"We live in a wonderful world that is full of beauty, charm and adventure. There is no end to the adventures that we can have if only we seek them with our eyes open. -Jawaharlal Nehru"

TECHNOLOGY & STRATEGY

Electronic Warfare (EW) sits at a strange-and increasingly central-intersection of technology, strategy and everyday life. Once the preserve of radar rooms and jammer boxes, EW today reaches into the electromagnetic and information environments that underpin modern societies: satellites, cellular networks, GPS, critical infrastructure, and even the sensors that steer drones and driverless cars. That expansion creates a strategic paradox. EW is both a military multiplier and a systemic vulnerability. The same tools that give a country battlefield advantage can, if misused or proliferated, disrupt commerce, endanger civilians and destabilize diplomacy.

Strategically, EW restores an element of unpredictability to warfare. Precision weapons and networked command-and-control systems deliver enormous power-until their communications, navigation and sensing are degraded. Jamming, spoofing and directed-energy techniques can blunt those advantages without firing a single ballistic missile. For smaller states and non-state actors, affordable EW capabilities can offer asymmetric leverage. That democratization worries planners in capitals and boardrooms alike: the barriers to causing meaningful disruption are lower than ever.

Yet the growth of EW raises hard ethical and legal questions. Electromagnetic attacks that disable power grids, hospitals' equipment or emergency communications can produce civilian harm on a scale comparable to conventional strikes. Current international law and customary norms struggle to classify or constrain such actions. The ambiguity-about what constitutes an act of war in the EM spectrum, about proportionality when civilian systems are affected, and about attribution when interference is covert-creates dangerous gray zones. Those gaps invite escalation and complicate crisis management.

Policy responses must therefore be twofold: deterrence and resilience. Deterrence requires clear signaling and credible consequences. States should develop doctrines that define thresholds of unacceptable EW behavior and integrate them into broader deterrence frameworks, including diplomatic, economic and cyber responses. At the same time, resilience must become a public good. Governments should incentivize hardening of civilian infrastructure, mandate redundant communications for critical services, and fund research into EW-resistant technologies. Public-private partnerships are essential-most critical infrastructure is privately owned, and the defensive and offensive tools in this domain are tightly coupled with commercial technologies.

Transparency and norms-building deserve urgent attention. Multilateral forums-regional and global-should prioritize EW in arms-control dialogues, much as they have with cyber norms. Confidence-building measures, combined with incident-reporting mechanisms, would reduce misperception. While a binding global treaty may be politically distant, interim agreements (no-targeting of hospitals or emergency networks, for example) would be practical first steps. Academic and industry voices must be included: norms that ignore commercial realities won't stick.

Finally, technological change will accelerate the stakes. Machine learning can make EW systems more adaptive and harder to predict; at the same time, AI can help defenders detect interference faster and reroute critical flows. The race is not merely about capability but about governance: who controls the algorithms, how they are validated, and how mistakes are corrected. Investment in workforce training-engineers, operators, policymakers-must accompany hardware spending.

Electronic warfare is not an isolated technical specialty; it is a mirror reflecting how modern societies organize, depend on, and protect their electromagnetic commons. Ignoring the issue leaves critical systems exposed; over-securitizing it risks militarizing civilian space and eroding commercial innovation.

Cancer Scenario in UT Ladakh

■ **DR SAJJAD HUSSAIN**

1.Epidemiology:

World is facing an epidemic of non-communicable diseases and cancer is responsible for 21% of non-communicable disease deaths. Recently, the world cancer burden has risen to 18.1 million cases and 9.6 million cancer deaths per year. There is an alarming rise of cancer and cancer related deaths in Ladakh region as well and is due to the fact that majority of the risk factors are prevalent in this region. Cancer of Stomach (42.12%) is the most common cancer in both Males and females, in both Kargil and Leh districts of Ladakh region.

In Kargil Ladakh, stomach cancer is followed by Lung cancer and Liver cancer in males. In females, it is followed by cancer of the Gall-Bladder. Breast and Ovaries. Gastro-intestinal malignancies arethe commonest malignancies including cancer of Oesophagus, Colon and Rectum and together accounted for half (51.35%) of all the cancers.

