using the high-end drones, which is dependent on a secure data and communication system link, without signing the COMCASA.

Defence ministry officials have held reservations about signing the COMCASA as they fear American intrusive access to Indian military communication systems. They also fear that a large quantity of Russian-origin and indigenous Indian military platforms may not be compatible with COMCASA. The US had granted India the status of a ‘Major Defence Partner’ in 2016 but no tangible benefits on military technology front have come to New Delhi so far. Issues of defence cooperation between the two countries will figure during the visit of Defence Minister Nirmala Sitharaman to Washington next month for the 2+2 dialogue.

THE ASIAN AGE

China building three airports near India border

Equipped with dual use capability, it will be finished by 2022; Gives more teeth to Chinese military.

By Sanjib Kr Baruah

China is building three big airports in close proximity to the Indian border. While the airports are civilian ones, the move is expected to bolster China’s air power against India substantially as Chinese airports are

equipped with dual use capability, allowing both civilian and military operations. On June 8, the Tibet Civil Aviation Administration took the decision to build three airports in Lhunze, Shigatse, and in Burang. The three airports are to be completed before 2022. The airports can aid the Chinese military by acting as launch bases for support of troops as well as replenishment of supplies, very critical in the backdrop of operational limitations due to high-altitude in Tibet. It is difficult for aircraft to take off from the 4 km high Tibetan plateau because of the rarefied atmospheric conditions due to which aircraft cannot acquire full thrust resulting in payload limitations.

Comparatively, it is easier for Indian Air Force (IAF) planes to operate as the Indian side is much lower in height than the Chinese side. Moreover with the entire Indo-China border in the north running on the high-altitude inner Himalayas, it is not an easy area for land forces to operate in and air power stands greater chance of dominating the heights. The airport being set up in Lhunze will be just across the border, a few kilometres from Arunachal Pradesh's upper Subansiri district. This location made global headlines recently after China moved in enormous quantities of men and material to undertake gold and silver mining in a mega gold mine valued at about \$60 billion. The new airport besides helping military operations will also aid the gold mining effort in the remote area. The airport in Burang will be located in the tri-junction in China's Tibet, bordering Nepal and Pithoragarh in India's Uttarakhand while the airport in Shigatse city (or Xigaze) will be closest to the Doklam plateau, near the tri-junction between India's Sikkim, Bhutan and southern Tibet. Doklam was the site of the 73-day standoff between Indian and Chinese troopers in 2017.

At present, Tibet has five big airports. China is already building roads and railroads to these areas in the lofty Himalayas on a war footing. Major railheads are already being set up in Burang and Yatung (which is again near Doklam) even as a third link is being built to Gyirong, a settlement across the Nepal border with China. All these railheads will originate at Shigatse which is connected to Lhasa, Tibet's capital. India is also ramping up the road and air linkages in the north and Northeast region bordering with China. Besides roads, the IAF has already activated several advanced landing grounds (ALGs) at Ziro, Along, Mechuka, Pasighat, Tuting and Along in Arunachal Pradesh.

THE ASIAN AGE

Mon, 18 June, 2018

Malaysia pledge to review china ties gives Jolt to OBOR

Malaysia was once a loyal partner in China's globe-spanning infrastructure drive but a new government

NEW GOVT TO CHANGE POLICIES	
<ul style="list-style-type: none"> ▶ Kuala Lumpur's previous regime, led by scandal-mired Najib Razak, had warm ties with China and signed a string of deals for Beijing-funded projects ▶ These deals include a major rail link and a deep-sea port. 	<ul style="list-style-type: none"> ▶ New government, led by political heavyweight Mahathir Mohamad, has pledged to review Chinese deals seen as dubious ▶ It gives jolt to Malaysia's status as one of Beijing's most cooperative partners in OBOR

