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Medals and Ribbons

A SALUTE TO OUR VALIANT WARRIORS

(ENGLISH QUARTERLY)



DISASTER RELIEF

Armed Forces to the Rescue

Air Transportation
The Crucial Asset For Rescue and Relief

Simply Fly
A Fireside Chat with Captain GR Gopinath

Josh of a Champion
Subedar Neeraj Chopra, VSM Online

In Memoriam



In honour of our worthy bravehearts who died in the
Mi-17 V5 helicopter crash near Coonoor, Tamil Nadu on 08 December 2021

General **Bipin Rawat,** PVSM, UYSM, AVSM, YSM, SM, VSM, ADC,
Chief of Defence Staff (CDS), 11 GR.

Mrs **Madhulika Rawat.**

Brigadier **Lakhbinder Singh Lidder,** SM, VSM, Defence Attache to CDS, JAK RIF.
Lieutenant Colonel **Harjinder Singh**, Staff Officer to CDS, 11 GR.

Wing Commander **PS Chauhan**.
Squadron Leader **Kuldeep Singh.**
Junior Warrant Officer **Rana Pratap Das.**

Junior Warrant Officer **Pradeep Arakkal.**
Havildar **Satpal Rai,** 11 GR.
Naik **Gursewak Singh,** 9 PARA (SF).

Naik **Jitender Kumar,** 3 PARA (SF).
Lance Naik **Vivek Kumar,** 1 PARA (SF). Lance Naik **B Sai Teja,** 11 PARA (SF).

FOUNDER'S NOTE

Col David Devasahayam





8th of December will remain etched on our minds as a nation. I was in the midst of a zoom discussion when my secretary Daisy Stephen walked in to say that there was something important. She had just seen the news rushes that a helicopter in which the CDS, Gen **Bipin Rawat** was present, had crashed in the Nilgiris.

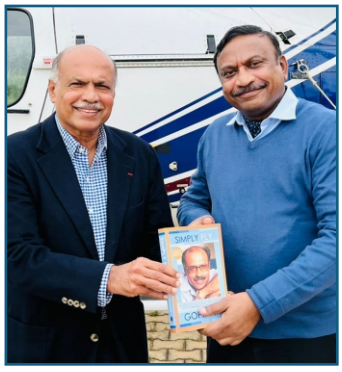
Later that day, we learnt as we stayed glued to the television that both he and Mrs Madhulika Rawat had succumbed besides eleven others. It was a shockingly sad day. As India's first Chief of Defence Staff there were many long term changes he had initiated. It had been a difficult assignment to carry out. For us in M & R he had always had words of encouragement and support.

We remember him and all the others who died that fateful day with sadness mixed with pride and gratitude for their service rendered to the Nation.

Our Armed Forces have been involved in aiding the civil administration in Disaster Management ever since we received independence. Sandy (Gen Sandhu, the Editor) and I have often thought of bringing out an issue with a larger focus on this very vital aspect. It is nice to see the diverse articles that came in once we decided to go ahead with this issue.

Entrepreneurship, we are taught to believe, is not everyone's cup of tea. In 2005, when I was contemplating entrepreneurship as my second innings option, I was looking for role models and mentors I could identify with. One ex-serviceman who was then making waves was Capt GR Gopinath. He was ex-NDA and had set up Deccan Airlines with the aim of getting the common man an affordable airline ticket. Over the last sixteen years of my entrepreneurial journey our paths had never crossed though he was in the limelight for having sold Deccan Airlines to Kingfisher with the subsequent negative fallout. I knew that the Deccan brand was still intact through his aircraft charter firm Deccan Charters Private Limited.

So it came as a delight when a mutual friend set us up together for a fireside chat. We carry it here verbatim in this issue along with a joint word of encouragement from us for all those contemplating entrepreneurship as a career option - there are few things in the world as emotionally rewarding as bootstrapping your own firm and gradually over time watching the workforce come in and settling into their work stations, as you scale.



India Inc. has added 20 unicorns (start up firms now valued at over USD 1 Billion) in 2020 and 33 unicorns in 2021…. it is only entrepreneurship that can generate the requisite employment opportunities in a country teeming with the youngest and the most talented workforce you can hope to have in the world. Our Prime Minister's recent advice to potential entrepreneurs… he spoke of the three mandatory 'C's- Capital, Courage and Connection to Mentors. Well, we do need more Capt Gopinaths from the uniformed fraternity, contemplating a second innings in the Private Sector. For me it was really nice connecting with an inspirational mentor whose risk-taking entrepreneurial life will remain his abiding testimony!

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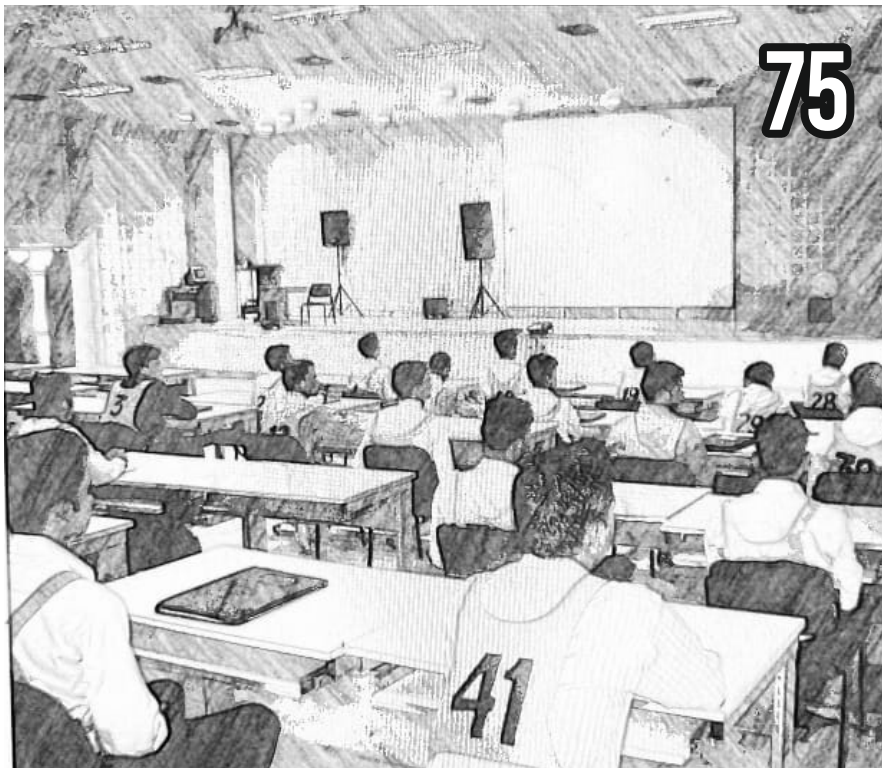



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Medals and Ribbons
A Salute to our Valiant Warriors (English Quarterly)

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EDITOR'S NOTE



Lt Gen J S Sandhu, (Retd).

October 2005. The morning update to the Army Commander was in progress in Hajipir Operations Room at Headquarters Northern Command, Udhampur, when we saw the images moving out of the projector screen. I looked up to see the projector swaying. We rushed out, the earthquake tremors continued for about 40 to 45 seconds – the epicentre was near Muzaffarabad in Pakistan Occupied Kashmir. Soon, earthquake damage reports started coming in from Tangdhar, Uri and Poonch areas in J&K. The Indian Army and Air Force responded quickly and Operation Imdad was launched.

A few days later, a couple of images in a magazine caught my attention. An injured lady was being carried in a stretcher by Army jawans towards a helicopter in one image, and food packets were being distributed from an Army truck to the local people in the second image. The images had been aptly captioned, **"We care, we share".** This ethos of empathy and compassion has epitomised the helpful attitude of the Armed Forces when calamities befall the populace. This reachout and assistance to the people during disasters has added to the respect and bond between the people and the Forces. Our soldiers, sailors and airmen have worked in trying conditions with fortitude in various rescue and relief operations, like after the Bhuj, Latur, Kashmir and Nepal earthquakes, the tsunami of 2004, after several cyclones in Bengal, Odisha, Andhra Pradesh and floods in Uttarakhand, Kerala, Bihar, Assam to name a few. The evacuation, transportation and health care operations after the recent Covid 19 pandemic are also indicative of the capability of the Armed Forces.

Deservedly, in this issue we bring forth several accounts of the actions of the Armed Forces as a part of Disaster Response. I am sure the readers will fathom the commitment, resilience and dedication of the "men in uniform", as they faced challenging situations. Our chests will indeed swell with pride, no wonder our countrymen willingly salute us.

Besides the disaster management related content, we have several other fascinating articles too. Colonel David Devasahayam, our Founder and Publisher had a long emotive chat with Captain GR Gopinath, the pioneer of low cost flights in India. Interesting extracts from the chat with the doyen of Deccan Aviation have been included, undoubtedly an exceptionally unique 'second innings' success story. Subedar Neeraj Chopra, VSM has also caught the attention of the nation, and is a role model for aspiring young sportspersons. We have included a short discussion with him too.

Major General Binoy Poonnen (Retd) vividly recalls his interaction with 2nd Lieutenant Rajeev Sandhu, MVC (posthumous), a night before the valiant warrior was killed in action in Batticaloa, Sri Lanka in July 1988. Other notable articles cover the attempted escape of Indian Air Force pilots from a Prisoner of War Camp near Rawalpindi after the 1971 War, and the decision dilemma that a pilot faces on whether to eject or attempt an emergency landing. Both these real life stories highlight the 'risk-taking trait' so necessary for the profession of arms.

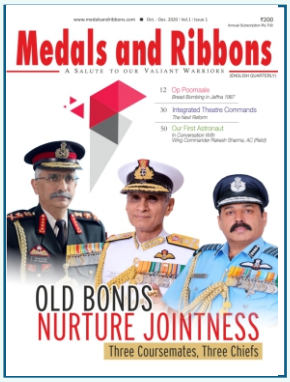
In our regular columns, Dr. Renuka David talks about age related wellness aspects, these are valuable inputs for our veteran readers. We also continue with our informative value Money Matters and Career Counsel columns.

The Editorial Team is immensely glad that the October to December 2021 Special Edition has been appreciated by our readers. We intend to maintain our high standards with quality content in future. For the forthcoming April 22 Issue, our primary theme would be on **Counter-Insurgency and Sub-conventional Operations in J&K, The North East and in Central India.** I am sure many of our readers will have valuable and memorable actions and operations to recount. We welcome content contributions on this live operational dynamic of the Armed Forces, and articles may please be forwarded to : **chiefeditor@medalsandribbons.com** by end January 22. Suitable remuneration would be paid for the selected content.

I am sure the readers will find excellent narratives in this issue too, and we look forward to your feedback.

Several defence subscribers (about 30+) have transferred the subscription electronically to our account, which is reflected as transferred from Public Fund Account or Library Grant, etc. The unit or establishment details are not shown, and we are unable to trace the concerned establishment. **May I hence request those units who have not sent us their UTR number or bank transaction details, to kindly send us the same urgently, by email to info@medalsandribbons.com**

LETTERS TO THE EDITOR



Oct. - Dec. 2020 ISSUE

Dear Col Devasahayam,

I am a civilian offr belonging to the AFHQ Services and have the honour and privilege of serving with offrs and men of both the IA and IN.

Congratulations on the launch of "Medals and Ribbons" magazine. I found both the issues made for interesting and easy reading. They contained loads of information and also helped in reviving memories of both the places visited and seniors one served under. Also enjoyed reading the informative articles in your magazine. I'm sure the issues they covered with accompanying pictures would have filled a lot of gray haired gentlemen with nostalgia.

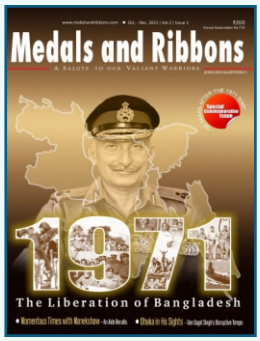
I wish your magazine great success and hope that it reaches all the men and women of the three Services.

Regards,

Prabhat Ross

P.S.

I have had the enriching experience of serving under Lt Gen JS Sandhu during his last tenure as the Military Secretary.



Oct. - Dec. 2021 ISSUE

Lt Gen JS Sandhu (Retd)
Chief Editor

1. Thank you for sending me a complimentary copy of the 'Medals and Ribbons' - A Salute to our Valiant Warriors'.
2. **This Edition on 'The 1971 War' is extremely well compiled, my kudos to the editorial team.**
3. It will indeed be a valued addn to my library and a collector's item. The formation has since subscribed for the magazines.

Warm Regards
Yours sincerely

Lt.Gen. SS Mahal, VSM
General Officer Commanding
Headquarters,
Uttar Bharat Area

Lt Gen JS Sandhu
Chief Editor

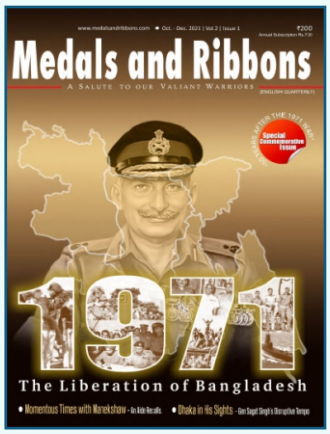
Respected General,

1. This is to acknowledge your Quarterly Magazine titled 'Medals and Ribbons' - A Salute to our Valiant Warriors fwd for the Chief of the Army Staff.
2. The COAS has conveyed his thanks for sending him a copy of the magazine. He has complimented the efforts for the excellent publication focussing on 'The Liberation of Bangladesh during 1971 War'. **The magazine is well compiled, informative and also made a thought provoking** reading.

With warmest regards,
Yours sincerely

Maj.Gen. Vikrant Naik, VSM
MA to COAS

LETTERS TO THE EDITOR



Oct. - Dec. 2021 ISSUE

Dear General Sandhu and Admiral Shrikhande,

Thank you for printing that letter I wrote to Captain Mulla's daughter Mrs Ameeta Wattal years ago. It was originally meant to be a private response from me that somehow found its way into the internet in many garbled and often chopped or edited versions of the original, until Admiral Shrikhande had it printed in a navy leadership magazine in its original form some years ago.

Thank you for respecting the integrity of the letter and publishing it verbatim.

This story is not about me or the many of us who followed Captain Mulla into the service. It is about a generation of naval officers from an age gone by that fought in each of India's major wars with Pakistan and China. In doing so they became a 'virtual and forever compass' always pointing towards the Pole Star and the True North for the many of us who came later.

BTW I took a look at your magazine. I quite like the look and feel of it. I also like the focus you have on leadership and people - a very critical topic that is often lost in the noise and hullabaloo around great big ships and battle tanks and fighter planes and/or China all of which appear to be the main topics of choice these days. Your articles are the right mix that are pitched 'just right'. The quality of penmanship is good as well. I say this only because I have had the misfortune in the last few years of seeing a raft of less than stellar attempts at 'bloviating' in a crowded market place of opinionators in India. . .

Do keep up the good work - And do keep a weather eye on young Shrikhande ... He is one of my products.. (I am happy to take the credit although he did all the work I have to say) ... you should hang on to him.. he knows a thing or two

Keep well

Allan.

Commander Allan Rodrigues

Dear Col David,

Congratulations on the latest issue of the Medals and Ribbons issue on 1971 - The Liberation of Bangla Desh. I wish I had known - I would have written about my Regiments role. I find late Brig Chacko's article about the Chachro raid, God Bless his soul.

- Maj Gen Jose Manavalan



Upper Image. Indian PoWs in a Pakistani Camp in December 1971. (Photo Courtesy Getty Images). Lower Image. From left to right, Flight Lieutenants Dilip Parulkar, MS Grewal and Harish Sinhji.

ESCAPE FROM 'PRISONER OF WAR' (POW) CAMP

This is the hair-raising story of the attempted escape by pilots of the Indian Air Force (IAF) from a PoW Camp at Rawalpindi after the 1971 Indo-Pak War.

"We fight deep inside enemy territory, and one bullet can cripple an aircraft. If I ever become a prisoner of war, I will escape."
Flight Lieutenant Dilip Parulkar

"The first duty of a PoW is to escape".
Flight Lieutenant MS Grewal

Military aviators face unique risks in the execution of their missions. Getting airborne from far away air bases, they are required to defeat the air defences of the enemy, penetrate deep into enemy territory, execute their planned mission and hope to return safely. Sometimes, they are unsuccessful and are brought down in enemy territory. In such situations, they have an obligation to survive, evade capture, and return to their country to continue the fight against the enemy. If taken captive, they are obligated to try to make their escape and get back to own territory.

Flight Lieutenant Harish Sinhji, a PoW during the 1971 Indo-Pak War, has given a vivid first-person account of the internment and their attempted escape from their PoW Camp. He recounts that there were 12 pilots of the IAF interned at the PoW camp at Rawalpindi. In most cases, pilots were brought down while carrying out Close Air Support to the Indian Army. While managing to eject from their stricken aircraft, they faced the ire of the locals or the Pakistani troops and did get thrashed, before being taken over by Pakistani authorities.

The pilots were initially placed into solitary confinement, but were subsequently moved into a PoW camp in Rawalpindi, which was just off the Rawalpindi - Peshawar highway. Originally the office complex of a Provost and Security Flight of Pakistan Air Force (PAF), it was converted to house PoWs.

Seven rooms of the camp had been designated as cells for the PoWs and reinforced with additional security measures, viz., iron grills on the doors and windows. Cell numbers 1 to 4, the toilets and bathrooms were on the Southern side of the camp. Cell numbers 5, 6 and 7 were on the Northern side of the camp, separated from Cells 1 to 4 by a lawn and open area. Behind cells 1-4 was a barbed wire fence beyond which was a Recruiting Office, the gate of which opened on the Rawalpindi - Peshawar highway. The Commandant of the PoW camp was a



Group Captain Dilip Parulkar, VM, VSM (Retd) and Wing Commander MS Grewal, VrC (Retd). (photo courtesy www.thebetterindia.com)

kind hearted gentleman, Squadron Leader U H.

Cell no. 4 was the largest room and the place where the PoWs were allowed to gather for recreation. Being closest to the barbed wire on the Southern side and the highway beyond, Cell no. 4 had a special significance.

As time went by, the PoWs got more amenities. With the International Red Cross actively participating and monitoring, they also started getting the stipulated pay of Rs. 57/- per month, as well as items such as nuts, dry fruits, condensed milk tins, etc. Old books, a transistor radio, volley ball etc. made their confinement more bearable. Every once in a while, there would be rumours of repatriation, building hope in the PoWs. However, when they proved to be untrue, there would be dejection and resignation.

Not so for young Flight Lieutenant Dilip Parulkar who had other plans. One day, he mentioned the possibility of making an escape. He said that the iron grill in his room (Cell No. 4) was loose and could be further loosened and removed. Taking him for a braggart, no one took his word seriously, little knowing that he was in deadly earnest. Moreover, the rumours and the hope of repatriation made the suggestion sound superfluous, even preposterous. In any event the loose rod in the window was discovered a few days later during routine checks and repaired forthwith.

Flight Lieutenant Dilip Parulkar had vowed that if he were to ever land up as a PoW, he would make every effort to break out and escape. Now that it had become a reality, he was constantly plotting on how to escape. But first he had to find some partners in the venture. Flight Lieutenant Melvinder Singh Grewal (Gary) was an obvious choice. A man of great physical strength, he had known Parulkar for many years. He was soon convinced and came on board readily. The third member was Flying Officer VS Chati. Some glib talking with the guards, and Gary and Chati managed to shift to Cell No. 4.

Seeing the seriousness of their intent, Flight Lieutenant Harish Sinhji also wanted to join in, and after some discussion, was also included. A little later, Chati had to drop out due to medical reasons. So it was now three of them. Harish managed to get into Cell No. 4 on the pretext of wanting to play bridge. All the main characters were now housed in Cell 4.