2.Common Cancer Cases in Ladakh

The top ten most common cancers in descending order in Kargil Ladakh are stomach, lung, liver, esophagus,rectum, urinary bladder, gall-bladder, brain, colon, and testicular cancers in males and stomach,Ovary,gall-bladder,breast, esophagus, ovary, liver, pancreas,

lung ,cervix and thyroid cancer in females. More and more cases of cancer of various organs are being diagnosed during the last 3 decades in Ladakh due to improved health care delivery system in the region.

3.Risk Factors in Ladakh

Rough terrain, high altitude with hypoxic conditions, exposure to high UV rays, unique food habits of the region, peculiar culture and life-styles and high prevalence of Hepatitis B infections (8.3%) in the region are the various prevalent risk factors.

In Ladakh, the most important specific food habit is the excessive consumption of large quantities (>5-10cups/day) of butter tea or Gurgur tea.

The sodium bicarbonate (soda) and common salt (Nacl) in it are well-known irritants of gastric epithelium and have been considered as risk factor for gastric cancer. Salt-tea showed the formation of high amount of N-nitroso pipe-colic acid with several unidentified non-volatile N-nitroso compounds on nitration of green tea extracts, which all are irritants to the gastric mucosa.

High consumption of Red-fatty Meat, fewer intakes of fresh fruits and vegetables for almost 6 months (November-April), excess intake of dry, raw food stuffs, stored meats, stored tinned food items, besides traditional spicy foods and pickles; especially in winter; are the other worrisome risk factors of the area.

All these traditional food habits are the risk factors for Gastro-Esophageal and many other varieties of cancer. Fresh vegetables and fruits are considered to be probable protective factors and other food habits like high rice intake, pickled food, spicy food, smoked, dried, salted meat, use of soda etc. are the significant dietary risk factors of cancer. Another risk-factor in Ladakh is the high colonization of H.Pylori in this population. There might be complex interaction between dietary and life-style related factors, H.Pylori infection with certain strain types, in presence of genetic polymorphism, along with

heightened inflammatory response that may produce a cascade of changes at molecular level and ultimately cancer cells of the stomach. H.Pylori strains from Ladakh are genetically distinct and possibly less virulent than the isolates from East-Asian countries, such as china and Japan where the prevalence of gastric cancer are very high. In my research study, "High Incidence of Gastric Cancer in Kargil Ladakh", which has been published in International Journal of Science and Research, I have studied the risk factors prevalent in Ladakh for stomach cancer in detail. High prevalence of gastritis and gastroesophageal reflux disease, again because of the above-mentioned peculiar food habits of Ladakh region are the other worrisome risk factors of stomach cancer in Ladakh.

Tobacco is an independent risk factor for Lung cancer, Stomach cancer and many other cancers like oral-cavity, Pharynx, Esophagus, Larynx, Urinary Bladder, Ovary, Colon and Rectum. The high incidence of Liver cancer in our region is due to the fact that the prevalence of Hepatitis B virus is very high in Ladakh region.

In Kargil district, the prevalence of Hepatitis B infection is 7.86%-8.3%, where as its prevalence is 3.3-5.75 % in Leh, 1.2% in Srinagar and 2.44 in Jammu region. Chronic Hepatitis B infection is one of the most important causes ofLiver cancer in Kargil Ladakh.

I have elaborated the risk factors of Liver cancer in depth in my study "Hepato Cellular Carcinoma in High altitude Kargil Ladakh: A Hepatitis B Virus High Endemic Zone" published in Clinical Surgery Journal. Alcohol may be carcinogenic to Esophagus, Cardia and Liver. Alcohol intake increases 3 Fold the risk of cirrhosis and liver cancer.

The risk for HCC increased significantly among subjects with an alcohol intake of 50 g/day or more, with a relative risk of 1.2 for 50-99 g/day and 1.5 for > 100 g/day.

The risk factors involved in the rise of Colo-Rectal cancer in this region may be due to vanishing habit of high fibre ancestral diets like" Khulak" and "Pappa", and increased westernization such as Obesity, Physical inactivity including less of Agricofarming activities in modern generation, heavy metal contamination of soil, food and water, use of pesticides, dyes and artificial colouring agents (like Tartrazine), food adulteration, reuse of frying oils, increased intake of Killer foods (junk food, snacks, cold-drinks etc.) that are added with dangerous activities and adulterants.

Artificial colouring agent or dyes like Tartrazine (a known carcinogen) has been found in many edibles, spices and condiments in the area. All such trends are leading to a health catastrophe especially cancer in Ladakh.

