

Rafale can take on all missions

By Gopal Dhok

Gopal Dhok is a Civil Engineering graduate. After working for Six years with a leading International Infrastructure Company, now he is Research Scholar with FINS. His interest areas are development of Strategic policy in international relations, Geo Political challenges in Indian context.

Rafale, a multi-role fighter aircraft, can perform ariel superiority, air-defence and area denial missions. It can conduct air-to-ground precision strike from a distant range of 450km. Furthermore, it is capable of carrying reconnaissance, bombing, strategic deterrence (nuclear weapons) missions.

Weapons and systems on Rafale

3D Model of Rafale. Numbers designate points shown in 3D model.

Click Here: <https://sketchfab.com/3d-models/rafale-bf3f55ffe2864fc299fdf8052c65b4cc>

1. SCALP Air to Surface Missile

SCALP is air-to-surface deep strike missile that can be deployed against stationary targets such as a hardened bunker or strategic installations with blast/penetration warhead. The missile has 250+km range and can carry 450 kilograms warhead. The missile uses multi-stage warhead to cut through armour or concrete allowing the second stage main warhead to penetrate inside the target. The two-stage warhead allows the missile hard-target penetration. It gives airforce ability to hit and destroy targets from a long-range. Otherwise, forces need to use laser-guided bombs like Spice 2000 with a glide range of 60km, used in Balakot airstrike on a terrorist camp. SCALP is a fire-and-forget all-weather terrain hugging missile with the autonomous guidance system. The Missile has been used by French forces in Iraq and Libya. The missile can be operated from Mirage 2000 as well.



SCALP Missile

2. GIAT Cannon

GIAT 30 is a 30 mm calibre revolver cannon that can fire 2500 rounds per minute. The gun has a muzzle velocity of 1,025 m/s.

3. MICA Air to Air Missile

MICA is an air to air missile for beyond visual range (BVR) interception and short-range dog fights. The missile has a minimum range of 500meter and maximum range of 60km. The missile has a speed of Mach 4. MICA missile can be mounted on Rafale as well as Mirage 2000 aircraft. It is an all-weather fire and forgets weapons like SCALP. Combination of Tail control and thrust vector control system provides exceptional manoeuvrability for precision targeting. With the inertial guidance system and electro-optical sensors, the pilot can lock the target before as well as after the launch of the missile. MICA's target finders can tackle counter-measures (like decoy flares)



4. HAMMER Smart Munition

Rafale can carry 6 laser-guided bombs such as Spice guided weapons system or Highly Agile and Manoeuvrable Munition Extended Range (HAMMER). Government has opted for HAMMER precision-guided munition for faster deployment. The weapons will make Rafale fully operational readiness.

5. TALIOS Optronic pod

TALIOS is an optronic/laser pod. It is essential for the operation of HAMMER precision-guided weapons. It is also crucial for the reconnaissance mission. TALIOS are useful for day and night small targets reconnaissance and **surveillance**. It has AI-driven automatic target detection and recognition system. It can interpolate real-time data on a terrain map.



TALIOS Optronic pod

Meteor

Rafale also has Meteor missile in its arsenal. Meteor is a beyond visual range air-to-air interception missile for highly manoeuvrable targets. Meteor has Blast fragmented warhead system.



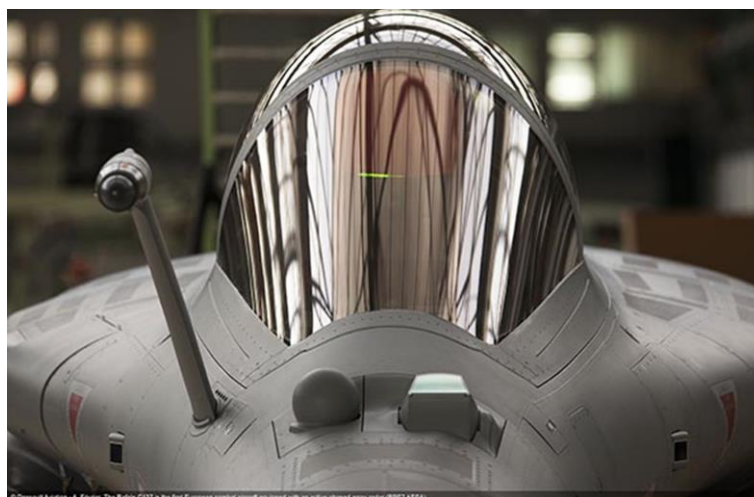
Rail Mounted METEOR Missile on Rafale Jet (Photograph: French Ministry of Defence)