To plan the escape, a map was the first requirement. Dilip spun a yarn about wanting to plan a vacation post his return to India and managed to get hold of a school atlas. The plan that evolved was to get out at night, head North and hit the hills. Walking by night and hiding by day, they would head East/North East, cross the Jhelum River, hitting the border between Uri and Poonch. It involved a distance of about 100 Kms and would take several days. Other preparations included:-

- Kamat, who had broken both his legs during his ejection, improvised a compass using transistor batteries, a bit of wire, polythene, a press button and a needle. The "compass" when balanced on the head of a ball point pen showed North. Coelho drew a 'compass rose' to go along with the compass.
- Chati's parachute was appropriated on the pretext of wanting to repair the volley ball net. Kamat used the silken fabric to craft a couple of haversacks and a cover.
- Dilip got a parcel from his family, with two shirts and a trouser, which were quickly hidden away. Dilip also got a green coloured kurta pajama stitched from his monthly pay. So clothing was taken care of.
- For carrying water, the rubber bags from the anti-g suit were taken out and improvised. It was covered with a pillow case to prevent curiosity.
- For food items, they stocked dry fruits, nuts and condensed milk supplied by the International Red Cross society.
- The PoWs in the Rawalpindi PoW camp were fortunately being paid their monthly pay in currency and not in coupons, as was being done for the Army PoWs. All the PoWs at the Rawalpindi camp contributed to escapees fund. They managed to collect adequate Pakistani currency to see them through.

For breaking out of the camp, the escapees had planned to make a hole in the Southern wall of Cell No. 4. Though it was an 18 inch thick wall, the 'masala' or the filling between the bricks was not very strong. A rectangle was marked close to the ground. A cot was placed against the wall and a blanket draped over the edge to prevent a view of the wall. The room was kept clean to preclude the need for the cleaning man to enter the room.

In mid-July 72, they started working on the filling between the bricks, using sharp metallic objects such as a table knife, scissors, soft drink caps, and most effectively, a screw driver. The bulb would be removed and the bed shifted. Dilip and Gary did most of the dirty work, while Harish and Chati kept a lookout. The work would start at about 2200 hours and stop at about 0200 hours. The loosened bricks would be carefully replaced, the rubble would be collected and emptied into Red Cross gift cartons. The bed would be put back, with the blanket draped low, with a neat line up of footwear blocking the view.

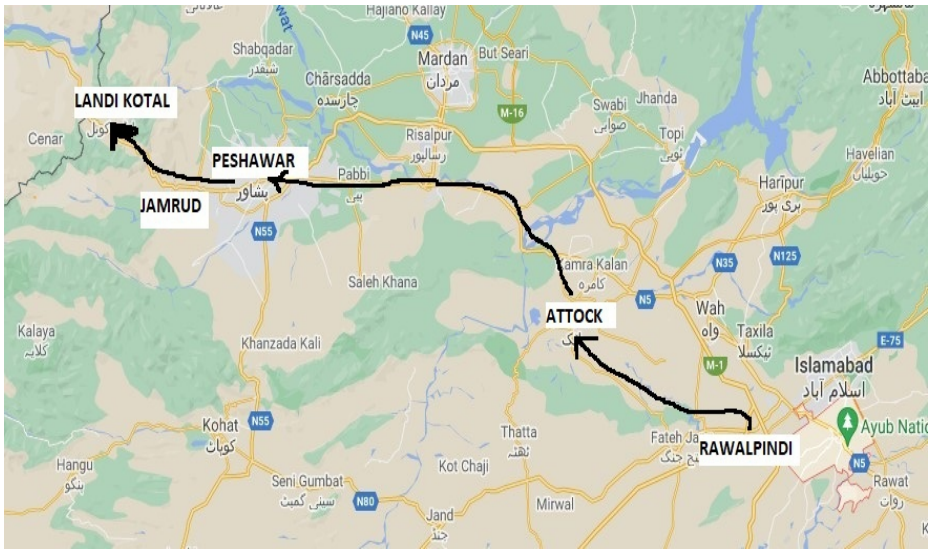
The last brick was removed on 27 July 72. Only a sheet of plaster remained. The following night, 28th July 72 (Friday), Dilip wanted to go; Gary was of the view that they should wait for two weeks since once again, there was talk of repatriation. Dilip wanted to breakout regardless, so they proceeded with the

plan on the 28th. They changed into civvies, packed their rations, placed dummies on the beds. As a deception, hand drawn sketches showing the escape route towards Sindh, were crumpled and thrown in the corner of the room. Gary got down to breaking the last layer of plaster. He tried. And tried. And tried some more. Fortunately, it had started raining by then. Taking a cricket bat, he banged at the layer. Finally, a small hole appeared. What they assumed to be plaster was not plaster but a thick layer of cement. Just then, a guard was seen running towards their cell. He came to the cell and tried to switch on the light. Since the bulb wasn't there, there was no light. The guard, a little puzzled, muttered something and went away. The three quickly changed back into their normal clothes and lay down on their beds, expecting the guard to come back with the keys. Though he did not return, the plan for the breakout that night was abandoned.

A fist sized hole had appeared in the wall, which was visible from the outside as well. This was the wall along which cycles of people coming to the recruiting office were parked. The prisoners were apprehensive that the hole would be detected and the game would be up. However, no one took notice and the plan remained intact.

Harish had been uneasy about the plan all along and finally shared his concern. Part of the plan was to cross the Jhelum River, and he did not know how to swim!!! They came up with possible solutions on how to make him cross, such as using inflated g-suit bags for flotation, or use of planks, etc. Their minds were made up, and the plan remained unchanged. And the preparations continued.

Gary fell ill in the first week of August, so the plan had to be deferred. Meanwhile, a new lot of books arrived. Harish picked up a book titled "Murray's Book of Travels for India, Pakistan, Burma and Ceylon". Going through the



Escape Route Adopted by the PoWs (Map Google Maps)

map, Harish was astounded to see that distance from Peshawar to the Afghan border on the West was only 24 miles. More importantly, and much to his relief, there were no rivers to cross!!! And there were night buses on the route! It seemed too good to be true. While the route was in a completely opposite direction, it was worth a try.

Harish showed Dilip the map and suggested this alternate route. Dilip heard him out and agreed. Gary also readily agreed. The plan involved catching a night bus from Rawalpindi to Peshawar, a distance of 90 miles, getting to Peshawar by day break. From Peshawar, follow the Peshawar- Jamrud railway line to get to Jamrud, hiding by day and walking by night, avoiding contact with humans as much as possible. From Jamrud, make their way to Landi Kotal, then on to Landi Khana, cross the border near Torkham and thence on to FREEDOM!

Gary recovered from his fever and the plan was once again a "GO". There was a long weekend coming up, 13th August being a Sunday and 14th August being Pakistani Independence Day. Sure enough, the new Camp Commandant Squadron Leader W U took off for the weekend. The Warrant Officer in charge of the camp lived on the opposite side of town, and the camp was left in the hands of Corporal M Khan, a lovable, if somewhat simple minded individual. The plan was to break out on the midnight of 12 August. Jafa observed that there was a storm brewing and suggested that they be ready to leave earlier if it starts raining.

A critical part of the plan had to be performed by Kuruvilla and Kamat. Inmates of cell no. 7, which was farthest from cell no. 4, they were required to call the guard on duty at midnight to be escorted for a toilet visit, to draw him away and give adequate time to the escapees.

Dilip, a Maharashtrian donned his green kurta pajama. Gary, from Punjab, and hence the easiest to pass off as a local, wore a shirt and trouser that came in the gift package for Dilip. Harish Sinhji, from Bombay, wore the second shirt from the gift package and the trouser issued by the Camp. There was no alternative but to wear the canvas shoes that were issued at the Camp.

The trio exited the camp as planned, but found a big crowd of people right outside, probably from the cinema hall. They waited for about half an hour, by which time the crowd dissipated and they walked to the bus stand where there was a bus bound for Peshawar. They boarded the bus, praying that it start moving soon. However, the driver waited till the bus was full before starting the trip. The time was about 0230 hours. Enroute, it made a stop at Attock for tea. In the words of the

disappointed escapees, they missed any sense of adventure and it almost felt like "an Ambala – Chandigarh bus ride"! Reaching Peshawar at day break, they alighted from the bus as it entered the town.

They were now on the fringes of tribal territory and aside from very distinctive attire, almost every man carried a weapon and a bandolier. The escapees were conscious that they were inappropriately dressed and were drawing the attention of the locals. They had assumed the identity of airmen of PAF from Lahore, on a holiday to see these parts of the country. Since Harish did not fit into the role, he assumed the identity of an Anglo-Pakistani musician who played drums at some hotel and had become friends with these two airmen.

While waiting at a teashop, it struck them that there may be alerts being broadcast on the radio. They quickly started walking, and a little further on, hailed a tonga for getting to Jamrud road. A nosy man, the tonga wala started interrogating them. The fare of Rs 4/- that he demanded for a short, 10 minute ride and their ready agreement to pay up, the vague location of the non-existent newspaper office that they were supposedly heading for, the fact that it was a Sunday, etc., all made the tonga wala suspicious and gave them some hairy moments. Gary sitting alongside the tonga wala bore the brunt of it. Once they reached Jamrud road, Harish paid with a five rupee note and generously told him to keep the change. This added to the puzzlement of the tonga wala who sensed that all was not right. He wanted them to get back into the tonga. They just thanked him and walked away.

The road towards Jamrud was unexpectedly full of habitation. As the escapees walked past, the locals would stop their work and stare at them. They found the railway line they were seeking, but the plan to follow the railway line towards Jamrud had to be abandoned due to the crowd of curious locals. They decided to continue walking along the highway, with Harish walking on the other side of the road, trailing by some distance. After walking several miles, they saw a check post, with security personnel checking people going through. They hid behind some hedges and bushes for a little while, observing, and decided to make the crossing in a bus. They accosted a young man sitting on a culvert and asked him about the bus to Jamrud. He waved down a bus and they climbed on the roof. At the check point, the luggage of all the passengers was checked. However, the officials seemed to be looking only for food grains, and had no interest in anything else or in checking the identity of the passengers. It was the same story at the five or six check posts that they encountered enroute to Jamrud.

Jamrud was even more in the tribal heartland and the escapees felt even more out of place. There were dire warnings posted on placards and sign boards to outsiders about the "DOs and DON'Ts" of tribal areas. This was untamed land, where the law of the land was the tribal jirga. They had originally planned to get beyond Jamrud and leave the road. They observed that the landscape was barren, the houses built like fortresses, separated from one another, and lookouts posted at vantage points, which would have made it impossible for them to hide their movements. They decided to continue walking along the highway, though they continued to attract the attention of the locals. A small boy rolling an old tyre accosted them and started asking them awkward questions, even voicing his view that they were Indians. They shook him off and thought it was best to get back on a bus. Posing as vacationing Pakistanis who had come from overseas, they sought the assistance of a youth sitting on the roadside. The youth soon stopped a bus heading for Landi Kotal and they

Military aviators are formally trained in aspects related to survival in hostile territory through specialised training modules. The United Kingdom has the "Defence Survive, Evade, Resist, Extract Training Organisation", which trains personnel of the British Armed Forces in survival techniques, evading capture and resistance from interrogation, prior to overseas deployment. The USA conducts the "Survival, Evasion, Resistance, and Escape" (SERE) training, with a similar aim and a motto, "Return with Honour". The IAF conducts the "Jungle and Snow Survival" Course for their aircrew; additionally, aircrew required to fly over the sea are given sea survival training. In the IAF, aspects of "Escape and Evasion" are an essential component of the Mission Briefing, even for training sorties.

There are numerous examples of attempted escape from PoW Camps by the combatants interned during various wars. Perhaps the most spectacular attempts may be that of Wing Commander Douglas Bader of the Royal Air Force (RAF). A flying ace of World War II, he was individually credited with 20 or more aerial victories, in itself a remarkable feat. What makes it even more remarkable is the fact that he was a double amputee when he achieved this. How he lost his legs in an air crash, his retirement from the RAF, how he fought to get back into the RAF and took part in WWII is another story. His last kill was a Messerschmidt-109F, but his own plane was damaged during the fight, and he had to bale out. In the process, he lost his right prosthetic leg. His missing right leg was recovered from the wrecked Spitfire, and as soon as it had been repaired, Bader made his first attempt to escape. A few days later, a British Blenheim bomber taking part in a raid against Germany flew over his PoW camp in France and para-dropped a wooden case with his prosthetic leg and associated bandages, socks, straps, etc. Bader would try to escape three more times over the course of the war, since he was determined to be "a plain, bloody nuisance to the Germans". The Germans were forced to take away his prosthetic legs at night to prevent further escape attempts. He was later transferred to Colditz Castle PoW Camp, which was considered to be escape-proof.

More recently, in June 1995 Captain Scott M Grady of the US Air Force ejected over Bosnia, while carrying out a patrol to ensure a NATO imposed No-Fly Zone. The two aircraft F-16 formation had gotten airborne from an air base in Italy for patrolling over Bosnia. He was shot down by a Surface to Air Missile and ejected from his aircraft over Bosnian territory. He managed to stay alive for six days, evading capture, surviving and living off the land, till he was rescued by the US Marines. The Hollywood movie, "Behind Enemy Lines" is supposedly based on his story of ejection, survival and rescue.

climbed on the roof once again. Landi Kotal was just 5 miles short of the Afghan Border. They reached Landi Kotal at 0930 hours with no further misadventure.

Approaching a tea shop, they inquired about Landi Khana, their next destination. Nobody seemed to know Landi Khana and the locals generally passed the query around. One man seemed to have an idea and said it was some 4 miles away. One taxi driver agreed to take them for Rs. 30/-. Not wanting to repeat the mistake they made with the tonga wala, they said it was too much. Noticing that all the locals were wearing Peshawari skull caps, Dilip bought caps for themselves too. Meanwhile, the taxi driver yelled loudly that he would take them to Landi Khana for Rs. 25/-.

As they started moving towards the taxi, someone addressed them from behind. They turned around to find a middle aged bearded, bespectacled man. He started grilling them about who they were and what they wanted, etc. It turned out that the man was the Tehsildar's clerk. He was strolling in the market when he heard mention of Landi Khana. Landi Khana no longer existed and had gone out of existence decades ago! He suspected that the three were Bengalis, trying to flee Pakistan. Their earlier disappointment at the lack of adventure proved to be short lived. There was suddenly plenty of excitement now!

They were taken under armed escort to the Tehsildar's office, where the Tehsildar grilled them. They maintained that they were airmen of the Pakistan Air Force, who were on casual leave. A flash of brilliance and Dilip asked to speak to Air Headquarters. He initially tried to get in touch with the Provost Marshal, but fortunately for them, he was not available. He then thought of Squadron Leader U H, their former Camp Commandant, who was now an aide to the Chief of Air Staff (CAS). Getting through to him, Dilip told a bewildered U H in code what happened. When he caught on, U H spoke to the Tehsildar and told them that they were airmen of the PAF, but were wanted men. He told them to keep them in custody without any physical harm. Meanwhile the officials going through their luggage discovered their PoW ID Cards. Unable to read English, they did not realise that the three were Indian PoWs. When their true identity was discovered, there was furious reaction. The escapees thought it was the end of the road for them and that they would be shot dead. However, U H had made a few more phone calls. The Political Agent of the area intervened, had their handcuffs removed and treated them to a sumptuous lunch. A little later, PAF police came and took them back to Peshawar. Fortunate to be alive, the escapees believed that they owed their lives to Squadron Leader U H.

Meanwhile, at the PoW Camp, Chati held fort, lending a semblance of normalcy. At about 1100 hours, the escape came to light when there a call from the office of the CAS. In the immediate reaction, the camp officials considered putting one of the PoWs in the hole and shooting him dead to show that they had caught the attempted breakout. Fortunately for the PoWs, nothing like that was done.

In Peshawar Jail, the re-captured PoWs were subjected to humiliation and ill-treatment. Back at Rawalpindi, a furious Squadron Leader W U ordered a Court Martial and awarded them 30 days of solitary confinement.

After 18 days, all prisoners of war were allowed to celebrate Janamashtami, after which the solitary confinement ended. On 01 December 1972, the PoWs were finally repatriated to India.

The escape attempt was made possible due to the audacity, ingenuity, detailed planning, perseverance and support from the other PoWs. Individually, it called for great courage, adaptability to change plans, and quick wits when faced with sticky situations. Perhaps the fact that they were young and unmarried emboldened them further to take the risk. They were aware that a misstep could land them in deep trouble and that their lives were at stake. Yet the fact that they went ahead speaks volumes for their guts. That they were done in by an outdated map, was ironical. Be that as it may, they certainly had an adventure of their lifetime.

(Note: This article has been compiled from the following resources:-

- "Escape Attempt from Rawalpindi PoW Camp" written by Wing Commander Harish Sinhji and included in the book "My Years with the IAF" written by Air Chief Marshal PC Lal.
- https://www.thebetterindia.com/116354/escape-iaf-pilot-prisoner-of-war-pakistan-dilip-parulkar-malvinder-grewal-harish-sinhji
- https://theprint.in/opinion/indian-prisoners-of-war-escape-plan-pakistan-1971/22727/
- https://yourstory.com/2016/01/dilip-parulkar/amp
- https://en.wikipedia.org/wiki/Defence_Survive,_Evade,_Resist,_Extract_Training_Organisation
- https://en.wikipedia.org/wiki/Survival,_Evasion,_Resistance_and_Escape
- https://www.rafmuseum.org.uk/research/online/exhibitions/ douglas-bader-fighter-pilot/prisoner-of-war/

The daring escape from a Prisoner of War camp in Rawalpindi was made into a movie "The Great Indian Escape" a few years ago by film maker Taranjit Singh Namdhari.)



Air Marshal S Harpal Singh, PVSM, AVSM, VM (Retd) was commissioned as a fighter pilot in June 1980. He has about 2500 hours of flying experience mainly on MiG 21, MiG 23, MiG 27 and MiG 29 aircraft. He has commanded a MiG 29 Squadron and has also been a Chief Operations Officer at an Air Force Station. He has commanded two Air Force Stations in the West and East respectively. Besides his DSSC Course, he has also attended the Senior Officers Course at National Institute of Defence Studies, Japan. He has been the Deputy Commandant College of Air Warfare (CAW) and has held important appointments in the strategic arena. He was Senior Air Staff Officer of SWAC and thereafter the Director General (Inspection and Safety) of the IAF till his superannuation in May 2019.

A ONE OF A KIND RESCUE MISSION

Lieutenant General Baljit Singh, AVSM, VSM (Retd) was commissioned into the Regiment of Artillery in 1956. He superannuated from service in 1992 after a distinguished career spanning 36 years. He was invited to the Board of Trustees of World Wildlife India in 1990 and served two terms therein.



Humanitarian Assistance and Disaster Relief encompasses a variety of missions. In this short narrative, the author describes an 'out of the box' humanitarian assistance rescue mission.

"Things came to a head in 1990, when in……. November ULFA militants laid siege to…… Hindustan Unilever Ltd's Doom Dooma Tea Estate, forcing the Company to secretly airlift its officials." Mint.

One early morning around mid-November 1990, my Staff Officer entered my office to inform that a civilian visitor wished to meet me. And in the next breath, he stated *"the gentleman tells me that you are expecting him Sir, and as such I have neither enquired his name nor his purpose"*. I had given no such commitment but on an impulse asked for the visitor to be shown in.

