

EDITOR'S NOTE

The threat of use of the Countering America's Adversaries Through Sanctions Act (CAATSA) provisions by the President of the United States (POTUS) against India for signing the deal for the purchase of the S-400 air defence system from Russia appears to have abated for the present, although the last word on the same – as also on the import of oil from Iran by India – has not officially been said. Such a situation has arisen at a time when the US sees India as a 'key player' and a 'net security provider' in the Indian Ocean region – now expanded to include the Pacific in the new coinage of the term 'Indo-Pacific'.

The trade wars between the US and China are getting uglier by the day – the 90-day truce agreed upon by the two leaders on the sidelines of the G-20 Summit notwithstanding – with the arrest of Meng Wanzhou (the Chief Financial Officer (CFO) and heir-apparent of Huawei) in Canada on December 1, 2018. In a bid to protect a senior executive of one of the leading companies of China (Huawei is the largest telecom-equipment manufacturer in the world), President Xi has threatened the resumption of the trade wars.

Meanwhile, the strict admonition to Pakistan by the US – aimed at nudging Pakistan towards taking serious action to rein in terrorist activities from its soil, or face further financial setbacks (stoppage of financial assistance from the US) – has seen an immediate riposte by the Pakistani leadership. The almost spontaneous switch to another benefactor (China this time) – which has been more than forthcoming in its financial assistance to Pakistan for the China-Pakistan Economic Corridor (CPEC) and the development of the strategic Gwadar port – has left the US befuddled, to say the least. While Gwadar port lies in Balochistan and much of the CPEC also passes through Balochistan, the almost complete lack of their participation in these projects

has left the Balochis marginalised. This could have serious repercussions in the future for security in the region. Would the Chinese then join hands with the Pakistan Army and attempt a 'Xinjiang' in Balochistan to rein in the 'errant, non-conformist' Balochis? Only at their peril, one would imagine.

Another area where the Chinese and the Pakistan Air Force (PAF) seem agreed is the recent proposal to set up a Special Economic Zone (SEZ) under the CPEC to jointly produce a new generation of fighter jets, navigation systems, radar systems and on-board weapons. These would not only meet the future requirements of the PAF, but are aimed at weaning away the West Asian countries from US-supplied weapon systems. In a first, China has permitted full access to Pakistan for its Beidou satellite system, for civilian as well as military purposes.

Further, not to be left behind in the race (with its neighbour India) for sending a human into space, Pakistan's Information Minister, Fawad Chaudhry, stated in October 2018 that by 2022, with China's help, Pakistan would send its own astronaut into space.

Closer home, the Indian Space Research Organisation (ISRO) has launched the GSAT-7A, an advanced communication satellite that would operate in the Ku band to meet the network-centric warfare requirements of the Indian Air Force (IAF) along with those of the Indian Army (for its drone operations). The GSAT-7A will interlink all the ground-based radars, air bases and Airborne Warning and Control System (AWACS) aircraft of the IAF. The satellite will not only improve situational awareness for IAF pilots but also improve the sensor-to-shooter time.

With the recent seizure on November 25, 2018, by the Russian Navy of three Ukrainian Navy vessels that were heading towards the Sea of Azov, the ball has been put squarely in the European Union/North Atlantic Treaty Organisation (EU/NATO) court to impose upon Russia to permit freedom of navigation for the Ukrainian Navy and merchant ships in the Kerch Strait – and the Sea of Azov beyond – in keeping with the 2003 agreement between Russia and Ukraine about cooperation on all maritime matters relating to the Kerch Strait and the Sea of Azov. The annexation of Crimea by Russia in 2014 – in an attempt to 'restore Russia to the glory of its pre-Soviet days' –

is viewed by Ukraine as an attempt by Russia to assert its sovereignty over Crimea, and, by extension, over the Kerch Strait. Russia, on its part, is wary that unless it asserts its sovereignty over the Kerch Strait, Ukraine is likely to invite NATO ships into the Sea of Azov in the future. This fear is exacerbated by the fact that its annexation of Crimea has only been recognised by China, North Korea and Iran, but not by the US, Ukraine and a vast majority of nations. This drama in real life that is being played out by Russia – termed as a ‘gray zone’ conflict by many observers – is as much about a challenge to being termed a ‘revisionist’ power, as it is to asserting its claim over areas that were once a part of the former Soviet Union where a large number of Russians are living even today.

Is this an attempt by Russia to reassert itself and challenge the ‘New World Order’ brought about by the end of the Cold War? Russia does not believe that a few powers should decide the future of the world. While expressing its repugnance at the ‘double standards’ of the West, Russia feels under obligation to take up the cause of the marginalised societies that have been bearing the brunt of the West’s wrath in recent years.

In neighbouring Europe, the (move towards) the creation of a European Union Army that will be able to respond to a military threat developing to any member state of the Union has been proposed by President Macron and supported by Angela Merkel, the chancellor of Germany. With President Trump’s sharp rebuke to NATO last year to ‘pay more for their defence’, the US is increasingly being seen as an unreliable partner of NATO in case of outbreak of hostilities in Europe in the future. Formation of a European security council has been proposed by the German chancellor with a view that important decisions about European security could be taken faster.

The opening article in this winter issue by **Dhiraj Kukreja** talks about just such developments in the world that pitch the US on one side and the Russia-China combine on the other. The traditional allies of the US in Europe that had supported the former in all its ventures in the past appear not to be on the same page as President Trump in some of the major decisions he has made in his presidency.