Its active radar seeker can identify targets within the range of 100+km with a no-escape zone of 60km. As a result, it can tackle enemy ariel system at a long distance. Rafale radar can detect up to 40 targets all around the plane. With a weight of 190kg and solid-fueled ramjet engine, the missile can cruise at speed of over Mach 4. It can operate in an electronic warfare environment and avoid electronic countermeasures while **maintaining two-way communication between missile and firing fighter jet**. The missile has impact and proximity fuses along with blast/fragmentation warhead. As a result, missile detonates on impact or at the optimum point of intercept to ensure complete target destruction with fragmentation.



Computer guided canards ahead of wings on both side gives plane maneuverability.

The AESA (active electronically scanned array) Radar in the nose gives advanced situational awareness. Optical camera above radar help pilot in detection of enemy planes



Front Sector Optronics with laser range-finder for acquiring image and distance of the target on ground or in the air.

SPECTRA

Spectra, a defensive aid system, can jam enemy radar and can give missiles approach warning. It acts as armour around the fighter jet. It can send decoy singles, jam and counter jam radar singles to avoid detection.



Spectra Defensive Aid sensors on tail



Rafale Cockpit – Instead of one Centre stick, Rafale has two side sticks that give pilot better control over fingertips.

Rafale's flight control system can follow terrain in auto flight irrespective of weather condition to fly undetected in hostile airspace.

Rafale can carry 4.7 tons of fuel internally. It can carry 6.7 tons of backup fuel in its 3 fuel pods beneath the plane. Rafale can also provide ariel refuelling with fuel pods to another Rafale in the air.

Rafale jets. The fighter would be able to carry up to two missiles of 1.5ton each with a range of 290KM.

Rafale with its electronics, sensors and weapons has an edge in the battlefield. The fighter is battle-tested on multiple occasion. Its addition to the Air force will balance the air power in the region. Rafale's interoperability is an added advantage for coalition missions involving multiple countries. This is all about one single fighter jet. However, jets fly in formation. It is not hard to imagine firepower of five Rafale jets with different weapons configuration.

As these are strategic systems, it is crucial to keep the identity of its fighter pilots secret. Artificial Intelligence-driven facial recognition software has come a long way and can identify individuals.

Paleri's musings: China is not an extremity—so says physics...

By Dr Prabhakaran Paleri

Dr. Prabhakaran Paleri is a strategist, researcher, academician and author with professional experience in Indian Naval, Customs and Coast Guard services and also as non-executive corporate director in public sector undertakings. He retired as the Director General of the Indian Coast Guard in August 2006. His interests lie in researching in management and national security strategy, and continuing academic pursuit as a professor and scholar.

Dynamic human systems spin on axes linking two poles on either end of each axis. Human systems are normally dynamic unless the population dives into Alzheimer's or its likes. That means there will be polarity in any formal human system at all times. The polarity is situated at either end of the axis. The system balances in bipolarity. (Heard about bipolar disease? It ain't bad to blow fuse once a while).

Human systems would be bipolar; still, it can wobble like a top. I answered an American friend when he asked whether the world would be unipolar with America on top when the Soviet Union micronised in 1991 and dissolved the day after Christmas. Mind you; for Russians, there was no Christmas. It was banned post-1917 atheistic revolution. It restarted in 1992, a year after micronisation. Russians celebrate Christmas on 7 January along with Ethiopia and Greece. Jesus knows.

There will be two poles at the end of the axis around which the human system's spin. Each will be occupied by two formal entities based on power in the respective faculty. There are multiple axes for global systems. Geostrategy, therefore, requires multiple axes schema to explain correlation of variables. The global human system has multiple axes each with a powerful geo-entity at one of the two poles based on the power factor—politics and religion, as of now. The rest of the lesser mortal turn around them centrifuging all the time. They have a choice. Either spin without making much noise like clothes in a top-loaded washing machine, enjoying the drudgery, or keep pushing to the pole and replace the one there. The latter is quite difficult. If strategically planned a human system can reach one of the poles and settle by replacing the incumbent. But holding on there as a counterweight is more difficult than climbing up.