Elegantly dressed, poised, courteous of speech and manners, the gentleman left me baffled with his opening utterance, "General, no doubt that by now the Prime Minister's Office (PMO) would have informed you of our dire predicament but I would be happy to state firsthand the nature of assistance we seek and the urgency…." I realized that if indeed he was directed to Headquarters Eastern Command by the PMO, then the visitor ought to be meeting the Army Commander.

So on a pretense, I looked at my watch and said nonchalantly: "please excuse me for a moment, I have an appointment with the Army Commander…." and called my Staff Officer to keep him company.

The Army Commander was on the phone and from the exchanges of his conversation, I realised that he was talking with the Army Chief. He looked up with a smile and asked "do you have a visitor in your office?" I confirmed so, and the Army Commander said *"time and secrecy are of essence, so listen to him carefully and make fool-safe arrangements as the onus of success has been placed on us"*.

My visitor was the number two in the Hindustan Unilever Ltd.'s (HUL) hierarchy and had landed at Kolkata in an empty chartered aircraft. Briefly stated, his mission was to descend upon the make shift air landing strip (of World War II era) inside their Doom Dooma Tea Estate, in the vicinity of Jorhat at 2300 hours that evening and evacuate about a hundred of their managerial staff, their wives and children and take off the soonest for Delhi! Arrangements for swiftly transporting the evacuees from their living quarters to the air strip had been ensured. And that they had the means to light up the air strip for the midnight landing and takeoff by the aircraft.

Kidnappings for ransom, associated violence and downright extortion of large sums of money at gun point was so rampant in Assam in the mid-1980s that even the management of large industrial enterprises such as the Tata group had entered into unethical compromises. But that had significantly emboldened the ULFA cadres to further ratchet up their reign of terror.

A school friend of mine, Rameshwar Singh (scion of an erstwhile Princely State in Himachal Pradesh) who had refused to compromise, was shot dead in his office in broad daylight. With this background upper most in my mind, I had to act with utmost haste.

I called up the Divisional Commander at Silchar, narrated the situation and luckily for



Tea Garden in Doom Dooma Area, Assam

HUL, they had a Brigade on the outskirts of that very Tea Estate, training in counter insurgency, rapid reaction missions. And in the thirty minutes or so of uninterrupted conversation, the two of us had conceived the broad contours of the plan of action, hinged around utmost secrecy and felt confident of its assured outcome.

The Indian Air Force elements at Jorhat were also coopted into the plan to simulate joint Army – Air combined night training in the midst of which the chartered plane would make a landing and takeoff with its human cargo.

That night, the Divisional Commander called me around 0100 hrs and confirmed the success of the rescue mission. My visitor of the previous day requested my wife and me to dinner in one among Kolkata's five star establishments which was of course graciously declined by us. However, he persisted that could he at least call on us in the evening as "we may never have an opportunity to meet each other again…." And he arrived with an exquisite, custom designed, HUL tea leaf, gift container! That tea brew was a heady experience for nearly a month, but that container remained on display in our home for almost two decades!



Cooch Behar Airport as it is presently. (Photo Courtesy www.anandabazar.com)

DECISION DILEMMA
– To Eject or to Glide and Land

AN UNSUNG HERO:
FLYING OFFICER RAJESH 'LALOOLEE' LAL

Risk Taking is an extremely important character trait for the men in uniform, especially so for fighter pilots. A pilot may choose not to eject, and may attempt an emergency landing – in which a split second error can result in a crash landing. Air Marshal Harish Masand narrates a true life incident from the 1971 War.

I was a young Flying Officer with very little experience, flying Hunters in 37 Squadron, The Black Panthers, from Hasimara in North Bengal when we went into action in the 1971 Indo-Pak War. You could call me one of the sausages produced in a factory as a result of the rapid inductions in the Air Force post-1962. Due to this, our course was given just 11 odd hours on Hunters in Operational Training Unit in 1968, instead of the usual 50 hours, and sent to operational squadrons. In 1968-69, we had some 52 pilots each in both the Hunter squadrons in Hasimara against an establishment of 20, with me as the 35th in seniority in 37 Squadron and little prospects of flying. How we managed to get some flying is another story.

By December 1971, I personally had barely 240 hours on Hunters in close to four years of service. However, looking at the positive side, our training was hard, and the slightest mistake or non-performance saw pilots grounded and on the way to ATC and other courses. So, while the number of flying hours was meagre for all of us, every sortie mattered in adding to the skill levels. Most young pilots did well during the 1971 operations and gained combat experience early in their careers which stood them in good stead later. This story is about one such young pilot who performed way above expectations and his experience level, named Flying Officer Rajesh Lal whom I fondly called 'Laloolee'.

By end May 1971, we had been put on alert and were standing by at 15 minutes readiness with four aircraft in a strike configuration, apart from the two aircraft on Operational Readiness Platform. The latter duty was much sought after in the afternoon shift since it allowed an armed patrol at the end of the day and mock combat with Gnats from Bagdogra, which was of great training value. We were permitted to engage in such combat even though our guns were loaded and all of us got used to just using the camera for the shots that you got. At the same time, our squadron was given an additional task of Fighter Reconnaissance (FR) and we had six aircraft modified with three cameras by about July/August 1971. All this further curtailed the flying training.

By 6th December 1971, we had achieved complete air superiority in the Eastern Theatre and we started taking younger and less experienced pilots for missions in support of the Army. On one such mission on 10th December against the Brigade Headquarters at Lalmunir Hat, Rajesh Lal, fondly known as "Laloolee" by friends, was my wingman. After the attacks, we turned Northwards towards base when Laloolee called up



37 Squadron IAF officers in 1971. Flying Officer Rajesh Lal is fifth from left in the first standing row.

to say he had lost power. Even at full throttle, he was barely getting 210 Knots at 3500 odd feet that we had pulled up to after the attacks. He wanted to eject but I convinced him that we had a zero-level ejection seat and we could wait a little before pulling the handle. I gave Laloolee the course to maintain and a speed of 230 Knots in a slight descent, the best glide speed of the Hunter, so that we could get the best distance out of his power-assisted glide. While Laloolee did that, I kept weaving from one side to another just over him at tactical speeds to provide him tail cover and to protect him just in case a stray Sabre bounced us.

While we were chugging along like this losing height steadily, Squadron Leader AA Bose, the senior flight commander, who was also airborne on some other mission came up on the R/T (Radio Telephony) and asked Lal to eject. Squadron Leader Allan 'Mascy' Mascarenhas, just below him in the hierarchy in the squadron, immediately called and said, 'Khappe is handling it, let him do it', Khappe being my pet-name. Laloolee and I agreed to wait till 500 feet, which would be safe enough for him to eject and by which time we would be well in our own territory as per my estimates. While we were passing through about 1000 feet, I saw Cooch Behar airfield to our left at about 10 o'clock and 3 to 4 miles away. Cooch Behar was about 1200-1500 yards long and I asked Laloolee whether he could put the aircraft down there. This was a tough call to make on an inexperienced pilot, but without any hesitation, Laloolee replied he had Cooch Behar in contact and could do this. My reasoning also was that the aircraft, BA 347, he was flying was one of those modified with cameras for the FR role and we had precious few of these.

Rajesh Lal gently turned left and headed for an approach on Cooch Behar. I kept monitoring his approach from a little above him while weaving over him. He did the approach extremely well and touched down right on the dumbbell at the beginning of the runway. However, due to the setting sun right in his eyes at that time of the evening with a South Westerly runway direction of about 240, he misaligned the aircraft just a bit at the last minute and soon after touch down, went off the runway to the left. Despite considerable damage to the aircraft, the aircraft stopped just short of the fence on the other side and I saw Laloolee jump out of the aircraft and run as far as he could in case the aircraft caught fire. I even recall calling out in an excited manner, 'Run for your life, Laloolee', on the radio just to let everyone know that he was safe even though I knew Laloolee himself could not hear me. If I recollect correctly, Rajesh also had less than 100 hours on the Hunter at that time and was not fully operational.

Laloolee was soon picked up by a Mi-4 helicopter from Hasimara and was back with us that very evening. Considering his limited experience, the way he calmly handled the situation making his best attempt to bring back the aircraft was indeed commendable. In my eyes, he would always remain an unsung hero for this act. Our bonds of friendship still remain strong and we meet, whenever we get the opportunity and our paths cross, as long-lost friends sharing great memories of those wild and fun days.

(Note:- The account of this episode in PVS Jagan Mohan and Samir Chopra's 'Eagles over Bangladesh' at Page 276 is incorrect and at variance from the one narrated here. The errors were immediately pointed out in a review of this book by the author published as 'Eagles over Bangladesh: Getting the Facts Right' in VAYU III/2014 pp. 110-114 available at https://www.vayuaerospace.in/Issue/202005312051329266.pdf)



Air Marshal Harish Masand, VrC, VM (Retd) was commissioned as a fighter pilot in December 1967. During the liberation of Bangladesh in 1971, he was awarded a Vir Chakra for gallantry while flying Hunter aircraft from Hasimara. In his distinguished career, he has inducted the MiG-29 as a Squadron Commander in 1987 and the Su-30s as the Base Commander in 1997. A DSSC graduate and a flying instructor, he has served as an instructor in most establishments. He is also an alumnus of the Air War College in USA. After retirement in 2006, he settled down in Mhow, writing and speaking on defence and national security matters.



IAF aircraft airlifting NDRF Team for deployment before Cyclone Yaas May 2021.

AIR TRANSPORTATION – The Crucial Asset for Rescue and Relief

Our countrymen have often witnessed our Air Force aircraft evacuating our citizens from distress zones, from flood affected areas, ferrying supplies and relief material besides other activities in times of calamity. An overview of the role of Air Transportation in disaster management follows.

Emergency Management

Disaster or Emergency management helps nations reduce vulnerabilities and cope with the aftermath, reducing mortality and economic loss from the disaster. Disaster could be caused by an act of terror, industrial accident, public disorder, natural calamity like earthquake, fire, cyclone etc. Ideally there is a need to anticipate potential risks and plan to reduce probability of occurrence. But disasters will occur and would require a graded response. **Disaster management is all about the '4Rs' - Readiness, Response, Reduction (Mitigation) and Recovery.** The first stage is the incident location and gravity assessment so that action can be directed. An aerial survey is the fastest and best means to achieve this. Aircraft with specialised surveillance cameras, helicopters with observers, Unmanned Aerial Vehicles (UAV) with special day and night payloads are ideally suited for this. They will be able to instantly communicate the same through data transmission and through radio instructions. Stage II is delivery of initial men and materials for immediate rescue. Heavy equipment from far-flung areas and foreign lands is moved by large transport aircraft to nearest functional airports. Further air movement could be through

heavy/medium lift helicopters. The most critical equipment needed initially is to clear rubble to search for survivors and basic survival necessities like drinking water, food, first aid kits, tentage and blankets, emergency lights, and communication kits, including cell-phone chargers. After the immediate threat to human life has been handled starts the recovery stage. Aerial supplies through helicopters or fixed-wing aircraft drop to contain famine or epidemic is the next stage. Positioning doctors, medicines and food supplies are crucial. Air operations are speedier, allow flexibility, and are more scientifically executed.

Disaster Management in India

Nearly 55 per cent of India's landmass is prone to earthquakes; 68 per cent is vulnerable to drought; 12 per cent to floods; and 8 per cent to cyclones apart from the heat waves, and severe storms. The Disaster Management Act of 2005 provides the blue print for the National Disaster Management Authority (NDMA) and clearly specifies the roles of the Centre, the State, and the district authorities. On the basis of the Act, the Disaster Management Policy of India was framed in 2009. The orientation was changed from a relief-centric to a holistic approach involving diverse scientific, engineering, social and financial processes, and encompasses prevention, mitigation, preparedness, response, relief, and rehabilitation. Due to resource constraints, the State and the district levels invariably have to use military and central help. For earthquakes, tsunami, floods and cyclones, Home Ministry is the nodal agency. Other disasters like drought (Agriculture), biological (Health & Family Welfare), Nuclear (Atomic Energy), air accident (Civil Aviation), and rail (Railways) are handled by specialised ministries. Concurrently, the National Institute of Disaster Management (NIDM) at New Delhi focuses on human resource development, capacity building, training, research, documentation, and policy advocacy. National Disaster Response Force (NDRF) comprising 144 specialised teams have been trained for various types of disasters. Four battalions



Upper Image. IAF helicopter evacuating stranded persons during J & K floods 07 September 2014 (photo courtesy 5dariyanews.com). Lower Image. IAF helicopter lands on a road to deliver relief material in Saurashtra, Gujarat floods 2015. (photo courtesy MoD)

are trained to handle chemical, biological, radiological and nuclear disasters. Notwithstanding, the civil administration's ability often falls short. As a result, they rely on the Armed Forces for major emergency responses. During the Sikkim earthquake of September 2011, the State and the central authorities along with the NDRF had fallen short in terms of personnel and logistic backup, and the Armed Forces - primarily the Army and the Indian Air Force (IAF) - were called out for response and relief operations.

Military-the Ultimate Back Up

The primary task of Indian Armed Forces is to guard the national borders. For disaster response, military has a secondary role except in the case of chemical, biological, radiological and nuclear events. The National Disaster Management Policy acknowledges the role of the Armed Forces in disaster management and states that the Armed Forces are called only when the coping capability of the civil administration is exhausted. It, however, admits that in practice (as has been in the past) the Armed Forces are deployed immediately and they have responded promptly. The Administrative Reforms Commission had recommended that the military should gradually be relieved from disaster handling role. Discipline and efficiency is the first demand in disaster response and relief tasks, which are often dangerous missions and the military invariably is in a position to bring order in post-disaster operations. The required wherewithal including the command, control and communication, are available with the field formations. Preparing for military operations other than war (MOOTW), of which disaster is the main component is a part of military training. At the national level, the Chief of the Integrated Defence Staff is a part of the National Executive Committee (NEC) of the NDMA.

Quick Response Capability of IAF

The transport and helicopter fleets of the IAF are the round-the-year work horses for disaster relief. Reconnaissance aircraft are also often used. IAF has its own emergency response teams co-located with major transport bases at Hindon, Palam, Bengaluru, Guwahati and Chandigarh. It also has Rapid Action Medical Teams (RAMT) positioned at

It was crucial for all relief operations to first make the runway operational. IAF pilots landed on the partial runway to move critical repair equipment. The airbase was made fully operational in 48 hours

vantage locations. All IAF bases have coordination in place with local Indian Army units and the NDRF battalions, all of which are manned by uniformed para-military personnel.

The IAF has a sizeable fleet of over 200 fixed wing transport assets and over 400 helicopters. The C-130J can carry loads up to 33 tons including 74 stretchers. Forward looking infrared systems, night vision capability, and all-weather operations are a big asset. The aircraft's optimised engine power allows superior short-airfield performance. Boeing C-17 Globemaster III additional roles include medical evacuation and airdrop duties and the aircraft has the ability to operate from short and rough airstrips. With its 77.5 ton lift capability, it is ideal for mass casualty evacuation, VIP evacuation, nuclear contingencies etc. and many other roles. Air-ambulance is another role that supports disaster rescue and relief. Chinook helicopters can carry goods and cargo weighing up to 9.6 tonnes. The helicopters have greatly enhanced IAF's Humanitarian Assistance and Disaster Relief (HADR) capability, including medical evacuation, search and rescue missions, and aircraft recovery. Chinook is also suited for operations in the Himalayas and has the capability to ferry heavy cargo like road construction equipment over difficult terrain.

A Recap of Some HADR Operations by the IAF

Coping with Cyclones. Cyclones invariably require air rescue operations. During the 2009 Cyclone Aila, IAF flew island-hopping in flood affected West Bengal often risking helicopter safety on soggy ground. India's handling of the Category 5 super cyclone Phailin in Odisha in 2013 won international praise. The extremely severe cyclonic storm Fani in Bay of Bengal in April 2019 involved moving around a million people to safer places. The death toll in such storms has greatly reduced because of such proactive actions. Cyclone Vayu of 13 June 2019 generated gale winds of 145 km per hour gusting to 160 km per hour over the Gujarat coast. IAF C-17s airlifted 154 NDRF personnel and their load from Patna, 152 NDRF personnel from Arakkonam and 160 personnel from Vijayawada to Jamnagar. IAF helicopters were augmented and in place in various places in Gujarat. Cyclone Yaas hit India's East coast in May 2021. IAF was used to deploy many of the 115 NDRF teams in five states, and rescue and relief teams of the Indian Army, Navy and the Coast Guard were also deployed in the coastal districts of Odisha and West Bengal. The extremely severe cyclonic storm Tauktae that hit India's West coast on 16-17 May 2021 was the strongest tropical cyclone to make landfall in the Indian state of Gujarat since the 1998 Gujarat cyclone. 4700 personnel in 100 teams were mobilised across six states. Both these disasters took place during the peak of the Covid-19 pandemic.

Earthquake Response. During the 2001 Bhuj Earthquake, the runway at Bhuj air base itself was cracked. It was crucial for all relief operations to first make the runway operational. IAF pilots landed on the partial runway to move critical repair equipment. The airbase was made fully operational in 48 hours and the follow up aerial rescue and relief won national praise. On 26 December 2004, when a 9.1 Richter scale undersea earthquake produced devastating Tsunami waves as high as 65-100 feet across the Indian Ocean region, the IAF swung into action. IL-76, An-32s, HS-748, Do-228 aircraft and helicopters were all pressed into service for the relief and rescue operations in Andaman and Nicobar Islands. At the Southernmost airbase of the country at Car Nicobar Islands, IAF lost 116 personnel and families. The base was quickly recovered with the help of Indian Navy and made operational. IAF was also the first responder during the earthquake in Nepal in April 2015. The world praised India for its "remarkable" response and described the country's disaster management capabilities as sophisticated and greatly appreciated India playing a regional role.

Facing the Fury of Floods. Flood relief by Army boats, Air Force helicopters, and aircraft is an annual feature. During the Kosi river breach in Bihar in 2008, which was declared a national calamity, IAF saved over a thousand people by air evacuation. The flash floods often dubbed as 'Himalayan Tsunami' which ravaged the states of Uttarakhand and Himachal in June 2013 saw gallant and spirited rescue missions flown by IAF transport and helicopter fleet as part of 'Operation Rahat'.

Evacuations. IAF and Air India also played a major role in evacuating 4640 Indians and 960 foreign nationals of 41 countries from war torn Yemen in March 2015 under grave risk conditions. Eleven evacuation trips were undertaken by IAF aircraft. In August this year, IAF C-17 heavy-lift military transport aircraft brought back 168 Indian and foreign passengers from Kabul amidst the Afghanistan Crisis and another 87 were evacuated from Kabul to Dushanbe.

Miscellaneous Aid. On 04 September 14, Male suffered a major drinking water crisis with the breakdown of its main RO plant. The city had to be sustained daily with over 100 tons of drinking water till the plant was operational again. The IAF deployed three C-17 and three IL-76 aircraft to airlift packaged water to Male.

To get an idea of IAF rescue operations, I would like to bring out some actions done within four months in 2018. On 30 May 2018, a major fire in New

Delhi's Malviya Nagar was brought under control by IAF's Mi-17 helicopters using Bambi Buckets to drop 8000 litres of water picked up from the Yamuna River. On 5th June 2018, the 'Himalayan Dragons' based at Air Force Station Sarsawa undertook a challenging casualty evacuation of three Israeli nationals whose vehicle had fallen down in a gorge on the way to Rohtang Pass. On 13 June 2018, a Chetak Helicopter of IAF evacuated two lying casualties to Jammu from a location at 8800 feet altitude, injured in a bus accident in Bhadarwah in J&K. On 15 June 2018, three Mi-17 helicopters undertook operations in flood affected areas of Tripura. On 18 June 2018, a Mi-17 V5 helicopter doused the flames on a merchant vessel MV SSL on the shores of Sunderbans using Bambi bucket operations carrying 15000 litres of water in six shuttles.