The chief of staff of the US Air Force (USAF), while addressing the Air Force Association in 2016, was recounting his experiences during various campaigns that he had participated in through his career in the air force. He had drawn attention to the recent wars fought by the US military worldwide. While the US Army, US Navy or US Marine Corps had been involved in most wars jointly or singly, all the wars had one common thread: participation of the USAF in full measure. His point was simple. The air force can't win a war alone, but without the air force, no war can be won. Period.

The same sentiment is reflected in the IAF Doctrine 2012.

D Choudhury addresses the issue of salience of air power in India's future trajectory in the second article.

The IAF was created as an independent force on October 8, 1932, although its initial tasks were for reconnaissance and army cooperation. Through the various wars that India has fought since Independence, the IAF has played a stellar role in not only coming to the assistance of the Indian Army, but has also carried out its strategic tasks admirably. Counter-Surface Force Operations (CSFOs) are the epitome of jointmanship between an air force and its sister Service elements. Properly trained and equipped air forces can prove decisive in turning the tables against an enemy that might have greater strength in a particular sector during hostilities. Nothing exemplifies the role of the IAF in blunting an armoured thrust by the Pakistani armour better than what happened at Longewala during the 1971 India-Pakistan War. **JPS Bains** has captured the salient lessons from CSFOs carried out by the IAF during the various wars fought after Independence.

During World War II, control over own air defence weapons was a difficult task; there were several cases of fratricide as a result. The air space over the Tactical Battle Area (TBA) has become denser with the proliferation of unmanned air systems in recent years. Air defence weapons have become more lethal – with enhanced ranges – over the years, including those possessed by the army and also the navy. This has only added to the challenges of control over the air space in the TBA. While militaries learn their lessons during a war – often after suffering a few 'blue-on-blue' kills – this is certainly not the most efficient way to conduct war-fighting. Strict adherence to the rules of

the game in terms of control of air defence assets in the TBA is inescapable. **Anil Chopra** discusses the challenges for air space control and suggests the way forward in the next article.

In January 2007, when China carried out its Anti-Satellite (ASAT) test, we would have been none the wiser had it not been for the information provided by the US. Safety of Space-Based Assets (SBAs) is of great concern for a developing country like India. With the recent launch of the GSAT-11 – which is also considered India's most expensive satellite to date – the need to monitor 'threats' to own SBAs has become even more acute. It is important for India to participate in a joint venture with other 'friendly' (space-faring) nations to build this capability for the future. Similarly, the ambitious "Human in Space" programme that ISRO has embarked upon in pursuance of Prime Minister Modi's declaration during his Independence Day address to the nation this year has got the Institute of Aerospace Medicine (IAM) and ISRO to join hands and collaborate in making Mission Gaganyaan a success. **Anand Rao** reflects on the strides taken by the Indian space programme in the next article.

The drone policy in India is unique; with its NPNT (No Permission No Take-off), Indians appear to have found a temporary 'solution' to overcome the threat of drones flying into a 'no fly zone'. What is perhaps not realised by those who formulated this simplistic 'solution' is that a determined 'do-no-gooder' will fly his drone for the purpose that he intends to use it for – permission or no permission; unless, of course, some way is devised to link the starting mechanism electronically to the 'controller'. Unmanned drones have already been tested for carrying out autonomous missions. The problem that is envisaged is in situations when these drones have to interact with traditional forces. Will their Artificial Intelligence (AI) be intuitive enough to cater to all the contingencies that may arise in the mission, or will the drone, through machine learning, be able to adapt to the changed circumstances and yet carry out a successful mission?

With the more than 200 sightings of drones around Gatwick Airport from the evening of December 19 to December 21, hundreds of flights were cancelled and more than 140,000 passengers were stranded. This is the latest threat posed by drones to commercial aviation. Reliance on military systems for spotting the drones and for bringing them down indicates the seriousness of the threat.

While discussing the future of 'swarms', most countries agree that swarming is definitely the next Revolution in Military Affairs (RMA), and, therefore, they should not fall behind in this race and should develop the necessary competence in this technology. **Rajiv Narang** discusses the drone regulations as have been expounded by the Directorate General of Civil Aviation (DGCA) in the Indian context and offers his suggestions for the future to plug the policy gaps observed.

After the November 3, 2002, drone attack over Yemen which killed six Al Qaeda terrorists, the sound of a drone overhead in Yemen left citizens terrorised as they were not sure where the next 'bolt from the blue' would strike and cause death. Such was the fear that gripped the people of Yemen after the commencement of drone attacks by the US against suspected Al Qaeda operatives. And for good reason too. Were these targeted killings legal and justified in the eyes of International Humanitarian Law? Did the president of the United States have the authority to order such killings without a fair trial to the suspected terrorist being targeted? With the large number of innocents who have been killed (as collateral damage) in these drone attacks, international pressure seems to be mounting on the US president to stop these attacks. What has been the US response? These are some of the questions **Dipanwita** attempts to answer, along with the trajectory of American drone attacks in Yemen in the penultimate article in this winter issue.

Nuclear weapons were used for the first – and hopefully for the last – time in 1945. Their use, and the horrific death and destruction and misery that they caused brought about international abhorrence to ever consider their use again as it would be a slur on humanity. The International Court of Justice issued an Advisory Opinion in 1996 on the legality of the threat of use of nuclear weapons, or on their actual use. **Sreoshi Sinha** explores this path-breaking subject that is making its first appearance in the *Air Power Journal*.

Happy reading, and best wishes for the New Year.