4. Is the sedentary lifestyle of the locals also becoming one of the reasons ?

Sedentary life style, physical inactivity including less of agrico-farming activities in modern generation, spending more time on mobiles, computers and spending less time on exercises, have led the population to increased risk of Obesity which is also considered to be a risk factor in the occurrence of cancer. A statistical meta-analysis from around the world found that those with an excess body mass index (over 25kg/m2) have a 1.13 odds ratio of developing cancer.

The strength of the association increased with increasing BMI. Obesity is especially strong predisposing factor for cancer, cardiovascular risks, diabetes and hypertension. Those with a diet of heavily inflammatory foods, such as a diet high in meat and low in fruits and vegetables, also have a higher risk of being obese.

I have discussed in detail my findings of risk factors of cancers in Ladakh in my study "Cancer Burden in High Altitude Kargil Ladakh: Ten Year Single Centre Descriptive Study" published in "International Journal of Cancer and Treatment".

5. How can we avoid the disease, what can be precautionary measures for an individual ?

The precautionary measures for the people of Ladakh,especially young population, is to focus more on the healthy dietary habits including high fiber traditional diets, more of fruits and vegetables, less of salted tea, soda, spicy foods, pickled food, junk foods, cold drinks, less consumption of fats and meats, stored meats over long period, less consumption of too many hot beverages, regular exercise, increased physical activities, avoiding high ultraviolet rays with skin barriers, avoiding excessive exposure to mobile radiations, vaccination against hepatitis B and last but not the least, avoiding high risk factors like smoking and alcohol.

6. Challenges faced due to lack of data and research

Due to non-existence of Population or Hospital based cancer registry or any other cancer related study, no previous data of magnitude of this dreaded disease was available. It was also very disheartening to see people die of cancers as young as 30 years, in Ladakh.

Hence the above comprehensive studies of cancers specific to this geographic region were carried out by me, at District Hospital Kargil over a period of 10 year (April 2009-April 2019),so that people of the region becomes aware of the disease. It was necessary to measure the burden of cancers in the area to ensure well informed policies on management and prioritization of resource allocation as majority of the risk factors of cancer are prevalent in this Cancer endemic zone.

7. Are people aware of the diseases and its early symptoms ?

A significant percentage of newly diagnosed cancers can be cured. Cancer is more treatable when detected early.

Although some cancers develop completely without symptoms, the disease can be particularly devastating if you ignore symptoms because you do not think that these symptoms might represent cancer.

Lack of awareness among the people about the disease is a cause of concern.

Some common sign and symptoms that may occur with cancer and may need further investigation are as follows:

- Persistent cough or blood-tinged saliva.
- Any significant change in bowel habits.
- Blood in the stool
- Unexplained anaemia
- Breast lump or breast discharge Lumps in the testicles/Undescended testis presenting late
- A change in urinary symptoms
- Blood in the urine
- Hoarseness of voice
- Persistent lumps or swollen glands
- Obvious change in a wart or a mole/swelling
- Indigestion or difficulty swallowing
- Unusual vaginal bleeding or discharge
- Nonspecific symptoms like Unexpected weight loss, night sweats, or loss of appetite, headache, Back Pain, pelvic pain, bloating, or indigestion
- Non-healing sores/ ulcers.
- Solutions to avoid the disease

I attribute the increase in cancer deaths to inadequate cancer- related infrastructure and lack of awareness among the people about the disease. Majority of the cancer patients in our region present late with advanced stage of disease.

There is need for urgent ass awareness programme, need for urgent screening protocol to identify patients at earlier stages of the cancer, establishment of a proper cancer registry and establishment of active cancer societies is the need of the hour to bring a wind of change in Ladakh.

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NIRF and its significance for J&K

■ **PROF K S CHANDRASEKAR**

NIRF (National Institutional Ranking Framework) is a significant step taken by National Board of Accreditation and it focusses on Teaching, Learning and Resources, Research and Professional practice, graduation outcome, Outreach and inclusivity and perception. Ever since this ranking framework was formed in 2016, more institutions started participating in it. From its brochure, its clear that The engagement of HigherEducation Institutions (HEIs) in these rankings has witnessed remarkable growth, escalating from 3,565 in2016 to an impressive 14,163 in 2025. Concurrently, the number of categories and subject domains hasexpanded from four in 2016 to seventeen in 2025, reflecting the evolving landscape of Indian higher education in India. Any institute where three successive batches have passed out will be eligible to participate in it. There are nine categories and eight subject domains where institutions can compete. Normally only two bands are allowed with 1-50 band and 51-100 bands. However, the number of institutions that participated is actually increasing in number. 14,163 institutions participated in 2025 ranking.