For three months, starting 18 June 2018, the IAF created an air-bridge between Pithoragarh and Gunji, to airlift 1080 registered passengers to Gunji to enable them to continue their journey for the auspicious annual Kailash Mansarovar Yatra. On 14 September 2018, an IAF C-17 aircraft airlifted 55 tonnes of relief material to Bangladesh, which had witnessed a surge in Rohingya refugees fleeing violence in Myanmar.

Some areas of J&K are cut-off every winter during heavy snow-fall. The valley itself gets cut-off a few times each year. IAF sets up an air-bridge to move stranded men and materials between Jammu/Udhampur and Srinagar/Leh. Similarly, helicopters also rescue skiers during landslides. IAF has helped Power Grid Corporation to re-erect towers and restore electricity in Kashmir during heavy snow when some High Tension towers fell. There are such unending stories of support to the countrymen in distress.

IAF's Covid Relief Effort

The speed and distance that the IAF covered during the recent Covid crisis was indeed exemplary. Air Chief Marshal RKS Bhadauria, the then IAF Chief said with pride that the IAF flew over 1500 sorties, 3000 hours and 2 million kilometres equivalent of 55 times around the globe while supporting the national effort for Covid-19 relief, in just one-and-a-half months. IAF planes brought aid from abroad, and distributed that aid within the country, working round the clock. Critical aid involved moving empty Oxygen trucks to the Oxygen plants to save time, and moving life-saving medical equipment, containers, ventilator units and oxygen cylinders across the country. With its massive logistical muscles, the IAF was able to fly in and out at short notice by organising manpower and aircraft in mission mode. A C-17 aircraft flew a gruelling 35 hours to ferry 37 tons of oxygen cylinders from the UK to Chennai. A dedicated operations room was set up for planning the movement of aircraft and aid. *"…for all the training that we get, we look for an opportunity to pay back (the country)…this (the mitigation mission)"* said Air Vice Marshal Ranade. IAF brought in 120 oxygen containers from abroad, and over 685 tankers have been transported within the country. IAF had pressed in six types of aircraft, including AN-32s and the Super Hercules C 130s. In all, 12 heavy-lift and 30 medium-lift aircraft had been earmarked for Covid-19 duty. The smaller aircraft like Dornier 228 were flying 25 to 30 sorties a day for short distance critical moves.

Musings

A tendency to over-rely on the military has stunted the initiative, responsibility and accountability of the civil officials. Flouting norms of construction, ignoring drainage and flouting industrial safety norms often with connivance of officials are causes of man-made disasters. Flood and cyclone prone areas are well known. The civil administration needs to prepare for it.

India has come a long way since the 1999 Odisha Cyclone, 2001 Bhuj Earthquake and December 2004 Tsunami, both in capability and response. Air is always the first responder, whether it is the IAF transport or helicopter fleet or the Indian Army and Navy's helicopters. IAF can quickly move equipment, personnel and NDRF teams. Acquisition of Boeing C-17 Globemaster III and Lockheed Martin C-130-J to augment the existing fleet of Russian IL-76 and An-32 aircraft has given IAF a global reach and heavy-lift capability. A large fleet of easily deployable helicopters makes India a great regional player for disaster management. Air continues to be the fastest means to assess and deliver relief in any man-made and natural disaster.

A centre of excellence for disaster management is planned to be set up in the upcoming Indian National Defence University (INDU). Military leaders and troops need to be trained and updated on the various aspects of disasters. Large numbers of young ex-servicemen are also available for enrolment. A retired Indian Army Colonel is the Director for Disaster Management training at Nashik based 'Yashada' academy, which trains for 'incident response' during Kumbh Mela.

To sum up, the Armed Forces are proud of the fact that invariably they are the *'first to enter and the last to leave'.*



Air Marshal Anil Chopra, PVSM, AVSM, VM, VSM (Retd) has been a fighter pilot, test pilot, and has commanded a Mirage 2000 Squadron, two premier fighter airbases, and the Flight Test Centre, Aircraft and Systems Testing Establishment (ASTE) of the IAF. He retired as the Air Officer Personnel. He has been a member of the Armed Forces Tribunal, and member of the Executive Council of Jawaharlal Nehru University (JNU). A prolific writer and author, he is currently Director General, Centre for Air Power Studies (CAPS).



Upper Image A stranded lady being rescued during Srinagar Floods September 2014. Lower Image. Collapsed houses in Kathmandu Valley after the Nepal Earthquake.

INDIA'S DISASTER RESPONSE SYSTEMS

– Better Prepared, Better Synergy

A macro view of India's refined disaster management structures, and the author adds on his experiences during the Srinagar Floods and the Himalayan Quake of 2015.

The Oxford dictionary describes 'disaster' as a *"sudden accident or a natural catastrophe that causes great damage or loss of life"*. The one constant certainty is that natural and man-made disasters are here to stay, and will get more frequent, sudden, complex, varied, with increasingly disastrous consequences. The COVID 19 pandemic has heartbreakingly brought home the global consequences of a biological disaster, be it in the economic, social, political, health, security dimensions including changing 'the way of life'. With experience and focus we are getting better at disaster management (DM) especially in forecasting and preparation.

National Disaster Management Structure.

India has streamlined its disaster management and response structures in the last couple of decades with a focus on preventing, mitigating, preparing, capacity building and managing disasters. There is specific funding provided. The National Disaster Management Authority (NDMA) is the apex level body to plan and execute disaster response systems. The National Disaster Response Force (NDRF) consisting of specialised battalions is the executive branch, and the National Institute of Disaster Management (NIDM) forms the professional bedrock for research, development and training (train the trainers). A table providing an overview of the apex structure is given on the adjacent page.

Apex Bodies and NDMA.

The High Level Committee (HLC) chaired by the Prime Minister comprising of the group of Ministers (Home Minister, External Affairs Minister, Raksha Mantri, Finance Minister, Agriculture Minister and other relevant Ministers along with key Secretaries) meets

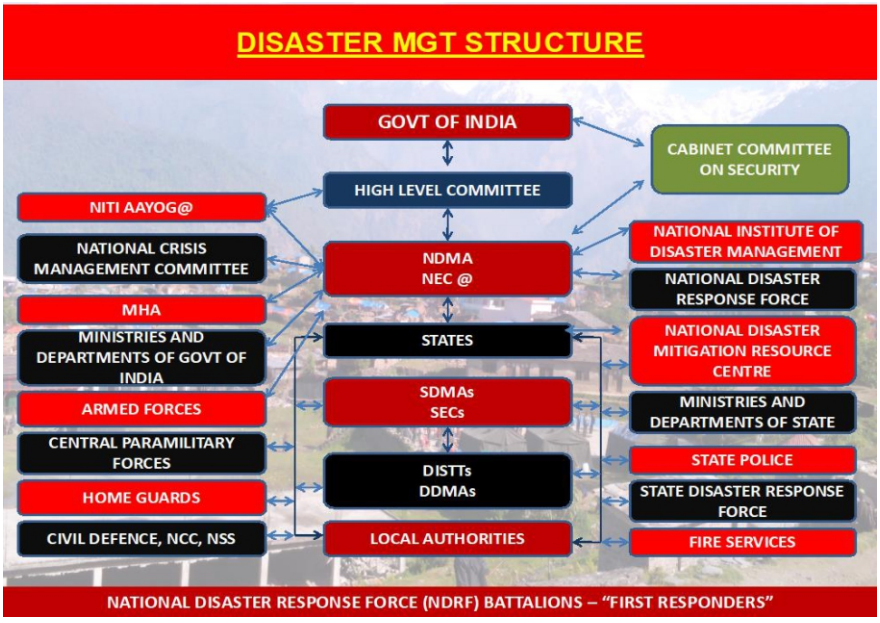
regularly to provide direction and plan for contingencies.

The National Crisis Management Committee (NCMC) chaired by the Cabinet Secretary with all stakeholder Ministry Secretaries, Vice Chairman NDMA, Chief of Integrated Staff (CISC) from the Armed Forces and numerous representatives from Central Armed Police Forces and Police is the apex body which actually plans, responds, oversees the DM and meets as required to review the situation. NDMA is the agency responsible for management of all disasters and providing relief in India, and State Disaster Management Authority (SDMA) is the equivalent coordinator at the State level.

National Institute of Disaster Management (NIDM).

Based in Delhi, the Institute has set up a Southern campus in Krishna District of Andhra Pradesh. Headed by the Vice Chairman of NDMA, the Union Home Secretary is the Vice Chairman of the Governing Body (14 members) of the Institute. NIDM has a multi-disciplinary core team of professionals working in various aspects of DM. NIDM provides capacity building support to various national and state level agencies in the field of DM & disaster risk reduction. NIDM has identified four major natural disaster verticals; geo-physical (e.g. earthquakes, landslides, tsunamis and volcanic activity); hydrological (e.g. avalanches and floods); Climatological (e.g. extreme temperatures, drought and wildfires); Meteorological (e.g. cyclones and storms/wave surges) and number of man-made and hybrid disasters. A few not so common disasters are listed below:-

- Terrorism (Counter-Insurgency).
- Law and Order Situation.
- Serial bomb blasts.
- Hijacking.
- Air accidents.
- Chemical, Biological, Radiological and Nuclear (CBRN) Weapon Systems.
- Ports and harbour emergencies.
- Forest fires.
- Oil field fires and oil spills.



Apex DM Structure in India

NDRF.

NDRF currently has 12 battalions, and 4 more are being raised. These units are deployed as per the vulnerability profile of the country to provide immediate response during disasters. NDRF along with the Armed Forces which gets involved due to their all India physical presence, exposure, experience, capacity and capability to handle disasters are the first responders. Over the years due to continuous exposure (including international aid to Nepal, Bangladesh, Sri Lanka), training and equipment profile, the NDRF has grown from strength to strength and are now a formidable internationally recognized DM force. Each NDRF battalion is equipped with 310 state-of-the-art equipment (keeps getting modernized), which are bricks for different types of disasters, as under:-

- Collapsed Structure Search & Rescue (CSSR) – mainly for earthquakes – 124
- Water Rescue / Diving – 12
- Mountaineering / High-Altitude Rescue – 16
- Medical First Response – 112
- CBRN Emergencies – 46

Pivotal Role played by the Armed Forces.

DM is an important function of 'Aid to Civil Authorities', and is a constitutional obligation for the Armed Forces. **The Indian Armed Forces have the capacity, capability and experience to provide pro-active assistance, while concurrently performing their primary task of safeguarding the integrity and sovereignty of the Nation.** We have always played a stellar role in managing disasters since independence, as duly recognized by the nation. Currently the role is confined to response and immediate relief in the DM cycle. The Armed Forces have the basic training in managing emergencies, but are not specifically trained in DM, however the Armed Forces have a vast training infrastructure for enabling basic capacity development on DM in India.

Some challenges faced by the Armed Forces.

Occasionally, Armed Forces (when not acting as first responders) have been brought in late when the situation goes beyond the coping capacity of the civilian



Indian Army helicopter lands in the Manaslu Region of Nepal to evacuate monks after the Nepal Earthquake April 2015

authorities. We need to earmark and train lead formations, as secondary responders. Armed Forces personnel attend conferences/workshops/exercises organised at the national/regional levels and initiate and participate in exercises on various type of disasters conducted by NDMA/SDMAs. Training in CBRN management, slithering operations and heliborne-insertion, casualty management, high altitude rescue, waterman-ship and training of paramedics can be tasked to the Army due to its domain expertise. In the immediate future, the Armed Forces will continue to be called in aid to civil authorities during disasters, but in the long run this will reduce, as the capacity of NDMA, States and districts are built up and a culture of continuous preparedness is inculcated.

India's Rising Capabilities and Confidence for Handling Disasters.

As Director General Military Operations (DGMO) of the Indian Army from 2014 to 2015, I had the opportunity to witness the functioning of the HLC and NCMC from close quarters during the J&K floods (Operation Meghrahat - 02 to 19 September 2014) and Nepal earthquake (international assistance; Operation Maitri – 25 April 2015 to third week May 2015). Some pertinent and interesting observations are bulleted below:-

- India is a behemoth with tremendous resources, capacity and capability, and years of experience dealing with artificial and natural national and international disasters. Once initiated our juggernaut response is relentless. All ministries, institutions, states, NGOs and even individuals pitch in with full gusto. States have to be actually told to hold their horses before sending their relief convoys, as disaster hit areas have limited lines of communications (roads/avenues) to approach, which needs to be controlled to ensure priority assistance, aid and supplies reach first. Both during Operation Meghrahat and Maitri all actors had to be ordered to hold back. I would like to specially mention the Delhi Gurudwara Prabandhak Committee calling me up and asking for just one plane load to be airlifted to Srinagar/Jammu and Kathmandu and an accessible area of land equal to a basketball court. In return, they promised to provide hot meals to 1000-1500 people every day for as long as we wished. Resources and sincerity of effort to help is not an issue, but it needs proper planning and control, dissemination of directions and timely execution which is more critical.
- The HLC chaired by Prime Minister Modi (who listened patiently and gave very pragmatic inputs and directions, especially when it involved international intervention and relief) met regularly to get updates and for passage of strategic directions, and HCMC met twice a day till the disaster storm had been weathered. I was extremely impressed by the clockwork precision with which HCMC operated. Chaired by the Cabinet Secretary with all stakeholders physically present from Secretaries (Finance, Home, Defence including CISC and tri-services DGMOs, civil aviation, health, telecom, agriculture, mining, railways) to domain experts as requested like Director General Meteorological Department of India, mining and Central Water Commission experts, social activists et al. The affected States are on video call represented by the Chief Secretary, Director General Police (DGP), Chief Engineer etc. Real time updates, requests, recommendations and executive orders were passed to all concerned and feedback taken. It was like any war operations room humming with quiet efficiency with total commitment and professionalism. Vague and negative responses were not tolerated. The mission was to get the job done and accomplish the mission ASAP.
- Liaison officers are placed at both ends; DM command post set up by State administration and NCMC. Currently the Armed Forces invariably become the first responders due to their all India presence. In most cases even when the NDMA / NDRF teams get deployed, their air lift / transportation, logistics and communications are dependent on the Armed Forces. The Indian Air Force (IAF) / Indian Navy (for overseas DM) become the prime carriers. When required civil aviation and merchant shipping assets are also requisitioned.

Operation Meghrahat:

J&K Floods (02 – 19 September 2014)

While the relief and rehabilitation efforts on both sides of the Pir Panjal were commensurate, the Valley hogged all the media limelight much to the chagrin and annoyance of the Jammu region. Flooding on both sides of the Pir Panjal ranges in Valley and Jammu region was so rapid that in some areas like in Srinagar (Jhelum river) and Jammu/Akhnur areas (Chenab and Tawi rivers) the water level rose to above 20 feet in a few hours. In Kashmir Valley, communications were totally cut off where even the Chief Minister could not communicate or meet his immediate executives like the Ministers, Chief Secretary, DGP, Chief Engineer etc. As a matter of fact, all officials were trapped wherever they were located, and only the Army and IAF helicopters and Army rescue boats could operate and marshal them to the Secretariat. All mobile towers were down, and the Army which had its strategic and operational lines functional became the sole communicator. Chaos reigned for the first 36 to 48 hours, and I remember even the Cabinet Secretary depended on the Army and requested us to help him to speak to the Chief Minister and Chief Secretary! Due to a shortage of satellite phones, army personnel with suitable equipment were deployed to help out, and army mobile communication sets were handed over temporarily till the civil administration communications were restored. Here too lies an interesting tale; all mobile towers while located at heights had their generator rooms in the lower locations by the roadside which got flooded. To replace batteries and make them functional Airtel, BSNL, Idea etc asked the Army to help them out.

- Tremendous amount of heavy equipment like boats, outboard motors, generators, food, water, medical kits, pumps, blankets, tentage, waterproofing material for personnel had to be transported from every corner of India, for which IAF pilots worked round the clock. The empty aircraft were used to evacuate people who were non-residents; managing them was a major security task as all wanted to get out first. We were flooded by calls by everybody high and low for special consideration to evacuate their loved ones first! Imagine a boat operated by two soldiers and asking for specific person(s) to be evacuated first from a crowded rooftop filled with desperate people. This was asking for trouble. I advised patience, and people to stay put wherever they are, as they will be safer there, and logistics will reach sooner than later, and never passed on the special request whosoever it came from.
- The evacuation situation was peculiar; only outsiders like tourists and labourers wanted out. For the residents of the Valley there was nowhere to go. Camps were set up in whatever dry land could be found and in higher regions. Logistics supplies to residents were airdropped or supplied by Army boats which included water and essential medicines. The initial sorties from helicopters dropped supplies from a higher altitude due to wires in the urban area, and found the packets especially water packages bursting on landing. Innovative methods had to be adopted. Since water had gone beyond the first floor of buildings there were realistically no roads/indicators for relief workers to navigate which added to the degree of difficulty.
- The Valley was still under counter insurgency operational conditions and all Armed Forces personnel needed to operate with their personal weapons and bullet proof jackets, since operational threats were omnipresent given the ability of terrorists / anti-national elements to carry out terrorist attacks.
- The sensitivities and religion of the local population needed to be factored in. The food contents and preparation, assistance offered by the Gurudwara Prabandhak Committee and even Army assistance to help rebuild / restore mosques needed to be evaluated very carefully, lest the altruistic moves be exploited by anti-national elements.
- The Badami Bagh Cantonment (Cantt) in Srinagar, a family station, also got flooded. In a remarkable feat of 'professional service before self, the Garrison including the women and children pulled out all stops to assist, despite their own hardships. So much so, the majority of the rations and water stored in the Cantt was used to assist the needy in tented camps.



Flooded Srinagar September 2014. An Army Cheetah Helicopter hovers, ready to evacuate.

As a regional power, India will be expected to provide substantial assistance regionally and in our strategic neighbourhood.

Imminent threat of food riots initially at the established camps were averted by timely supply of logistic items from the Badami Bagh Cantt.

Operation Maitri:

Nepal Earthquake (25 Apr 2015)

A major earthquake measuring 7.8 on the Richter scale with its epicentre close to Kathmandu struck on 25 April 2015 setting off a swathe of devastation bringing high human and infrastructural casualties. India immediately sprang to help with its enormous capacities and capabilities. We were the first responders amongst all nations and even before the local administration could realise the gravity of the disaster and respond. The focus was on immediately despatching Army medical and engineer teams, and road clearance detachments, which started moving within hours of the quake. Interestingly the slight delay in sending in our IAF aircraft and Army helicopters was basically to get diplomatic clearance from Nepalese authorities. We needed to be sensitive to the requirements and sensitivities of the Nepal Government and Army while rendering assistance. Major General JS Sandhu, our esteemed Editor of 'Medals and Ribbons' was immediately sent as the representative and liaison to the Nepal Government and Nepal Army. He performed a dedicated professional task in coordinating all relief and rescue operations. In all around 30000 troops, 15 Engineer Task Forces, 84 IAF and Army Aviation planes and helicopters, a Base Hospital, 4 Field Hospitals and over 100 medical teams were involved from the Armed Forces. In addition, the nation swung into action, rushing relief material and logistic support, through few, but broken and uncertain surface communication between India and Nepal where large portions of roads were buried under landslides or simply vanished.