One pole will be countered by another and the flux between them will serve dynamic damping. Vacillations in the flux density decide the system profile which in turn determines growth and decline of the system. All along, the humans in between will bear the outcomes—good or bad. There is no choice, but to enjoy like the Corona conundrum.

Within this matrix, the people of India have no reason to worry provided they have a government that governs. But it is important to know that China is not occupying any of the two poles yet. And the way it goes, it is no likely China reach there in the near future. Nor India; it's not necessary, if it can rationally deal with China, and the rest of it globally including those within India.

COVID-19 and the Response of International Organisations

Prof Manish Srivastava

Dr. Manish is currently Dean at the Centre for International Politics, School of International Studies, Central University of Gujarat. His research thrust area is Foreign Policy, Arms Control / Disarmament, Terrorism and South Asia.

Global response to COVID-19 pandemic has placed international institutions under scrutiny. First, the United Nations and its organ – the Security Council failed to bring in a Resolution on the issue. During the COVID-19 crises, the Security Council appeared to be furthering the power dynamics of the big powers. China which had taken over the rotating presidency of Security Council in March 2020, blocked to consider any Resolution about the COVID-19 pandemic.

Second, the Covid-19 has also brought into the spotlight the WHO. While the agency managed the global responses to the SARS epidemic in 2003, the H1N1 flu pandemic in 2009, the Ebola epidemic in 2014–16, and the Zika epidemic in 2015–16, its' response during the COVID-19 was marred by its pandering to China.

In the wake of SARS, the World Health Assembly, the WHO's governing body, strengthened the International Health Regulations (IHR), the core legal prescriptions governing state conduct concerning infectious disease. The new IHR gave the WHO's director-general the authority to declare a 'public health emergency of international concern' and required member states to increase their pandemic-response capacities. Meanwhile, an entire multilateral ecosystem of global public health arrangements blossomed alongside the WHO and its IHR, including the Global Alliance for Vaccines and Immunization (now called GAVI, the Vaccine Alliance), the Global Health Security Agenda, the World Bank's Pandemic Emergency Financing Facility, and the Africa Centres for Disease Control and Prevention.

The WHO's leadership under Tedros Adhanom, was accused of delay in declaring COVID-19 a pandemic under China's influence. This undoubtedly harmed global preparedness in the early days of the outbreak. There is no substitute for a structured, coordinated global response in which international organizations will have to play an active role. However, considering that such organizations are not hermetically sealed off from the political environments, reforms should be articulated towards improving transparency and mechanisms to demand accountability on critical decisions. It is time that New Delhi calls for reforming international organisations.

LAC Standoff- 2020

Dr Ajay K. Mishra

Dr Ajaya K Mishra, is Asst Prof in the Deptt of Defence and Strategic Studies, K S Saket Post Graduate College, Ayodhya of R M L Awadh Univesity. His core research area is , "Counter terror initiative at global level and role of India".

After recent clashes at LAC with China, wherein 20 Indian soldiers were martyred in a bloody clash with PLA and despite recent talks of disengagement, following things have emerged:

1. Chinese have expanded their numbers and opened up new fronts against India in Eastern Ladakh,
2. The violence and Beijing's attempt to alter the status quo in Ladakh is continuing,
3. This has led to strategists to see that a decisive moment has emerged in India's China policy,
4. This could give rise to a fundamental shift in India's policy towards China. Indian Prime Minister has expressed unequivocally that China's expansionism philosophy towards her neighbors is unacceptable.

In this article we would try to analyze the current Sino-Indian standoff. Ashley J. Tellis (Carnegie Endowment for International Peace) asserts that the 2020 standoff is different from previous Chinese incursions in the LAC because unlike the discrete and localized confrontations of the past, the latest confrontations are taking place at multiple points in Ladakh which suggest a high degree of Chinese premeditation with tacit approval from the Chinese leadership. He also states that the roots of this crisis began when India abrogated the special status of Jammu and Kashmir in August 2019 dividing the state into two union territories namely Jammu & Kashmir and Ladakh.