Teaching, Learning and resources constitute 30% of the ranking with parameters such as Student Strength (20) Faculty Student Ratio (25) Faculty with Ph.D. (20) Financial Resources &Utilization (20) Online Education (10) Multiple Entry/Exit, Indian Knowledge system and regional languages (5) being part of the first criteria. Publications (35) Citations (35) Patents (15)Research Projects (15) constitute Research and professional practice as it also covers 30% of the overall ranking. Placement & Higher Studies (40), University examinations (15), Median Salary (25) and Ph.D. students (20) constitute the graduation outcome with 20% of the overall ranking. Region Diversity (30) Women Diversity (30) economically and socially Challenged Students (20) Physically Challenged Students (20) constitute the evaluation for outreach and inclusivity for 10% of the ranking. Finally perception constitute about 10% which includes Peer Perception: Academic Peers and Employers (100).

NIRF is almost in the same vein as that of NBA or NAAC accreditation but it ensures ranking of the institutions unlike the other two. NIRF conducts consultative committee meetings every year before proposing their updated ranking framework and the present team is aware of inclusion of sustainable development goals into the evaluation. This year NIRF understood to penalize the institutions which has cloned journal articles. There are many institutions that provide false data. They would also be penalized. Those who have already participated and if there is a huge gap in the present filing also, there will be penalties. ThePeer Perception parameter, which accounts for 10% of the ranking's weight, is considered highly subjective. This parameter involves asking experts and companies about their opinion of an institution. Established institutions like BITS often receive higher ratings due to their existing brand value. The chance of a remote state university which might be performing well need not be given the same preference.The data submitted by institutions to NIRF is self-declared, and the verification process is not perfect. Mostly what data is submitted by the institution is considered excepting the research details as it can be assessed separately. Most of the state universities by default give more weightage to the outreach and inclusivity but it carries only about 10% weightage. If we take colleges where faculty are appointed in J&K and other states, there is no need for Ph.D. and can be acquired over time. This creates a huge gap in the faculty with Ph.D. It is clear that institutions like IITs, IIMs and other national repute institutions will have more faculty with Ph.D., smaller colleges may not be. Considering the fact that many colleges are focused on teaching, the research component takes a back seat. Here again this difficulty lies.

One thing is clear, GDC Billawar cannot be considered an opponent to IIT Jammu. There is a need for level playing grounds. IITs should compete with BRIC nation institutions and for which NIRF can be made more global as like QS. Top 10 universities so far in the list should also compete globally and allow rest of the institutions and universities to compete for the rest of the places. There is at least a requirement of 500 rankings considering the magnitude of the higher education in India. For subject specifics, there can be only 100 or 50 rankings but for overall general colleges, it can be increased to 500. In the university rankings, University of Kashmir and University of Jammu are in the top 100 from J&K apart from the five others in subject's category. There is a need to empower other universities on the areas where they lack like Research output, professional practices, and faculty with Ph.D. to enable them to compete to be on the top ranking. The placement scenario in J&K needs more thrust in order to ensure that the institutions are able to find their place in the ranking framework. Those who have already applied for the new NAAC criteria based evaluation will be in a better framework to participate in the NIRF. Considering the fact that more colleges and universities in J&K needs to be involved in this process, sooner there is a likelihood of them getting both NAAC grading and also figure in the NIRF. For this, NBA needs to increase the number of those being qualified from the present one so that there will be more inclusivity. Otherwise, those institutions that are trying to perform well from J&K will not be able to hog the limelight.

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World Famed Valley of Flowers

■ **G L KHAJURIA**

'Thou art the lustre in the moon and effulgence in the sun, thou art the taste in water and warmth in the flame; bereft of thou, the world would be devoid of substance(Panchastavi)".And the mother earth and all her manifestationof charming natural gifts like lushgreen forests of higher and lower strata intermingled with blooming flowers and with them the mother earth smiles. This is an unutterable truth and is the greatest strength-(Mahabharata).