Operation Phutkal

A few words on a largely unrecognized, unreported DM operation undertaken by Army jawans of the high altitude 14 Corps deployed in Ladakh, who are currently bravely and stoically confronting the Chinese in East Ladakh. This occurred during the months of January/February 2015 in the Zanskar Range area impacting the Padam Valley which splits Ladakh North-South. An aerial survey and satellite coverage reported a 700-meter-wide landslide which had created an artificial frozen lake on the Phutkal River at an altitude above 15000 feet, which was 10 kms long and 50 to 300 metres broad. A recipe for flash floods once the ice thawed in early summer by April end, it could devastate everything in its path down the Padam Valley including villages, bridges and the only road through the area. Camps were set up by Army troops at both ends of the artificial dam. Experts from the Border Roads Organisation, Snow and Avalanche Study Establishment, National Hydel Power Corporation, Central Water Commission, Survey of India, Central Institute of Mining and Fuel Research were flown in for expert evaluation, with the 14 Corps Commander overall in charge of the operation. An artificial channel was blasted / dug downstream up to a distance safe to merge with the broader bed of the Phutkal River. By controlled blasting and precision techniques three areas were cleared in the landslide area to release the pressure once water starts gushing out. Since the areas were fairly inaccessible, the Army Aviation performed commendably and flew in almost 7 tonnes of supplies to include explosives, equipment, tentage, digging tools and personnel to the site. Despite the above some foot bridges and minor infrastructure was washed away, but a major disaster was averted.

Conclusion

Statistically India is prone to various types of disasters. NDMA's approach has been of transiting from linear and incremental improvements to a regime of structural reforms and systemic changes. DM has taken deep roots and needs careful nurturing for the next few years. The Armed Forces would continue to be called in aid to civil authorities for managing national level disasters in the foreseeable future. As a regional power, India will be expected to provide substantial assistance regionally and in our strategic neighbourhood. The substantial initial momentum gained to manage disasters must be sustained, to ensure well-oiled, professional, committed, equipped and trained DM machinery and personnel, to face all disaster contingencies, while continuously evaluating fresh types of disasters.



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Damaged buildings at Car Nic Air Base 04 January 2005, within 10 days of the Tsunami

2005 IN CARNIC
– Rebuilding An Airbase

The Car Nicobar Airbase of the Indian Air Force (IAF) was swept away in the tsunami on 26 December 2004. This article brings out the herculean efforts made to make the base operational again.

2005 could well be called the turning point of my life. Time has flown and 17 years have gone by. As I look back at the tsunami on 26th December 2004, the year thereafter unfolds right in front of my eyes. The tragedy and events that followed are so deeply entrenched in my memory that they will only be erased when I am erased from the face of this earth. Seven giant walls of water, almost 50-60 feet high, 1.5 km wide and travelling at 70-80 km per hour lashed Car Nicobar Island from all directions, uprooting all animate and inanimate objects that came its way. Within a matter of minutes, the waves had done their job, and all was quiet again on the pristine island. An earthquake measuring 9+ on the Richter scale had shaken the earth under the ocean with its epicentre at Banda Aceh in Indonesia. It generated millions of ripples under the ocean floor which travelled in all directions reaching land as far as Africa, travelling at 700 km per hour. As these waves reached the continental shelf, many of them rose to become giant tsunamis to hit the land mass facing them.

Buildings lay in a heap, the innards torn wide open and eaten by the sea which claimed lives of their hapless occupants. Left behind were the lucky ones in complete shock; unable to fathom what had happened, trying to find their missing near and dear ones in the debris left behind.



Another damaged building at Car Nicobar Airbase.

Our story starts in the wee hours of the morning of 26 December 2004, Boxing Day, when the Indian Air Force (IAF) base at Car Nicobar was ravaged by the waters of the Andaman Sea in the Bay of Bengal. The Air Force Station at Car Nicobar had lost more than a hundred of its occupants and the station rendered 'Non-Operational' except for the two serviceable helicopters that were flyworthy. All administrative, technical and operational infrastructure had suffered a beating and it would require some doing to get it going again. There was no water, no food and no power supply. On the first night following the disaster, fearing more earth shakes, the survivors gathered on the tarmac near the runway and huddled together, giving each other solace and support under the star-studded sky. In the next three to four days, all of them would be evacuated to the mainland.

'We'- the few good men, were 70 men and officers sent to the islands by the IAF to inject life into the decimated base. We called ourselves 'rehabilitators of Car Nicobar', and my job was to manage operations and coordinate the task force for rescue, relief and rehabilitation work (RRR in short). As we zoomed in to land at 'Car Nic', all we could see was a dirty brown mass of swirling water of the sea, and in this cauldron swam small and large remnants of the IAF base. As we landed on the island, everywhere we looked, there was disarray and destruction.

Chosen from different walks of life and from different air bases all over the country, our 70 member team had a mountain of work staring at us. While the aircraft that we came in prepared to take off with the Vice Chief of Air Staff (who had piloted the plane that dropped us on the island), we promised him that we would get the base back on its feet by the 100th day of the tragedy. Therefore, there was no time to waste.

But where were we to begin? Well, that was the biggest problem. And the problem was compounded by the remoteness of the base with almost no communication, bare minimum food, shelter and the basics that sustain life. Each problem and its solution were intertwined with other problems and solutions, and this made the entire work ahead of us look like a labyrinth; finding our way through this maze was a challenge that we took up with gusto. In doing so, we willy-nilly understood the aspects of systematic problem solving! Larger problems had to be broken down into smaller ones and addressed as such. Looking back, I realised that we were also following the nuances of the theory of constraints, about which, at that time, I had no knowledge!

The story of reconstruction is not about death and gore, but about resilience, rebuilding from scratch, leadership, management, and many more aspects of life. It also was a lesson in survival and showed us that a positive mindset could get us results far in excess of what we envisioned. The tsunami and the aftermath were full of lessons for each one who participated in the recovery. In fact, I do believe that it taught us life lessons never to be forgotten.

Firstly, we understood the importance of effective leadership, or the lack of it. The men needed to be motivated to work hard; their efforts harder than they had ever put in before in their lives. The first thing was to provide for these men, as much a comfortable living as possible, given the circumstances. Sleeping in tents without lights and fans with hordes of mosquitoes ever ready to attack, ablutions in the open, eating very simple and basic food, and yet keeping them fit, was to become a norm. We had to lead by example, and keep the men fired up all the time.

We found that a simple thing like allowing a short call home on the only satellite phone available could do wonders to the happiness quotient of our men. We also realised how fast this morale could hit rock bottom with a careless remark. One of our officers, while casually speaking to the men one evening, made a statement that with the increasing number of aftershocks, the island would soon collapse and sink to the bottom of the ocean. The men were petrified and wanted to go home at the earliest as they didn't want to die for a lost cause! It took a lot of lecturing and cajoling for them to get back on line again. The officer who made that statement, was naturally on the next flight home!

Secondly, we understood the important aspects of logistics management in a disaster situation. To get the right things, in right quantity, at the right place, at the right time when everyone was clamouring for 'more' was a lesson well

> "The work environment post the tsunami is like a grindstone..whether it grinds you down or polishes you up, depends on what metal you are made of."

learnt. This was compounded due to the high volume of logistics needed and low availability of platforms. Continuous dialogues between stake holders ensued at night, and decisions taken to ensure that the bare minimum requirements of the administrative, technical and operational verticals were met. As an offshoot, it ensured wise and optimal utilization of resources and we were forced to innovate and make do with locally available resources.

Thirdly, the very important issue of managing the men – our most important resource! We first needed to integrate this 'group' of men into a 'team' that worked in unison. Communicating with them on a daily basis ensured that they achieved their own little targets, keeping the higher objectives in mind. It was also pertinent to maintain a cheerful and healthy working environment despite the gloom all around, for the team to deliver what was asked of them. Small things like not allowing boredom and negative thoughts, ensuring good health and hygiene measures, motivational talks that worked on their subconscious, entertainment, and ensuring participation in games and sports activities helped in achieving this objective.

Working in such an environment brought to fore the steel in each of us. The IAF has tough training standards and this ensured that a majority came out winners. As a motivation for the men, I modified a proverb and put it up everywhere for all to see. It read, "The work environment post the tsunami is like a grindstone…whether it grinds you down or polishes you up, depends on what metal you are made of."

Another lesson of management that we learnt on the fly was about planning and organising. Plans needed to be kept flexible and simple so that they could be manipulated in fluid situations. Every plan looked good on paper; executing the plan was altogether a different kettle of fish!

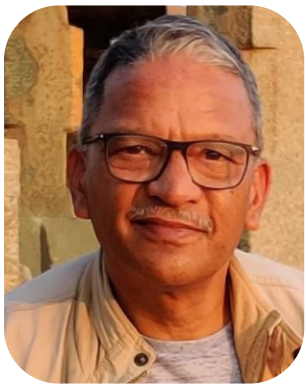
Planning was to be done for the immediate, intermediate and long-term settlement of the islanders. The first task was to get the electronic and physical communication going - be it roads, runways, jetties or the radio transmissions. Subsequent tasks were to plan for rebuilding the infrastructure, arboriculture, and reconstruction of the technical, administrative and operational framework. Overall, we were sowing the seeds of a brand-new Air Force Station of the future.

The last and the most vital aspect that I would like to leave you with is of survival. During the one year that we spent on this island, we practically experienced all the theories of survival that we had learnt of in our academic pursuits. We heard and saw for ourselves survival stories of our brave men and their families who had battled the giant waves. They fought with a demon that they had no knowledge of, and ensured that their immediate actions were able to save many a life. Our own story of working in the aftermath of the tragedy also could be counted as a battle of survival! On a philosophical note, I understood that the fight for survival in any living being is the prime energy that sustains life.

As promised, with relentless energies spent by each of the seventy men, the base was on its feet in the first 100 days. Fighters of the IAF flew in from the mainland to our re-furbished station to prove to the world that the IAF would leave no efforts to get back to fully operational status quickly - always and every time. We were also very proud to have the Chiefs of the Army, the Navy and the IAF with us on that historic day. The visitors saw what we had achieved and we were showered with backslaps, kudos and good shows.

More work continued with the same josh after this event and the base was fully set up, albeit in temporary structures, in the one year that passed. Exactly a year from the time I had stepped on the broken tarmac of the air base, it was time to say good bye. My work here was done and I had another interesting tenure waiting for me in the United Nations Peace keeping mission in the Democratic Republic of Congo.

The tsunami was a tough teacher of all aspects of life and one could go on and on about what we learnt. I was certain, that for times to come, the experiences gained from the angry sea would help us get through the trials and tribulations of life.



Air Commodore Nitin Sathe, a helicopter pilot of the IAF with 35 years of commissioned service, has been a part of many a life threatening and lifesaving mission, both in India and abroad. He has flown almost all the helicopters on the IAF inventory and has 5500 hours of flying experience. He has been Director Training at the National Defence Academy and the Senior Instructor at the Defence Services Staff College. Nitin Sathe retired from the IAF in Mar 2020 and is presently settled at Pune. He is a keen adventure enthusiast and does long distance cycling for fun. He has authored three best selling books so far with more in the offing. Presently he is serving as the Officiating Director of the Armed Forces Preparatory Institute at Mohali, where he is involved in soft skill and SSB training of young candidates.



Causeway being built to connect Akkarapettai

BLACK SUNDAY AT NAGAPATTINAM – Tsunami 2004

The Indian Ocean Tsunami on 26 December 2004 was one of the severest disasters to have impacted several countries in this region. Nagapattinam was one of the most affected towns - a first person account from the Commander of the Sappers who came in for rescue and relief follows.

Time stopped at Nagapattinam on 26 December 2004 at 9.06 a.m. Nagapattinam was a bustling coastal town with a small fishing harbour on the Tamil Nadu coast. The South Indian coast had just been hit by a massive Tsunami. It was a Black Sunday. Although the effect was all along the Southern coast, a massive wave had wiped out the harbour and fishing town of Nagapattinam.

Rushing to Ground Zero

We had been following the TV News on the morning of 26 December, and realised that we need to be ready to move at short notice. Fortunately our disaster relief equipment was in a state of readiness. Disaster and 'Sappers' go hand in hand! Madras Engineering Group (MEG) and Centre, Bengaluru was ordered to move a large column to Nagapattinam, and I led a column of three officers including me, ten Junior Commissioned Officers (JCOs) and 90 other ranks by road and arrived at Nagapattinam by 11.00 a.m. on 27 December 2004.

A Ghost Town

It was a ghost town when we arrived after a long convoy drive, with not a human being in sight. The smell of death was in the air and bodies were everywhere. The Government machinery was paralysed and an eerie pall of



Upper Left. A big trawler being dislodged by the Sappers. Upper Right. Heavy Duty ONGC Crane at work. Lower Left. Sappers constructing a shelter. Lower Right. Taking the Collector out to sea in a catamaran.

gloom hung in the air. After finding ourselves a place to camp, the column got ready. A quick reconnaissance of the town and harbour and we realised that a monster wave, reportedly upto 70 feet high, had swept almost five kms inside, levelling everything in its path. Fishing vessels of all sizes had been carried all over the town by the monster wave. 700 motorboats (catamarans) and 250 fishing vessels of different sizes had been badly damaged. Roads were blocked and the access bridge to Akkarapettai across the Kadavayar River was blocked by several fishing vessels. 5000 homes in that enclave adjoining the fishing harbour, had been flattened. Akkarapettai had faced the brunt of the largest wave and had the maximum casualties and destruction.

The only bridge linking the mainland to Akkarapettai was blocked by many vessels that had been washed onto it. Large cranes were needed to remove them, for relief teams to reach Akkarapettai. A major bridge on the National Highway (NH) between Nagapattinam and Karaikal, had been damaged. All road traffic on the NH was blocked. A bailey replacement bridge had to be launched immediately. The pilgrimage town of Velankanni shrine and church had also suffered and over 300 pilgrims who were resting on the sands were washed away. The whole town smelt of bleaching powder and chlorine, the smell of disinfected death. We had to wear masks for the first few days.

My columns were deployed to clear the roads to allow heavy equipment and cranes into the area. We also made four water points for the town, since ground water had been contaminated. The presence of the Army reassured everyone, and they could see that help had arrived. The Collector of the District was not to be found. For the first two days till 29 December 2004, there was no civil administration in sight.

How Things Unfolded

On 29 December, the Collector from neighbouring Thanjavur District was moved to take charge in Nagapattinam. Once Dr J Radha-krishnan arrived, the administrative machinery slowly limped back to action.

The priorities for the Collector were:

- To get the District Administration functional again.
- To collect all the health and sanitation workers from all over Tamil Nadu to help clear, register and give decent last rites to all the dead. A large number of carcasses had also to be removed and buried. Sanitisation was a high priority. About 800 dead had been recovered in this district, and about 8000 was the figure for Tamil Nadu.
- To distribute Doctors and health staff all along the coastal areas to prevent the spread of disease and infection.
- To make arrangements for drinking water.
- To make godowns and sheds available to store relief material.
- To restore power and essential services.
- To make a realistic damage assessment.
- To clear the fishing harbour quickly.
- To set up relief camps all over the district.

I admire our countrymen and our media. Due to relentless reporting, the whole world took notice of the unfolding tragedy. Aid of all kinds poured in, and we set up a cell along with the district administration to quickly direct aid to the correct place where it was needed. Trucks loaded with relief material drove in from all across the country. The district was flooded with relief material. Within two days there was no storage space, and relief material collected by various communities was just dumped along the roads and NH, including gas stoves, utensils, blankets, old clothes, rice bags etc.

The major nuisance was disaster tourism. People from the hinterland headed for Nagapattinam by road, to see for themselves the disaster and death. They arrived in hordes, impeding traffic and disrupting relief work. These disaster tourists would not lend a hand or assist the locals – they came to just see the human tragedy and take pictures!

Taking on the Challenges

Our primary communication with the Area Headquarters (HQ) was by radio. Daily situation reports (sitreps) were sent to the HQ. My column was divided into three teams of 20 Sappers each with a JCO, and a repair team of 10



Upper Left. The completed Karaikal Bridge. Lower Left. Outboard Motor Repair Team at work. Right. The super-efficient Bob Cat Team.

men, primarily from the EME. We had a Size 2 dozer, two JCBs, one 5 Tonne crane and a recovery vehicle. There was a massive inflow of mechanical equipment from all over the country. Resultantly, we had an additional 10 JCBs, 3 Bob Cats, 5 heavy railway cranes, 4 heavy mobile cranes from the ONGC, 4 portable water desalination plants and ten 30 KVA generators.

A separate bridging column had moved with bailey bridging equipment from MEG & Centre, and reached Karaikudi on 28 December and launched a 70 feet DS Bailey Bridge on 29 December, to successfully restore traffic on the NH between Nagapattinam and Puducherry. After completing the work, the column returned to Bengaluru. The locals went out of the way to help our column with hot food and tea right through the day and night.

Civil Administration

Mrs Shanta Shiela Nair, a Special Secretary with two senior IAS officers were deputed by the Tamil Nadu Government to oversee relief and rehabilitation work in Nagapattinam District. Mr OP Paneerselvam of the AIADMK was sent by the Chief Minister (CM) to monitor all work and report to the CM regularly. The team arrived on 30 December and formed a Crisis Management Centre (CMC) at the District HQ. I was made part of the crisis team and attended all daily meetings, working in close tandem with them. The CMC took care of all coordination required with agencies outside the district, monitored smooth flow of essential services and restoration of services.

Sappers at Work

Meanwhile, a slow return to normalcy was taking place in the town. The surviving locals who had run away, slowly returned from relief camps, to see the remains of their homes and boats. Many families had lost their parents, and stared at a bleak future. They now feared to go back to sea. Our repair column started a campaign to repair the local Outboard Motors, basically Greaves Cotton engines with an improvised propeller shaft. Coastal fishing was sustained by these catamarans. The teams repaired a few every day, but the fishermen were reluctant to go back to sea. So on 03 January 2005, I took the Collector and a local person on a test ride into the sea. It was widely covered, but locals were unwilling to get back to sea just then.

At Akkarapettai, the bridge had collapsed under the heavy weight of trawlers and an immediate access to the enclave had to be made. Since the gap was over 200 feet, we planned to build a causeway and connect the enclave. Work started with three local JCBs and we completed it in a record time of 16 hours on 03 January 2005. The locals were jubilant as they now had access to the homes of those who had perished. The boats and trawlers in the enclave could now be cleared. We also constructed several temporary shelters at different places in the district for relief camps.

Relief Material

The response from our countrymen, corporate houses and from countries all over was unbelievable. The aid that flowed in were –

- Pre Fabricated shelters of all types
- Cooking kits with stoves, gas and kerosene stoves
- Clothes and blankets (used clothes were rejected)
- Toys
- Construction material
- Cooked food every day from free kitchens that had been set up in the district
- Medical teams from many states with ample supply of medicines
- Water purification plants and portable desalination plants
- Generators
- Mobile toilets and chemical toilets
- Aid as cash and cheques to the Collector
- Excavators, cranes of all sizes, generators, earthmoving equipment,



Distributing rations and food items.

bob cats and hydraulic equipment
- Water tanks of all sizes and makes

It was very difficult to keep pace with the inflow of relief material, and to make an inventory and to store it. Much went waste and had to be disposed off by burning. Nagapattinam looked like a big rubbish heap from the air. It took many weeks to clear it all up.

VIP / Media Visits

It was surprising that political and other big wigs did not make a bee line for Nagapattinam. Ms Jayalalitha, the CM visited often. Lieutenant General BS Takhar, General Officer Commanding in Chief, Southern Command, visited once as did Major General Paramjit Singh, General Officer Commanding ATNK&K Area. The Collector was free to carry out his job, with complete support of the State Government, through the CMC.

The Indian and foreign media were at this 'ground zero' in big numbers. The vernacular press was accurate and the Army received a good press. BBC, CNN and NYT were present throughout. The constant reporting brought in more disaster tourists, which petered off as the situation improved.