is now pledging to review Beijing-backed projects, threatening key links in the much-vaunted initiative. Kuala Lumpur's previous regime, led by scandal-mired Najib Razak, had warm ties with China and signed a string of deals for Beijing-funded projects, including a major rail link and a deep-sea port. But the long-ruling coalition was unexpectedly turfed out of power last month by voters disgusted at allegations of corruption and angered at rising living costs. Critics say many agreements lacked transparency, fuelling suspicions they were struck in exchange for help in paying off debts from a financial scandal which ultimately helped bring down Najib's regime. The new government, led

by political heavyweight Mahathir Mohamad, has pledged to review Chinese deals seen as dubious, calling into question Malaysia's status as one of Beijing's most cooperative partners in its infrastructure push.

China's ambitious initiative to revive ancient Silk Road trading routes with a global network of ports, roads and railways — dubbed "One Belt, One Road" — was launched in 2013 and is the economic crown jewel of President Xi Jinping's presidency. Malaysia, along with Beijing ally Cambodia, were seen as bright spots in Southeast Asia, with projects in other countries often facing problems, from land acquisition to drawn-out negotiations with governments. "Malaysia under Najib moved quickly to approve and implement

projects,” Murray Hiebert, a senior associate from think-tank the Center for Strategic and International Studies, told AFP. Chinese foreign direct investment into Malaysia stood at just 0.8 percent of total net FDI inflows in 2008, but that figure had risen to 14.4 percent by 2016, according to a study from Singapore’s ISEAS-Yusof Ishak Institute. However, Hiebert said it was “widely assumed” that Malaysia was striking quick deals with China in the hope of getting help to cover debts from sovereign wealth fund 1MDB.

Najib and his cronies were accused of stealing huge sums of public money from the investment vehicle in a massive fraud. Public disgust at the allegations — denied by Najib and 1MDB — helped topple his government. Malaysia’s first change of government in six decades has left Najib facing a potential jail term — and appears to have already unsettled Beijing’s plans in the country. New prime minister Mahathir has announced a planned high-speed rail link between Kuala Lumpur and neighbouring Singapore will not go ahead as he seeks to reduce the country’s huge national debt. The project was in its early stages and had not yet received any Chinese funding as part of “One Belt, One Road”. But Chinese companies were favoured to build part of the line, which would have constituted a link in a high-speed route from China’s Yunnan province to trading hub Singapore, along which Chinese goods could have been transported for export.



Mon, 18 June, 2018

ISRO clears GSAT-1 satellite for launch

The ISRO has cleared for launch GSAT-11, the satellite which was recalled from Kourou in French Guinea for thorough checks, after losing contact with its another satellite that was launched from Sriharikota in Andhra Pradesh in March this year, an official said. The 5,700-kg GSAT-11 satellite was slated for launch on May 26 from Kourou, a site in South America which India uses to launch its heavy-weight satellite. In a setback to the ISRO, the space agency lost contact with GSAT-6A after it was launched in March this year.

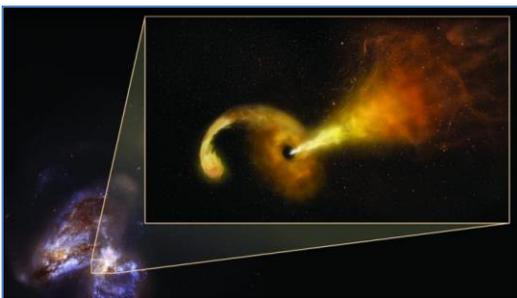
Although the ISRO has been trying to establish with GSAT-6A, a satellite meant for military communication, it has found little success. This also led to the ISRO recalling GSAT-11 for conducting thorough checks. After a thorough check and additional tests, it was found fit for launch, the official said. The space agency is now waiting for a slot from Arianespace, the company which will launch the satellite, the official added.