The enchanting and thrilling upper Bhyunder valley was brought into limelight far back in 1931 by Frank Symthe, member of the successful Kamet expedition who gave the name 'valley of flowers" and made it world famous. Frank Symthe was so enamored by its charming and enchanting valley that he visited it six years later, explored it extensively with utmost curiosity. As a consequence, therefore, he wrote a fascinating description in his famous travelogue- The Valley of flowers". He also collected more than 250 varieties of seeds and plants for the botanical garden of Edinburgh.

The valley of Flowers lies between the main land of Alknanda and Dhuli Ganga, in the Zanskar ranges of Garhwal Himalayas. The river Pushpavati which flows through this valley has its source in the huge Tripta glacier which extends upto the most famous Ghori Parvat peak which is a flattish valley about 5kms long and 2 kms wide stretching East-West. The most convenient entrance to the valley is from South Where Pushavati flows through a very deep gorge. Besides, two more routes preferred by the shepherds and trekkers branch off or offshoot from the valley. The one from the western side leading to Hanuman Chatti via kant khal pass and the other from the eastern side leading to Ghamsali village via Lakshman pass and both these places cover three days trekking distance from the valley itself. The river Pushpavati is joined by river Lakshman Ganga which flows down from Hamkund lokpal lake at Gangharia whereafter it takes the name Bhyunder Ganga which joins Alaknanda at Govindghat. Govindghat is situated on the main 'Rishikesh - Badrinath 'Pilgrims route at the right bank of Alaknanda and is at an elevation a rounding 1800- 2000mits from Mean sea level(MSL). Around 278 kms road journey through the river one reaches Govindghat from Rishikesh - The foothill town

which is as wall the main rail/motor head to the valley of flowers together with other enchanting and pilgrimage spots for the religious and tourists alike. At Govindghat, the road leads to the Bhyunder valley which further branches off the main road. Gangharia, the last human outpost and the main base camp for the valley of flowers are the Hamkund Shrine. It is around 2- 3 kms from Govindghat and can be trekked on foot or by ponies. This track runs along Bhyunder Ganga. One has to cross over through suspension bridge at Alknanda- Govindghat. Ahead, one has to trek through bridle-path which takes a steep and continuous climb which de facto is tiring.

The view around the vicinity of this spot has a disappointed introduction to the beauty of nature's bounty ahead. It is after a weary plodding around 3kms or so that the valley widens and one comes across some bewildering and breath-taking landscape. The gradient of river is very steep whereas the flow of water is fast. The fog generated by the churned water beating against perpendicular rocks and massive boulders is wafted far and wide ridding on the breeze produced by the down rushing water of the river. It's cool touch mops the sweet beads and drains away the fatigue caused by the uphill journey.

On the right side, a water fall more than 150 meters high descend down the granite rock to meet Bhyunder Ganga. And all the time, one is passing through one of the most beautiful forests full of alpines intermingled with maple, walnut mulberry, elm, oak, bird-cherry, horse-chestnut, honeybee, Alder, rhododendron etc. The foaming river cascades its way till one cross over to the left bank, a little beyond the Bhyunder village. The route to Hathi Parvat and Ghori Parvat emanates from this village. The vegetation changes all of sudden. One is completely surrounded by tall centuries old massive trees of silver fir at Ghangharia. Ghangharia, a hamlet having a Forest Rest House(FRH) Tourist Rest House(TRH) a sacred shrine (Gurudwara) and few shops. This spot is located at an elevation arounding 3,200 meters from mean sea level (MSL) and beyond Ghangharia exist the unspoiled beauty of nature, the valley of Flowers which is barely 4-5 kms trek on foot or on pony. And from here onwards, Hemkund is hardly 4.5 to 5kms trek. Thence onwards, the valley of Flowers veers sharply to the left from the main trail which climbs steeply to the sacred and famous lake. Hamkund, situated at an altitude around 4,200 meters from mean sea level (MSL). The ascent to the valley of Flowers is almost gradual till the valley narrows down into a deep gorge and the forest is compressed between narrow walls of rock.The awesome cliffs guarding this southern entrance of valley are almost rising to more than 1000 meters on either side whichblock the view of the valley.

The valley of Flowers is having a wide space. Beginning at an elevation of 3,500 meters, it gradually slopes down up like a winding corridor, to a little more than 3,700 meters till it meets the snout of the glacier. The valley is snow-bound from mid-November to mid-may during which period this area remains frozen and thereby it is impossible and desolate. But as soon as snow starts melting, the rains commence, and that is the miracle which has made this valley famous world over.

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