The Situation Improves

The relentless pursuit to stabilise this great human tragedy, and establish normalcy, brought in quick results. By 15 January 2005, the situation was much better. The looming threat of spread of cholera and other diseases had been averted by timely action. This was a human tragedy of huge proportions. It was different from other disasters. The monster wave just mowed down everything in its path. It was over in 15 minutes and you were either dead or alive. Injuries were very few. Infrastructure and housing had to be rebuilt. After the first two weeks, rescue work reduced. Constructing shelters, water points, clearing blocked roads and the port was the main task. The workload of medical teams that had descended on Tsunami affected sites reduced. What were needed were trauma specialists and counsellors to help families recover their confidence to start life again, to help orphans and widows, whose lives had been devastated and to help fishermen to take to the sea again.

Inevitably, a disaster is about relief funds to help mitigate the damage. Those affected continued waiting for relief funds that were pouring in from across the world, instead of getting back to work.

END NOTE

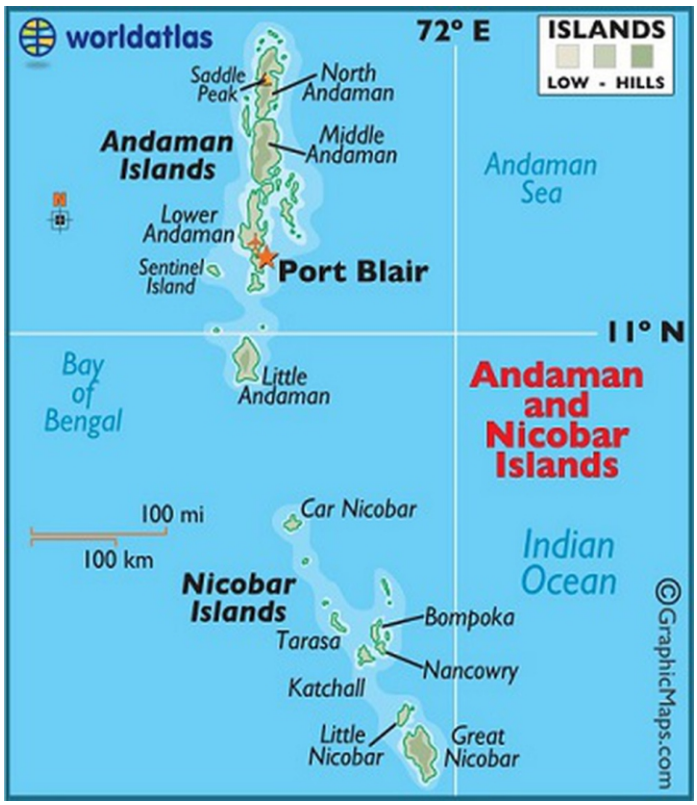
Tsunami was a new word for most Indians. It was common in Japan and Indonesia who had developed good warning systems and safety measures. On the Southern coastline several studies were launched to plan and suggest coastal warning systems and to put evacuation centres all along the coastline. Once approved, these had to be put in place and practised regularly by each coastal village. The Indian National Centre for Ocean Information Services (INCOIS) was set up in 2007 at Hyderabad by the Ministry of Earth Sciences. They monitor ocean earthquakes and seismic disturbances and also obtain reports from the International Tsunami Information Centre for early warnings. The INCOIS has established the Indian Tsunami Warning System (ITWS) to give early warning to coastal States. Pressure sensors in DART Buoys in the sea are able to detect tsunami waves very early. We hope that the next Tsunami will not see such an unprecedented loss of human life.

Mrs Shanta Sheila Nair, the CMC head, along with Dr Radhakrishnan, the Collector took complete control of the complex situation. The Collector's planning, positivity and intelligent handling of very complex situations helped to quickly tide over very trying times. Dr Radhakrishnan is the Health Secretary of Tamil Nadu and has managed the pandemic here in a brilliant manner. I am still in touch with both of them.

For us Tambi sappers who took part in this humanitarian mission, it was a learning experience. We made a big difference in Nagapattinam District. As we left after 40 days of hard work, there was great satisfaction and pride among all officers, JCOs and men. A very demanding task had been completed well. Sappers are always the first in and last out for all disasters. We need to be ready all the time.
Jai Hind!



Maj Gen Jose Manavalan, AVSM (Retd) was the Commandant of MEG & Centre from 2003 – 2005. He was commissioned on 20 December 1970 from Indian Military Academy, Debradun and took part in the 1971 War and Operation Pawan in 1987-88. An electrical engineer from College of Military Engineering, Pune he is a Graduate of Defence Services Staff College. He retired in 2007 and is settled in Chennai. Presently he is Correspondent of a CBSE School in Chennai.



DESPAIR IN THE NICOBAR ISLANDS – Gorkhas as Samaritans

The Asian Tsunami, as it was called, caused devastation and havoc in several coastal areas around the Indian Ocean. This first person narrative brings out some of the relief activities done by the Armed Forces in the Nicobar Islands after the Tsunami.

The Day of the Tsunami

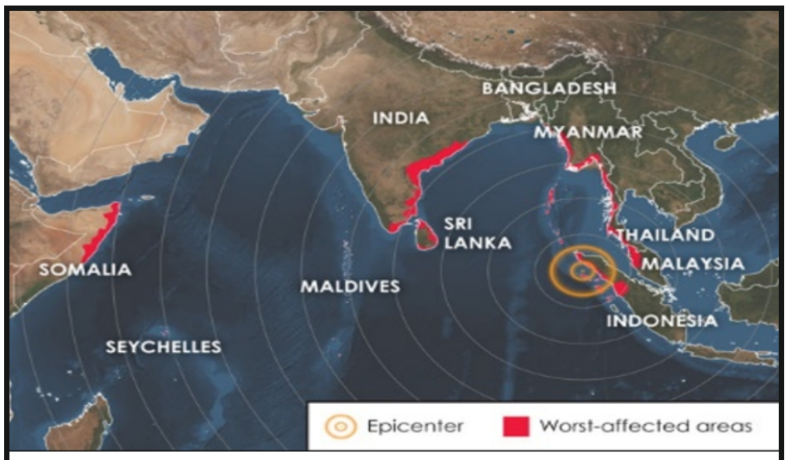
On 25th December 2004, we had a grand Christmas celebration at the military institute at the Birchgunj military station near Port Blair. We got back home late, and early in the morning on the 26th December, we were woken up by rude shakes. The bed started shaking violently, my wife called out to say, "stop shaking the bed". I responded, "I am not shaking the bed". When we looked up, our ceiling fan was swaying from side to side. I swiftly got off the bed, we could barely stand owing to the severe tremors of the earthquake. We immediately grabbed whatever essentials we could and ran out of the house along with the children. Even after having exited the house, we could not stand still because of the reverberation caused by tremors of the earthquake and we saw the building sway from side to side. The tremors lasted for almost a minute and a half.

Birchgunj is located at a slightly higher height as compared to the rest of Port Blair. My elder daughter pointed towards the sea indicating that the sea had turned reddish brown. Before we could analyse this fact, we observed that the sea had receded almost 500-700 metres. Minutes later we observed a line of white frothy waterline advance towards us. A few youngsters wanted to see it closely so they went to a nearby military beach front. The water moved into the beach front with great speed and almost 700-800 metres across the high tide line. Luckily the presence of mind of the officers made them start their bike and rush to safety. At one point, the bike too stalled owing to the speed of the water. Fortunately, the water did not reach the officers and troops quarters as these were on a high ground.

An **earthquake with a moment magnitude of 9.3** had occurred along Northern Sumatra and the Nicobar and Andaman Islands, and ruptured the 1200 kilometre tectonic plate resulting in the catastrophic tsunami that affected 12 countries. ***Tsunamis*** are giant waves caused by earthquakes or volcanic eruptions under the sea. Out in the depths of the ocean, tsunami waves do not dramatically increase in height. But as the waves travel inland, they build up to higher and higher heights as the depth of the ocean decreases. The speed of tsunami waves depends on the ocean depth rather than the distance from the source of the wave. Tsunami waves may travel as fast as jet planes over deep waters, only slowing down when reaching shallow waters.[1]

The tsunami **gobbled up the landmass and stripped the coast of trees in the** Nicobar Islands in the Indian Ocean.[2] It devastated the immediate coastal areas of Western Indonesia and impacted communities in Australia, Myanmar, India, Kenya, Malaysia, Maldives,

1. https://oceanservice.noaa.gov/facts/tsunami.html
2. https://india.mongabay.com/2018/08/indian-ocean-tsunami-nicobar-islands-lost-97-percent-of-mangrove-cover-uncovered-new-species/



Map depicting the impact of the 2004 Tsunami
https://www.earthmagazine.org/article/benchmarks-december-26-2004-indian-ocean-tsunami-strikes/



Admiral Nirmal Verma, Chief of Naval Staff, presenting a Visitor's Book to Rani Fathima, the Queen of Nancoury in February 2012. The Visitor's Book was recreated by the Andaman and Nicobar Command, to replace the original Visitor's Book which was washed away in the Tsunami 2004.

Seychelles, Somalia, Sri Lanka, Tanzania and Thailand. The earthquake was the largest event ever recorded in the Indian Ocean and is estimated to be the third largest recorded globally.

Operation Madad Launched

Within two hours our military columns were launched for the relief operations in Car Nicobar and Southern Group of Islands. We were proactively supported by the Indian Air Force (IAF) and the Indian Navy (IN) components. I, as the battalion Second-in-Command, led the Gorkhas column and we embarked on the Flat Bottomed Landing platforms of the IN and undertook a three day journey to reach Kamorta Island, a Naval establishment in the Southern group of Islands by 29 December 2004.

On reaching Kamorta, I met the local notables of the Kamorta Island, including the Queen of Nancowry. We were briefed about the affected areas and the magnitude of losses and damage were explained. After understanding the nuances, the relief operations commenced immediately.

The damage was far worse than anticipated. Huge tracts of land were ravaged by the tsunami and infrastructure had been devastated. There was an extremely pungent smell of rotting flesh in the saline inundated areas. Thousands of trees were strewn all over after having been brought down by the tsunami waves. My diligent Gorkhas marched forward to accomplish their assigned task. Over three days, the Gorkhas relief column retrieved 39 dead bodies and carried out the last rites along with the local communities and their leaders. Approximately 400 persons were missing and around 1180 persons were temporarily rehabilitated. As per the Home Ministry data, the population of Kamorta was 3412 in 2004 which is now assessed at 1885 as per the 2011 Census.

Onwards to Katchal

On 31 December 2004, a fisherman apprised me that Katchal, an island close to Kamorta was also severely impacted. Five years earlier, this tiny island of Katchal had ushered in the dawn of a hopeful new millennium for India. But on this fateful day in December 2004, this remote Nicobar Island was bathed only in despair. Katchal, known for its kaleidoscopic corals as well as its perfect waters for snorkelling and scuba diving, is home to the Nicobarese, the largest tribal group in the archipelago, as well as mainland Indians and a small group of Tamil settlers from Sri Lanka brought in to work on a rubber plantation. The Gorkha team took necessary clearances and moved to Katchal Island along with a Naval officer and established a camp in the proximity of a church. While moving from the beach front to the camp site, each fallen tree and destroyed building were shouting out their gruesome experiences. *"The children were hungry and sick. The earth was moving all the time, and we were too afraid to go out of the jungle,"* said Puniadevi Ram, 30, a mother of two. Each day, she said, two villagers trekked three hours to the harbour to look for food. *"Sometimes they came with biscuits, sometimes empty-handed. It was never enough for all of us."* [3] Radhakrishnan Muralidharan, a seventh-grader from the island of Car Nicobar, spent 10 days stranded on a jungle treetop without food or water. He had been playing cricket when the waves came, he said, and he tried to run. *"The water was too fast. It swept us all away,"* said the gaunt boy, who told his story at a relief camp in Port Blair. He said he lost sight of his parents and sister, grabbed onto a tree trunk, then climbed to the top and waited for the waters to recede. *"The water was taller than me. And I did not know how to swim,"* he said. Every day, he said, he grew weaker from hunger and thirst.[4]

It is indeed difficult to pen down

3 https://www.washingtonpost.com/archive/politics/2005/01/09/after-refusing-aid-from-outside-singh-offers-reassurance/5ebf6bb1-407b-471a-b0a1-b34cb1e1b2a1/
4 ibid

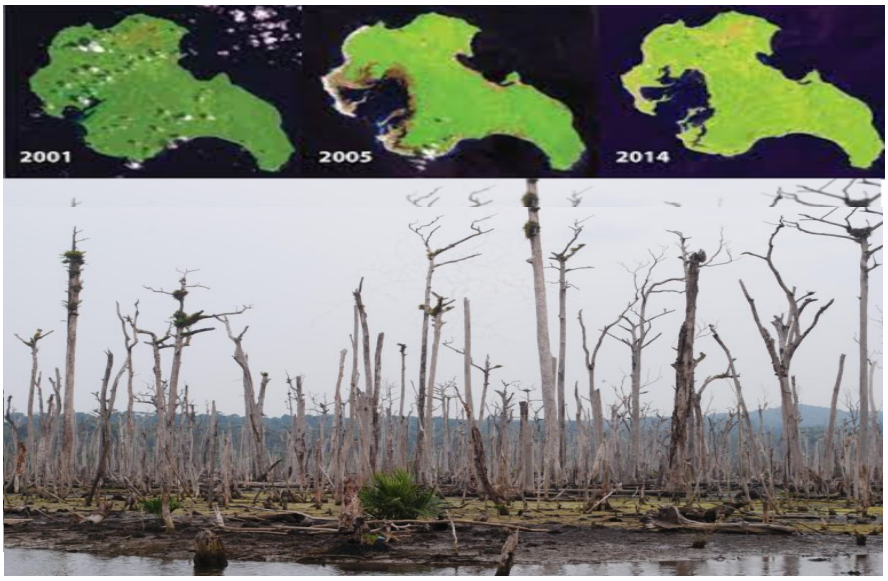
our emotions and despair. The relief operations commenced post haste and the leaders of the various committees were taken on board to assist in the search for survivors. Based on a credible input from two survivors who walked for two days from the location where the tribals were trapped, a military helicopter was launched to search for the missing survivors. To our good fortune, we rescued 17 tribal people trapped in the West Bay area of Katchal swamped by sea water where they had been living on coconuts and bananas for 11 days. As Koshi Mackenroe John hunkered down on a hill with his parents, there was little he could do except wait for rescuers. So the 13-year-old started writing letters. From a forest in remote Katchal Island in India's Andaman and Nicobar archipelago, Koshi wrote page after page in neat cursive, reporting the devastation around him and pleading for help. *"Dear Uncle,"* read one letter dated December 28, two days after the tsunami. *"Everything is over. . . . About 2,000 acres of land was overwhelmed and destroyed by the flood. We are starving over here and trying to send messages because every communications centre or station is destroyed. I hope you will find this letter very soon. We need an immediate rescue."* Two of Koshi's letters arrived in Port Blair, the capital of the island territory, carried by other evacuees. Volunteer groups delivered them to his uncle in the city.[5]

Even after over a week, we realised that of the population of approximately 8000 in Katchal, 4657 were missing, while 900 bodies were disposed of by our relief and rescue column. Five more medium-lift helicopters were inducted to boost the massive efforts to restore normalcy in the affected islands.

There was a critical shortage of relief material including rations on the island. The relief materials did arrive but there was no jetty existing to berth boats. I discussed with my men and the Gorkhas, applying their ingenuity, constructed a Jetty with the help of the locals and using the fallen coconut trees. We christened this as 'The Chindits Edge'. This jetty was appreciated by Mr Shivraj Patil, the Home Minister. Thereafter, there was a free flow of relief material and an immense sense of joy amongst the local population.

There were innumerable instances where the relief column provided succour to the aggrieved populace of Katchal Island and the other islands in the Nancoury group like Tarrasa and Trinkat. In a unique action, a young girl who had attempted to commit suicide was evacuated in the middle of night in a country boat, traversing more than one nautical mile in sea state four. The girl was further evacuated to INS KARDIP and survived.

Our three months deployment was very well lauded by the hierarchy of the Andaman and Nicobar Union Territory and the Command HQ. The entire effort of the battalion towards alleviating the sufferings of the affected population in a noble and professional manner was lauded by Mr Raj Kapse, Hon'ble Lieutenant Governor, Andaman and Nicobar Islands, the Hon'ble Home Minister and senior service officers from various headquarters. We returned to our base at Birchgunj, satisfied that we had done our best and had worked with compassion and empathy.



Upper Image. The landmass change in Katchal Island before and after the Tsunami. Image Courtesy Geological Society, London, Memoirs - the Lyell Collection. Lower Image. Devastated mangrove forests. Photo Courtesy india.mongabay.com photo by Nehru Prabakaran.

(The views expressed and suggestions made in the article are solely of the author in his personal capacity and do not have any official endorsement. Attributability of the contents lies purely with the author).



Brigadier Vikram Sharma, a 4th Generation Officer, was commissioned into 5/5 GR (FF) and has served in several challenging operational areas. He is an alumnus of Defence Services Staff College, Naval Higher Command Course and National Defence College. Besides commanding an Infantry Brigade on the Western front, he has also commanded the Indian Brigade deployed in Congo as part of MONUSCO. He has authored seven operational and strategic papers related to the Democratic Republic of Congo and MONUSCO. Vikram played a pivotal role while leading the Tsunami relief operations after the 2004 Asian Tsunami in the Nicobar Islands.

5 https://tulsaworld.com/archive/teens-letters-detail-disaster/article_612e5cbb-54d7-58e9-a040-913b5985516a.html



Navy personnel airlift a boy at Paravur in Kollam - a prayer on his lips (Photo courtesy AFP)

AUGUST 2018 DOWNPOUR OVER KERALA

Rooftop Rescue Amidst Trees and Buildings

Helicopters are extremely effective in rescue operations, especially in flood stricken areas. But trees, foliage, wires and flying debris due to the down wash can make such rescue operations extremely risky. In this first person account of helicopter rescue operations during the Kerala floods of 2018, the reader will realise the hazards. The pilots and aircrew undoubtedly performed commendably.

The butterfly effect says a butterfly flapping its wings can cause a typhoon half a world away. Though just a metaphor for the chaos theory, the synoptic disturbances of the tropical Pacific triggered high-frequency Mixed Rossby-Gravity (MRG) waves in the mid-troposphere, meddled with the Monsoon trough, as it propagated westward from the east Equatorial Indian Ocean to the east coast of Africa. These equatorially-trapped waves teamed up with Madden–Julian Oscillations to fuel deep convection in the tropics and caused unusually heavy rainfall over Kerala in mid - August 2018 when it experienced the worst floods in nearly a century after the great flood of 1924. Over 483 people died, 15 went missing and about a million were evacuated.

All 14 districts of the State were placed on red alert. According to the Kerala Government, one-sixth of the population of Kerala had been directly affected by the floods. The Centre designated it a Level 3 Calamity, that is, a "calamity of a severe nature". The Navy launched 'OPERATION MADAD' and committed all available resources with the Indian Air Force (IAF) and civilian agencies pitching in too. About 30 aircraft including four from the IAF and three from ONGC were deployed.

A Cockpit View

What follows is my recollection or a cockpit view of the massive Humanitarian Assistance and Disaster Relief (HADR) effort that ensued. As the chief manager of the flight test centre carrying out post production test flying of helicopters overhauled by the Naval Aircraft Yard at Kochi, I was wistfully staring across the runway at the flurry of activity going on in INS Garuda, the Naval Air Station. The Commodore Superintendent (CS) came over and asked if we could get an aircraft ready to fly at short notice, so urgent was the need to rescue and help people. There was a Chetak awaiting overhaul, having completed its complement of engine and airframe hours. Getting it going would require approval from Command HQ which was obtained after due diligence. The relentless efforts of Master Chief Raj Kumar, civilian foremen Binu, Johny, Anil and Antony under the guidance of Commander Raghavendran, and Lieutenant Commander Jaiswal (from a ship borne flight) resulted in a test flight where I was trying to determine if we could coax a little more life out of the ageing veteran.