THE ASIAN AGE

Mon, 18 June, 2018

Super massive black hole destroys star

For the first time, astronomers have directly imaged the formation and expansion of a fast-moving jet of



material ejected when a super massive black hole ripped apart a star that wandered too close to the cosmic monster. The scientists tracked the event with radio and infrared telescopes, including the National Science Foundation's Very Long Baseline Array (VLBA), in a pair of colliding galaxies called Arp 299, nearly 150 million light-years from Earth. At the core of one of the galaxies, a black hole 20 million times more massive than the Sun shredded a star more than twice the Sun's mass, setting off a chain of events that revealed important details of the violent encounter. Only a small

number of such stellar deaths called tidal disruption events, or TDEs, have been detected, although scientists have hypothesised that they may be a more common occurrence. Theorists suggested that material pulled from

the doomed star forms a rotating disk around the black hole, emitting intense X-rays and visible light, and also launches jets of material outward from the poles of the disk at nearly the speed of light.

"Never before have we been able to directly observe the formation and evolution of a jet from one of these events," said Miguel Perez-Torres, of the Astrophysical Institute of Andalusia in Spain. The first indication came on January 30, 2005, when astronomers using the William Herschel Telescope in the Canary Islands discovered a bright burst of infrared emission coming from the nucleus of one of the colliding galaxies in Arp 299. On July 17, 2005, the VLBA revealed a new, distinct source of radio emission from the same location. "As time passed, the new object stayed bright at infrared and radio wavelengths, but not in visible light and X-rays," said Seppo Mattila, of the University of Turku in Finland. "The most likely explanation is that thick interstellar gas and dust near the galaxy's centre absorbed the X-rays and visible light, then re-radiated it as infrared," Mattila added. The measured expansion indicated that the material in the jet moved at an average of one-fourth the speed of light. Fortunately, the radio waves are not absorbed in the core of the galaxy, but find their way through it to reach the Earth.

These observations used multiple radio-telescope antennas, separated by thousands of miles, to gain the resolving power, or ability to see fine detail, required to detect the expansion of an object so distant. The patient, years-long data collection rewarded the scientists with the evidence of a jet. Most galaxies have super massive black holes, containing millions to billions of times the mass of the Sun, at their cores. In a black hole, the mass is so concentrated that its gravitational pull is so strong that not even light can escape. When those super massive black holes are actively drawing in material from their surroundings, that material forms a rotating disk around the black hole, and superfast jets of particles are launched outward. This is the phenomenon seen in radio galaxies and quasars. "Much of the time, however, super massive black holes are not actively devouring anything, so they are in a quiet state," Perez-Torres explained. "Tidal disruption events can provide us with a unique opportunity to advance our understanding of the formation and evolution of jets in the vicinities of these powerful objects," he added. "Because of the dust that absorbed any visible light, this particular tidal disruption event may be just the tip of the iceberg of what until now has been a hidden population," Mattila said.

THE ASIAN AGE

Mon, 18 June, 2018

New Subtype of Prostate Cancer Discovered

Scientists have identified a new subtype of prostate cancer that occurs in about seven per cent of patients with advanced disease. The subtype is characterised by loss of the gene CDK12. It was found to be more common in metastatic prostate cancer compared to early stage tumours that had not spread. Tumours in which CDK12 was inactivated were responsive to immune checkpoint inhibitors, a type of immunotherapy treatment that has overall had limited success in prostate cancer.

"Because prostate cancer is so common, seven per cent is a significant number. The fact that immune checkpoint inhibitors may be effective against this sub-type of prostate cancer makes it even more significant," said Arul Chinnaiyan, from University of Michigan in the US. "This is an exciting prospect for patients who have CDK12 alterations and may benefit from immunotherapy," said Chinnaiyan. Researchers will lead a multisite clinical trial to assess checkpoint inhibitors as a treatment for metastatic prostate cancer with CDK12 loss. In the study, published in the journal *Cell*, researchers looked at DNA and RNA sequencing data from 360 tumour samples from patients with metastatic castration-resistant prostate cancer.