India's newly constructed feeder road from Darbuk-Shyok in Galwan Valley to Daulat Begh-Oldi was a trigger to Chinese Officials who saw this as an strategic tilt in India's border policy. This road facilitates expedient mobility of troops and equipment to the LAC. Control over this road requires a control of the Galwan valley ridgeline where the June 15 clashes took place. More importantly, control of the valley would provide India access to Aksai-Chin, which holds the Tibet-Xinjiang highway. West of Daulat Begh-Oldi is Gilgit-Baltistan, part of the POK (Pakistan Occupied Kashmir) region and part of CPEC (China Pakistan Economic Corridor). China is apprehensive of India's strategic leverage in the region to compromise the CPEC. This could be challenge on the Belt and Road Initiative (BRI) and China's socio-economic and political stability. BRI also links to China's own security concerns in Xinjiang and therefore any threat to the CPEC may be viewed as a threat to China's unity, sovereignty, and territorial integrity.

However, India's increase in military reinforcements along the LAC has been fairly recent compared to China's long-term escalation of military presence in the area without much reaction from the Indian side. Considering these, the timing of the Galwan Valley clash, therefore, warrants two questions:

Firstly, why has India amplified its efforts along the border only in recent times? And secondly, why has China, despite its military superiority and claims of Indian wrongdoing has partially withdrawn its troops from the contested area?

Recent efforts by India in augmenting its Military capabilities in terms of training, military hardware and strategic infrastructure up gradation in border area's has given a confidence that India will stand up against any uncalled for Chinese adventure. The economic backlash on China from the US, is a certainty. The US Senate on June 30th passed sanctions on China that threatens over \$1.1 trillion in funding. India's economic predictions of a 50% cut in Chinese FDI is bound to aggravate China's conditions. Moreover, the inauguration of the Daulat Begh-Oldi Bridge amidst the height of the Hong Kong protests, China's receding global image, and preemption of the possibility of international sanctions, points to a more strategized long-term approach than is usual for Indian defense. These multifaceted threats justify China's de-escalation of its current interests in the Galwan Valley.

In nutshell it can be said, at the moment, relation between India and China have entered into a new precarious phase, wherein India has shown its resolve of not to accept the illogical perception of China on LAC issue. India is ready and has always been more than willing to resolve all disputes on border issue with China through talks, negotiations and so on.

Recent clashes at LAC and developments afterward have given a clear signal to world "present India is not India of 1962."

Nation is indebted to :



Col Chewang Rinchen, MVC Bar, SM

4. Major CHEWANG RINCHEN, MVC,
(IC-16224),

The Ladakh Scouts

Effective date of the award—8th December, 1971

Major Chewang Rinchen of the Ladakh Scouts was commander of the force assigned the task of capturing the alunka complex of enemy defences in the Partappur Sector. Each of these nine enemy strong points were held by one to two platoons and fortified with mines and wire obstacles. This operation was planned and executed with professional competence and great zeal. Under most adverse weather conditions, Major Rinchen led his command displaying aggressive spirit and cool courage, fighting from bunker to bunker, exhorting and encouraging his men to destroy the enemy, making the operation a complete success.

In this action, Major Chewang Rinchen displayed inspiring leadership, indomitable courage, initiative and exceptional devotion to duty in the highest traditions of the Indian Army.



Col **Chewang Rinchen** (1931 – 1997) was a highly decorated officer in the Indian Army from the Union Territory of Ladakh. He was the youngest ever recipient of the Maha Vir Chakra, the second highest Indian gallantry decoration, for his role in the defence of Ladakh in the first Kashmir War. He received the Maha Vir Chakra for a second time after Indo Pak War 1971, for his role in the conquest of the Turtuk block (a section of the Chorbat. valley), in what came to be known as the Battle of Turtuk. He was one of only six Indian service personnel to have the Maha Vir Chakra twice. He was awarded a Sena Medal for gallantry in the Indo China War, 1962. and Mention in Despatches for gallantry in the Indo Pak War 1965.

In a most deserving manner, a strategically important bridge in East Ladakh, has been named as '**Col Chewang Rinchen Setu**', it is built over river Shyok, connecting Durbuk and Daulat Beg Oldie (DBO). Bridge was inaugurated on 21 Oct 2019 by Raksha Mantri, Shri Rajnath Singh.

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