She responded well, nary a quibble, but with a few vibrations and such tell tale signs. She was game but needed a gentle hand. We volunteered to join the effort, a rescue winch operator, and a free-fall diver from other flights teamed-up.

Taking to the Air

Mission Control was with the operations room of INS Garuda for the SOS pleas pouring in. The weather was still



Stranded women and children evacuated by Navy Chetak Helicopters. (photo courtesy upper image wikimedia commons; lower image Indian Navy)

quite bad. The larger aircraft were dropping food and evacuating strandees from dispersed sites; nimbler Chetaks were deployed for rescue missions of a more intricate nature.

So we found ourselves climbing into a drizzly, slate gray sky in low visibility heading to Aluva area. Water, water everywhere.....with buildings seemingly sprouting out of the unending "sea," and brightly coloured roofs of single-storied buildings visible under water. Our first task was to provide relief material to stranded people who were congregated on taller buildings. Hovering low, the slender coconut trees seemed beastly in their proximity to the buildings and our rotors. With Jaiswal keeping a wary eye and me holding the buffeting bird in place, the flight diver disposed of the material onto spots most likely to minimise impact damage. As we hovered, we had an Advanced Light Helicopter (ALH) to our right and below and a Mi-17, above and to the left, unimaginably closer in normal circumstances, cautioning each other on R/T.

We made three trips before it was too dark and after a not very restful night we were back in the cockpit early morn, heading out to Paravur. Here there were islands of higher ground cut off by flood water. Over one "island" densely canopied with trees, a group of women and children tried to draw our attention. We reduced speed to come to a hover; being fully loaded the aircraft suddenly sank, plummeting towards the trees. A sharp drop of collective (power) and a bank to the right to gain speed, we managed to scrape the tops of the foliage and recover over the water. Landing at a nearby flat area, we unloaded some relief material leaving another diver there and took off with just what we intended to drop. This time we had perfect control and dropped the food and water on to a large leafed plant right next to the group, which cushioned the fall perfectly. By the time we returned to the clearing, the diver was standing alone with locals who had taken over the packets, waving at us enthusiastically. We waved back, picked up our man and returned to base for the next load.

Next we flew to a location near the airport which looked like a waterfront with planes instead of boats. A large number of people were stranded onboard a school building. Being a concrete roof, we chose not to throw the packets but hovered close with wheels almost touching the roof. The rescue diver jumped out and both divers unloaded the relief material onto the roof, all the time gesturing to the crowd to keep clear of the rotors. On our way back to base, the diver noticed a cloth being waved from a roof top of a small building with taller trees all around and only the northwest side open for approach.

Never Hover in a Tail-wind, Except When..

Unfortunately, this meant we'd have tailwinds on approach and hover; quite unwise! As we contemplated this, a woman rushed out and held aloft a baby, barely months old. That settled it and we committed ourselves to the narrow approach. The bird vibrated quite a bit but we managed to coax her into the constricted space with the trees higher than us and came to a hover over the roof. It is then that we saw the metal sheet roof of a bathroom adjacent to the house open up on one side and threatening to pry loose under the rotor wash. Here we were, in a tail wind, trees on both sides, power margins low. So we did the best we could, slid over to the side of the bathroom hoping the rotor wash would hold the sheet roof down. The sheet did settle down albeit reluctantly and we could transfer half our attention to the rescue. We lowered the free diver who took the child from the mother and put the harness around her. We winched her up and then the diver with the baby. After a quick power calculation we decided to pick up the distraught father too. With a relieved family patting our shoulders from behind despite remonstrations of the divers, we headed back to base. On landing the family told us that almost everyone from their locality had left the day prior but they stuck on worried about the baby. The water levels rose; the baby developed dysentery and no rescue teams came toward that side believing the colony to be evacuated. We were their last hope. After a quick turn-around, we flew further Westwards for what turned out to be the most daunting of our missions.

Five Minutes of Eternity and Maternity!

It was to be a rather elementary drop of relief material onto one of the taller buildings --an orphanage -- where local people had sheltered. As we did a quick orbit overhead, the clearing on top of the building seemed a tight little spot. It had three Ashoka trees on the left and a high side wall of the adjacent building on the right. With the winch operator giving clearance from the Ashoka trees and co-



An aerial view of flooded hamlets.

pilot from the wall on the right we nudged her in, lowered the free diver to clear away the crowd and pick two volunteers to cart away the packets. Just then I spotted a large plastic sheet, apparently an empty rice bag floating up from the side of the building. There we were: trees to the left, the wall to the right, rain gutters vibrating rather menacingly inches from my rotor in the front and very concerned about the bag getting into the induced airflow of the rotors and the very likely catastrophe. So we did the only thing we could; went vertically up in hover till the airflow pushed the bag down and away, and slowly lowered back into position. Having dropped all the material we were about to pick up the diver when the crowd got hold of him and dragged him into the adjoining room.

Perplexed we waited till he reappeared and did a mime indicating a pregnant lady in an advanced stage, needing an airlift. I told the winch operator given the situation and minimal clearances that would not be a good idea. More mime between the divers, accompanied by wild gesticulations from the crowd, and the appearance of a heavily pregnant woman, we had to acquiesce. To our surprise, the lady did not hesitate when the harness went around her. As we winched her up I found myself more focused and tense than when landing on a small deck in sea state 5. The winch operator, helped by the copilot, got her into the cabin. No sooner was she strapped in, she caught hold of our shoulders almost gripping my neck from behind and started shouting in Malayalam. We could faintly decipher it was about her mother! Indeed, there was an old lady clinging onto the free diver, as he looked up at us with a helpless expression. Deciding it would be better to risk power margins than "strangulation" we winched her up. All crew were dripping with sweat from the tensions of our varied jobs in that long and dicey hover. The old woman and her now serenely calm daughter strapped up, we again gingerly inched back between the trees and the wall. It was maybe a full five minutes later that we let out our breath and notified the Air Traffic Control that we were coming in with a heavily pregnant lady needing immediate assistance. An ambulance was waiting when we landed. I got down to help the ladies. The soon to be mother folded her hands in apparent gratitude. I folded my hands in reply, and with a wave that said, "not me" pointed heavenwards.

More of the Same, Only Different!

The rest were mostly air dropping of food and material which saw us landing on a bridge with a village at one end and gushing water at the other; or, hovering over roof tops close to electric lines and landing in water-locked spots with minimal clearances. Overall, we rescued over 20 people and delivered around two tons of relief material, not insignificant for the little Chetak. By the fourth day of our effort, most of the critical objectives were met and the risks of flying a tired bird on extension outweighed our readiness to take risks which otherwise were imprudent.

As I pen this, what marvels me most is how it all came together. Here was a bird at the end of its operational cycle on an extension never previously granted; a first pilot from an aircraft yard; a co-pilot from a ship-borne flight; a winch operator from another ship-borne flight and a free diver fresh out of training formed a team. This team went all out, probably to the very edge of their ability without doubt and fear with absolute trust in each other.

Ours was but a footnote in the massive HADR operation where everyone, our own families and the larger populace across the state, rendered all help, facing severe shortages themselves. In that August of 2018, we all got together and took up a cause greater than ourselves with our own, though local, butterfly effect.



Captain Anup Kumar Thomurothu, NM, is a naval aviator with 3760 hours of experience. In a career spanning almost three decades, he was part of major naval exercises including those with foreign navies. He has taken part in numerous HADR operations such as the relief operations post Tsunami in the Andaman and Nicobar islands, cyclone relief operations in Andhra Pradesh, Odisha and Kerala. He has been commended by the Chief of Naval Staff for the Tsunami relief operations and by the CINC of the Western Naval Command for rescue at sea. He was awarded the Nau Sena Medal for gallantry in recognition of his valour during 'Operation Madad'.



Debris being cleared at Durbar Square, Kathmandu (Photo courtesy preventionweb.net)

OPERATION MAITRI : To Nepal's Aid

The post - Himalayan Earthquake of April 2015 rescue and relief operation is an example where international assistance played a major and critical role. India was in the forefront of this rescue and relief effort, and Indian Forces were able to reach Nepal within six hours, and continued to do stellar service for the next month plus. A first person narrative follows.

Barpak

A large village in Gorkha District of Nepal, Barpak is spread along the Western slopes of a ridgeline emanating from the Great Himalayan Range. Barpak is well known as the ancestral village of Honorary Captain Gaje Ghale, Victoria Cross (VC) of 2/5 GR (FF), whose valour in the Second World War battles on the Burma front was household lore in the region. A narrow unmetalled road climbed along the ridgeline Northwards towards Barpak from Gorkha.

25 April 2015 – a bright sunny day, many of the men and women folk were fortunately working in the fields. At 11.56 a. m. dogs started barking in panic – fearful sounds indeed. A few seconds later, the earth started rumbling, massive tremors shook the village as some elderly people tried to move out of their dwellings. Huts and sheds collapsed, landslides rolled down the hillsides, roads and tracks got blocked. Luckily those trapped under the collapsed houses were few in number. **A 7.9 Richter scale earthquake had shaken Nepal – Barpak was the epicentre.**

Damage was far more in other towns. Bhaktapur, an old town in the Kathmandu Valley had narrow alleys. Residents had added floors to their old homes without much engineering guidance, these buildings came tumbling down like a pack of cards. Over 1000 persons died in Bhaktapur in the collapsed structures. A multi storied building collapsed in Kathmandu with about 250 persons



Collapsed buildings and rubble in the narrow streets of Kathmandu near Durbar Square (Photo courtesy www;wikipedia.com)

trapped in the debris. Many buildings in Nepal did not meet stress and technical specifications, adding to the loss of life. Langtang valley to the North of Kathmandu reported a number of avalanches with about 250 trekkers missing. An avalanche struck Everest Base Camp too, and 19 mountaineers succumbed under the snow and ice. Several aftershocks continued for the next few days, a large aftershock of 6.6 magnitude took place at about 1230 hours, within half an hour of the Barpak quake, and brought down many weakened structures.

Tribhuvan International Airport, Kathmandu

At the airport, the staff panicked and ran out. Some of them rushed home on receiving distress calls from near and dear ones, the airport was closed. The airport's functioning was critical for rescue and relief efforts. Mr Ranjit Rae, the Indian Ambassador to Nepal was asked to check if relief flights could land at the airport. As nobody was able to give a clear picture, the Assistant Military Attaché and a couple of staff members rushed to the airport – a perilous drive through debris strewn roads. At the airport, they met the airport director. The airport staff and some Nepal Army personnel joined them, a visual check of the runway showed no major cracks or damage. Good news!! The airport was made operational, the Nepal Army personnel took charge.

At New Delhi

The earthquake tremors were felt all across North India, with damage reports coming in from Bihar, Darjeeling and Siliguri districts of West Bengal. The Hon'ble Prime Minister, Mr Narendra Modi took stock and spoke to Mr Sushil Koirala, his Nepalese counterpart at Bangkok. (Mr Koirala was enroute to Bangkok when the quake struck). Indian assistance would be provided fully, as per the need, was the message conveyed. The National Disaster Management Authority (NDMA) met in New Delhi at 3 p.m. and the Indian relief and rescue mission was codenamed Operation Maitri. Inputs from Nepal were coming in – in essence, the gravity of the damage was realised. The Prime Minister gave the green signal to deploy an Indian Armed Forces Task Force in Nepal for the earthquake rescue and relief operations, besides deployment of National Disaster Response Force (NDRF) teams and other assets.

It was a Saturday – the Army Commanders Conference had just ended a day earlier. It had been a hectic week. I was watching the news and reports of the earthquake on television, when I received a call from Military Operations Directorate informing me that I may have to move to Nepal and that the Army Chief will speak to me shortly. General Dalbir Singh, Chief of Army Staff (COAS) called up a few minutes later and asked "Sandhu, any major tasks or activities in which you are involved in the next few days?" I replied in the negative, and he told me that I was to head the Indian Armed Forces Task Force for earthquake relief in Nepal, and that Brigadier J Gamlin, 8 Gorkha Rifles (GR) would assist me. I was to coordinate the assistance with the Nepal Army, and the Chief told me that he has spoken to the Nepal Army Chief too. It was around 1730 hours or so. My friend, Major General PJS Pannu called



Injured Nepalese being evacuated to Kathmandu from Trishuli Bazaar, Nepal in an IAF helicopter. (Photo credit Reuters)

up and asked me to reach Hindon Airbase by 2030 hours or so, from where Indian Air Force (IAF) aircraft were taking off for Kathmandu. I quickly packed, and was on the road to Hindon by 7 p.m.

Hindon Airbase

Hindon was abuzz with activity. The IAF had reacted swiftly, and the first transport flight had taken off at 4.30 p.m. and reached Kathmandu at 5.45 p.m. – within six hours of the earthquake. I met the Chief Operations Officer at the airbase, two C-17 aircraft were being prepared, NDRF teams were to be flown in them. By midnight, four IAF aircraft had landed at Kathmandu with three NDRF teams.

At the runway, I saw media vans and reporters covering the Indian response. Colonel Manraj Mann, Defence Attache (DA) at Indian Embassy, Kathmandu was driving in from Pathankot, where he was attending the Bicentenary Celebrations of 1 GR. He had started off immediately after the earthquake struck. He was to play a critical role in the Indian rescue and relief operations, and we waited to take him along. Our C-17 took off at 11 p.m. and we headed North into the dark skies.

Kathmandu

We landed in Kathmandu shrouded in darkness. Power lines had been felled, power supply was disrupted. Generators were providing power at some places for essential services, like at the hospitals, at the airport. The Nepal Army troops at the airport escorted me to a guestroom of the engineer regiment near the airport. A couple of candles lit up the room. There was no running water, the water pipelines had been damaged and water supply was affected. Next morning, Colonel Manraj Mann requested me to shift in with him at his residence. A generator at his home enabled us to charge our phones; movement and earthquake relief coordination also became easier.

I met the Chief of the Nepal Army, General Gaurav Shamsher Jung Bahadur Rana, and the Director Military Operations. The Nepal Army Headquarters building had been damaged, so they were functioning from tents. The Nepal Army had established an operations centre, and a Multinational Military Control Centre (MNMCC) was being prepared near the operations centre too. In my discussion with the Nepal Army Chief, we identified three priority requirements – Nepal needed engineer plant equipment and task forces to clear the debris, landslides, etc. They needed medical teams to treat the large number of injured, and they needed helicopters to ferry supplies and assistance to remote locations and evacuate casualties from these places.

Work on these requirements had already commenced the previous evening, and these resources started coming in from India. A Rapid Action Medical Team (RAMT) of the IAF, and three field hospitals of the Army (4004 Field Hospital, 4033 Field Hospital and 60 Para Field Hospital) arrived at Kathmandu by 26th April. An Engineer Task Force (TF) ex 17 Engineer Regiment also arrived the same day, besides some more NDRF teams. Six Mi-17 helicopters of the IAF also landed on 26 April in the morning.

Nepal Army had only one Mi-17 helicopter and one Advanced Light Helicopter (ALH), besides five smaller helicopters. The Nepal Army was very happy with our swift response. We established our Joint Indian Armed Forces Task Force Headquarters in the Nepal Army Aviation Base adjacent to the Kathmandu airport. It became a hub of activity with several media personnel zeroing onto it.

I met Ambassador Ranjit Rae at the Indian Embassy. It was a memorable return to the Embassy where I had served for three and a half years as a young officer. There would be morning and evening coordination meetings daily at the Embassy to take stock of the assistance sought and provided. At New Delhi too, an Operation Maitri Coordination Centre was functioning with representatives from the NDMA, Ministry of External Affairs, Ministry of Defence, Ministry of Home Affairs, Armed Forces, NDRF, Ministry of Health and other agencies co-opted in the daily coordination conferences. The Prime Minister oversaw the process closely.

First Look at Barpak

General Gaurav SJB Rana, Nepal Army Chief, had informed me that a company of the Nepal Army was moving up on foot towards Barpak, as the road had been blocked by landslides. He would get a clear picture by evening once they radioed the situation after reaching there. Phone and mobile services had been disrupted in several areas including in Gorkha District as several mobile towers had also collapsed. On 26th April, mobile communications were restored in several urban areas including in Kathmandu and Pokhara.

We decided to fly to Barpak and attempt a landing. A Nepal Army Liaison Officer (LO) accompanied us as we took off in an IAF Mi-17. Jugal Purohit from the India Today media group was also on board. We reached Barpak sometime after 1 p.m. and we surveyed the area to spot a suitable landing ground – an open ground was identified. We saw a large number of collapsed houses and sheds. Unfortunately, a large cloud floated in, and visibility dropped. We couldn't land and returned to base. But we were confident that we would be able to land at Barpak the next morning.



Upper Image. Interacting with the US Army General heading the US Armed Forces Relief Mission. The DA is with me. Lower Left. Nepalese patients being cared for in the RAMT shelter. (Photo credit thebetterindia.com) Lower Right. NDRF personnel and Nepal army soldiers carry a body from a collapsed house in Kathmandu. (Photo credit: Reuters)

Chaos At Tribhuvan International

When we returned from Barpak, we landed amidst chaos at the Kathmandu airport. Several hotel buildings had become unsafe, water and electricity supply had been disrupted, staff had also taken leave, resultantly the hotels closed down. About 15000 plus tourists and employees working in Kathmandu and nearby areas thronged the airport wanting flights to leave Nepal. But commercial flight operations had been stopped and only relief material flights were coming in. I walked through the airport crowds, not a pleasant experience, as several Indian nationals besieged us, seeing us in the Indian Army uniform. There were no food outlets operating, water too was not available. Some foreign tourists requested me for some water to drink, they had not had a sip since morning. Fortunately, the requirement had been passed on to the Indian Embassy, and New Delhi reacted. About an hour later, an IAF C-17 aircraft landed with cartons of packaged water. The Nepal Army unloading parties had quite a task on their hands. I requested the Nepal Army LO if he could arrange some fork lift trucks.

The media had a field day covering the chaotic situation, and Indian media played up the hardships being faced by Indian nationals stuck at the airport. Our returning IAF relief flights started taking Indian nationals back. Some anti-India media in Kathmandu twisted the repatriation into a negative narrative, portraying that Indian aircraft had come to take back Indian nationals, and not to assist Nepal in earthquake relief. Ambassador Ranjit Rae and I intervened swiftly and we gave out media bytes to several local media channels highlighting the rescue actions of our NDRF teams, the engineer TFs, the field hospitals and the casualties being airlifted by our helicopters. We contained the adverse publicity in time.

Kathmandu airport had only 9 parking bays. 12 IAF aircraft flew in on



Asking about the well being of his injured sister from a young boy in our field hospital in Kathmandu.

26th April, to include 4 C-17 aircraft, 3 IL-76 aircraft, 3 C-130 and 2 AN-32 aircraft. There were relief flights coming in from other countries like China, Bangladesh, Japan, Sri Lanka too. The airport could not handle the congestion, the taxi track was blocked, and the airport had to be closed for a few hours. The landing load of incoming aircraft was also limited to a maximum of 185 tons, to ensure that the runway remained serviceable. There was negative publicity to this problem too, and the vernacular anti-India press blamed the large number of Indian relief flights for this mess. Some stated that the airport had been taken over by Indian authorities. In an emergency meeting, Civil Aviation Authority Nepal (CAAN) took charge, and a system of daily CAAN clearance an evening earlier with time slots for landing was put in place. To reduce the passenger congestion, some commercial flight operations were started on 27th April.

Considering the large number of stranded people, it became imperative to open the land route to India. The Nepal Army and Nepal Roads and Highways department had been clearing the landslides, and the roads out of Kathmandu and Pokhara towards India were cleared on 27th April. In the meantime, the Uttar Pradesh and Bihar Governments were at work, and 318 buses arrived at Kathmandu in the next few days, to ferry passengers back by road. Trucks also started coming in bringing more relief material from India.

Relief Operations Pickup Pace

After the failed landing attempt at Barpak on 26 April, an IAF Mi-17 successfully landed on 27 April and a medical and engineer team was deployed at Barpak. The medical team included a lady doctor, who was of great help in handling the women patients. We however had to pull her out after six days as administrative conveniences became a problem. Brigadier J Gamlin joined me on 26th April, and a day later he took charge of relief operations ex Pokhara, where we located five ALHs ex 201 and 306 Army Aviation Squadrons. Two more Mi-17s of the IAF also arrived and we initially placed them at Pokhara for a couple of days, before moving them to Kathmandu. These eight Mi-17s and five ALHs did a commendable job, lifting over 1000 casualties for medical care, besides delivering tons of relief material to different locations. The aircrew often faced harrowing situations, when locals would rush forward for relief supplies even before the rotors had stopped. The Nepal Army and local civil officials handled these crowd control situations. The helicopters also pulled out over 200 stranded foreign nationals from the Himalchuli - Manaslu mountain region and the Langtang Valley region.

In a special operation on 2nd May, the ALHs ex Pokhara led by Colonel P Vibhu flew to Himang Gompa, an extremely remote Buddhist monastery at the Northern end of a narrow valley and evacuated 22 monks from the damaged dwellings. In one of the relief sorties, the rotor blade of an ALH was damaged, and we flew in a spare from India. A Nepal Army Avro aircraft ferried it to Pokhara to help us make the ALH operational again. And interestingly, the Nepal Army ALH developed an engine snag problem at a helipad in the Ramechhap region, towards the end of May. Colonel Vibhu flew to the helipad with technicians and a spare engine, and the ALH engine was replaced in-situ by the Indian technicians. Such was the close bonding and inter-operability between our Armed Forces.

The field hospitals too were doing an excellent job, and had been deployed in the Lagankhel and Sinamangal area in Kathmandu. They performed about 300 surgeries and treated over 4000 patients in the weeks after the earthquake. Based on the casualty assessments, we also placed small medical teams at Gorkha and Dhading for a few days. They were fortunately self-contained in terms of rations, tentage and cooking facilities. The helicopter pilots and aircrew however had an accommodation problem. We housed them at Bhartiya Gorkha Sainik Niwas, Thamel, but had to move them out after a couple of days, as there was a major water problem in that area. My old friend, Mr Hemant Prasad, the Hindustan Aeronautics Limited representative in



Nepalese troops unloading relief supplies from an IAF Mi-17 helicopter. (Photo credit AP)

Kathmandu came to our help, and he arranged accommodation for the aircrew at a reasonable hotel near the airport.

NDRF teams were involved in pulling out survivors and bodies from the debris of fallen buildings. Engineer TFs from 71 and 21 Engineer Regiments joined the 17 Engineer TF, and brought with them skid steer loaders (SSLs) and a JCB. The SSLs were extremely useful in clearing debris through the narrow lanes of old Kathmandu, Patan, Basantpur and Bhaktapur, where JCBs could not enter.

Relief Material

Relief flights were regularly coming in from India, bringing in items sought by the host Government. Tents, blankets, plastic sheets, tarpaulins, medicines, aviation fuel (required for the large number of helicopter operations being undertaken), food items and many other essentials were coming in from India in trucks or in IAF aircraft. Indian Sikhs from Delhi came forward to help and in coordination with the local gurdwara set up a free langar. The distribution of the relief material was the responsibility of the Nepalese Government, but there were a large number of complaints, primarily because the needs were more than the availability. Our media teams aired several such grievances on television, which was frowned upon by the Nepal Government. Access of the media teams to the helicopters was stopped by the Nepalese authorities.

Everest Base Camp

The earthquake triggered an avalanche on the Southern side of the Khumbu glacier at the Everest Base Camp. The Indian Army Mt Everest expedition was at the Base Camp, and immediately got involved in extricating trapped mountaineers of other expeditions along with local Sherpa guides. They were commended for this humanitarian gesture. After a few days, the Army expedition team was extricated to Kathmandu, as all mountaineering activities had been stopped in Nepal. Mr. Arjun Vajpai, son of ex-Captain Sanjeev Vajpai, MARATHA LI, a renowned young mountaineer was stuck at Makalu Base Camp further to the East. The Nepal Army helped, and their helicopters extricated him and other mountaineers from that area.

Gorkha Unit Teams

A large number of Gorkha troops were worried about their kith and kin. Major Ghale, an Indian Army officer and a grandson of Honorary Captain Gaje Ghale, VC, came on leave to Barpak. He helped in relief activities and was a local link for our medical and engineer teams working there. On the directions of our COAS, Gorkha units also sent small teams with relief material to the earthquake affected areas in Lamjung, Gorkha, Dhading districts and added to the Indian relief efforts.

Getting Back on Track

As the days progressed, essential services were restored, with electricity, water supply, communications getting back on track. India had sent some Powergrid engineers to help restore the Nepal electricity grid. I moved out into a hotel too, Colonel Manraj Mann and his family had been gracious hosts, in



Damaged highway in the Kathmandu Valley. (Photo credit dqindia.com)

those initial days. While I was coordinating assistance with the Nepal Army, the Indian Embassy interacted with other Government organisations and brought in truckloads of relief material and specialised assistance. The DA and his staff were in the forefront of all activities and played a vital role. I also interacted with rescue teams from USA, UK, Israel, Singapore, etc; by far, Indian assistance was more than all the other nations.

The Second Quake

On 12th May, I was at our Task Force control centre in the hangar of the Nepal Army Aviation Base, when the hangar walls started oscillating dangerously. It was 1210 hours, and we ran down and out of the hangar swiftly. A 7.3 magnitude earthquake had struck, with the epicentre about 76 kilometres to the Northeast of Kathmandu in Dolakha district. Strong aftershocks continued for the next few days, and we moved out of the hangar, and set up our control centre in a couple of tents. Approximately 100 persons died in the second quake and more than 2000 injured cases were reported. Our rescue and helicopter sorties shifted towards Dolakha and Ramechhap districts to the East.

Back to Delhi

After about a month, Nepal had largely limped back to normalcy. We started thinning out, the field hospitals returned to India, some control staff from Signals and Army Headquarters and some helicopters too reverted to India. I took a ride back in a IAF C-17 to Hindon on 28 May. Operation Maitri had indeed been a unique experience.

Critique

After a calamity, we often read or hear about shortfall in delivery, weaknesses in rescue and relief operations, mismanagement of resources, etc. My general observation has been that rescue teams working in disaster zones have mostly worked with commitment and altruism, putting in brave efforts in hazardous situations. This was perceived by me after the Muzaffarabad October 2005 earthquake in Kashmir, later after the Srinagar floods of September 2014 too. Similar pictures came out after the December 2004 tsunami, the Uttarakhand floods of 2013 and other disasters. This is indeed a good, positive uptick of our humanitarian attitude. Restoring essential services while simultaneously treating the injured, and clearing the debris does take time as a disaster uproots several services and causes great loss of life and property. The Nepalese managed an effective response, with substantial assistance from India. Some shortfalls or weaknesses will invariably be there, especially in areas with less development, where infrastructure is also lacking. In Nepal, there were fewer roads, many of which were disrupted, the aviation resources too were insufficient, where we added to their capability. In mountains, the weather too plays truant, and so complaints of shortfall in delivery did arise. In my overall reckoning, in April- May 2015, the Nepal Army and other Government officials worked with resolve and resilience, as did our Armed Forces Task Force. Consequently, our bonds with the Nepal Army became stronger.

- Lt Gen J S Sandhu (Retd)
The Editor



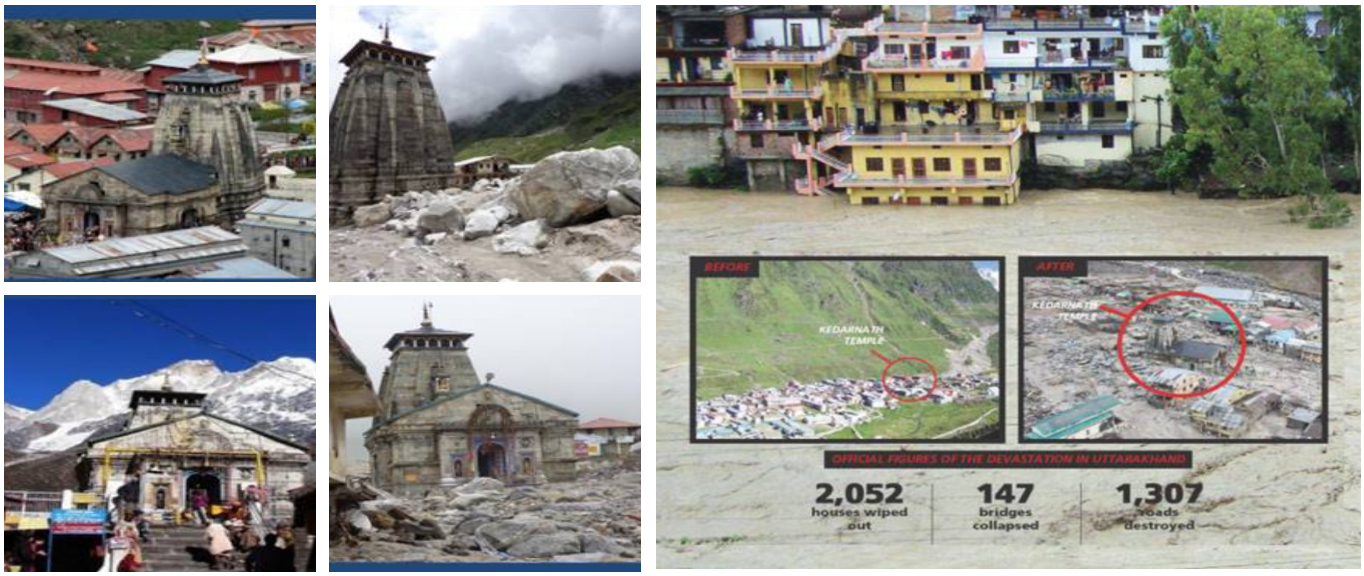
A Mi-26 heavy lift helicopter was deployed for Operation Rahat. (Photo courtesy indiastrategic.in)

OPERATION RAHAT
– Uttarakhand Floods 2013

In June 2013, when there were large number of 'tirthyatris' flocking to the shrines in Uttarakhand, heavy rainfall resulted in floods and landslides; roads were disrupted. The Indian Air Force (IAF) responded to the calamity by launching "Operation Rahat". A Task Force under Air Commodore Rajesh Isser was set up to provide Rescue, Relief and Rehabilitation. A number of helicopters were positioned at Jolly Grant Airport at Dehradun and at Sarsawa. Here is a first person account of the various facets and challenges faced while conducting operations.

A nation's capacity (infrastructure and organisation) to respond is a key determinant in disaster management. Meticulous preparation and management of relief includes transit times, alternate routes, transportation models, and warehousing, which are as important as the capacity to generate relief material and human resources locally. These are the same capacities that promote trade and reflect the economic competitiveness of a country.

The World Bank in 2001 declared that between 1990 and 1998, 94 per cent of major natural disasters and 97 per cent of all natural disasters occurred in developing countries. While economic effects of a disaster are larger in developed countries due to larger economies and interrelated effects, so are the capacities to bounce back. Costs in terms of human lives and suffering are far greater in developing countries. The impact on economies is even worse considering their fragility and vulnerability. Second or third order effects on behavioural and social aspects of communities are even more far-reaching in consequences. India falls in the latter group and efficient Humanitarian Assistance and Disaster Relief (HADR) is imperative towards mitigation of the effects of a disaster.



4 images of Kedarnath Shrine to the left. The flooded Ganga River at Rishikesh (right image), and an aerial view of Kedarnath (inset).

Uttarakhand 2013

Between 13th and 17th June 2013, Uttarakhand received an unusual amount of rainfall. The heavy rainfall caused massive flash floods and landslides resulting in widespread death and destruction in large parts of Uttarakhand and Himachal Pradesh. Countless people were rendered homeless; thousands needed medical attention; there was a need for evacuating people to safety; relief material had to be delivered to various locations. Connectivity by surface transportation was severely affected. In the light of this, the only possibility of providing rescue, relief and rehabilitation was through the medium of air. Operation Rahat was launched, one of the largest operations of the Indian Armed Forces in the last decade.

I have participated in several rescue and relief operations in various parts of India and was also a part of HADR coordination in Nepal, Bangladesh, Sri Lanka and Bhutan. This experience helped when I was nominated as the Task Force Commander (TFC) by the IAF to plan and conduct aerial relief operations during Operation Rahat. I was inducted on 19 June 2013, two days after the disaster hit Uttarakhand.

In the light of three major factors i.e. time-criticality, terrain and weather, there was no doubt that air assets would play a primary role in saving thousands of lives. Intense flying operations were launched, aimed towards rescue and relief, which lasted for approximately 15 days, followed by another 45 days of flying operations towards rehabilitation effort. I stayed on in the area for approximately two months, advising the state and district authorities on rehabilitation and relief work.

On assuming my assignment as TFC, my first priority was to get an overview of the situation, so as to prioritise the rescue and relief work. There was a need to work closely with the officials of the district, the State, as well as the Central agencies. The situational awareness of the district and state administration was poor in the first week or so. It did not help that the District Magistrates of some of the districts had just taken charge, lacked experience and were not fully aware of their areas of responsibility. With the limited inputs available, it was initially difficult to gauge the magnitude of the catastrophe. The IAF provided liaison officers, aerial photographs and reconnaissance reports. Subsequently, on depiction of the disaster locations on maps, and by survivor accounts, we could demarcate and identify the area of disaster as well as identify the requirement of rescue and relief material for the affected population.

Nuances of Helicopter Operations

Helicopters are extremely versatile flying machines and enable rescue and relief operations in remote areas with little in the way of permanent infrastructure. However, there are numerous challenges in helicopter operations, weather and terrain being the biggest ones. Weather changes rapidly in the mountains and can take one totally by surprise. Initially, there was no mechanism to monitor the weather in the affected areas and inform the aircrew of the helicopters. Subsequently, personnel trained in Meteorology were positioned at critical helipads.

The narrow valleys offered few options for helicopter traffic management. The number of helicopters that could be permitted to operate to an affected area had to be restricted and fail-proof procedures



People being evacuated in IAF aircraft (photo credit indiastrategic.in)

had to be established to ensure there were no mishaps.

Electronic signals get severely degraded in mountains, impacting all types of communication be it R/T (Radio Telephony), mobile phone coverage and even satellite communications. It was extremely difficult to build up domain awareness in such circumstances. Innovative methods had to be adopted to ensure that the tempo of operations was maintained, despite the limitations.

In rescue and relief operations, time is a critical factor and it was imperative that the maximum number of sorties are launched in the time available, to evacuate the stricken and to reach relief material where required.

Relief material had to be prioritised and packed to ensure safe handling and para-dropping. Logistics management of the relief material is a task by itself and needs to be done keeping factors of helicopter safety, helicopter operations and prioritisation in view. Only critically required items should be moved by air. Improperly packed loads, dropped from helicopters can have catastrophic consequences for the aircraft and aircrew.

Adequate arrangements had to be made for proper refuelling of helicopters. Since roads were severely affected, fuel had to be moved into the operating areas by the innovative use of aircraft like C-130 J and the gigantic Mi-26 helicopter to establish an "air bridge". These versatile aircraft were also used extensively to bring relief material, including heavy equipment and vehicles for repair and restoration of road communication.

Security of the aircraft and the staging / operational area was another major responsibility of the district administration. Crowd management of the people desperate for evacuation has to be dealt with sensitivity and firmness.

IAF personnel involved in maintenance and flying operations have to have appropriate facilities for their meals and accommodation for rest. This is especially critical for aircrew, who have to be adequately nourished and rested to be able to fly for hours on end, in very challenging circumstances. The facilities provided during Operation Rahat were minimal and just about met the required quality and standards.

Briefing of Civilian Authorities / Nodal Officers

Most civilian authorities, including the appointed Nodal Officers, had no idea of the capabilities and capacities of the air assets operating in rescue and relief operations. The civilian authorities involved at various levels were given a detailed briefing about effective utilisation of air assets as well as nuances of air operations. It took them a couple of days of intensive interaction with the IAF team to understand the nuances of operations and details of requirement of rescue and relief material in terms of size of package, load and area where it was required.

Volunteers

During Operation Rahat, a massive convergence of volunteers, both organised groups and emergent, happened at numerous places where pilgrims were trapped. Many came with altruistic motives but many were there

only to satisfy their curiosity. At the main airport at Jolly Grant, we were fortunate to be based within the airport perimeter. A sectoral policy was followed where entry and exit was controlled, volunteers divided as per their abilities, and control established quite firmly. Different sectors were established such as provisioning of meals, assistance in loading / offloading of helicopters under supervision, and helping with paperwork. However, at forward locations, an initial posture of ignoring, denial and overlooking by district authorities allowed protests, disenchantment and confusion to prevail. As work got organised, so did utilisation and channelling of volunteers. Looking after the needs of responders, hygiene control and manual labour were some of the critical enabling tasks that were done by this army of volunteers. Local creative solutions done jointly helped in co-opting some of them in even risky rescue tasks by IAF helicopters. An overall framework of collaborations and adaptability allows the most creative solutions.

Managing Relief Material

A clear knowledge of rescue and relief material required at various locations only emerged as things progressed and feedback from many sources started coming in. These inputs were verified by IAF pilots and through the evacuated people from various locations. As time progressed, efforts were made to ensure that only critical items were air lifted. Civil administration needs to do much more in this field to ensure that the effectiveness in this aspect is further improved. A key function is to quickly evolve a system to ensure that non critical and unsolicited relief material are not transported by air and are kept away from operational / staging area to ensure obstacle free helicopter operations.

Proper packing of relief material is a critical task to ensure safe air operations. In most cases, packing was not suitable for air dropping, and people had to be trained and guided quickly. In few other cases, we had to improvise / adopt suitable methods or find appropriate locations to air drop the items to ensure that they were not damaged.



Shri Vijay Bahuguna, Hon'ble CM of Uttarakhand presenting a memento to the author, July 2013. (photo credit indiastrategic.in)

Local nodal officers tried to provide all the resources as and when possible. Most of these operations with respect to loading, offloading and the manifesto were guided by the IAF relief team with the air assets, ably assisted by the National Disaster Response Force (NDRF) and volunteers.

Coordination

Initially there was chaos due to the poor knowledge of the area of disaster, exact requirements of relief and rescue material, prioritisation of different activities, pressure for prioritisation of rescue of particular persons or groups from high political offices, senior bureaucrats, senior Armed Forces officers and others. But these are to be expected in such emergent and uncertain situations.

In the initial phases, due to lack of situational awareness, civil administration was dependent on the Armed Forces for operations. However, on seeing our act of walking the talk and transparent dealings, in most of the cases they willingly cooperated. A convergence of multiple and diverse organisations happened as the operations progressed. Also, at times, military leaders needed to be proactive. Armed Forces commanders need to be ready to initiate action even when they are not responsible for the complete operation. In Operation Rahat, I was fully involved from the beginning and had the complete trust and faith of the state administration.

A close liaison was kept with the civil authorities for coordinating the relief tasks. Daily and hourly meetings were held with the civil authorities wherein critical areas were discussed and the thrust for the day decided. Representatives of the state government, Indo Tibetan Border Police, state police and NDRF were always present.

Trust is a key factor while coordinating with various agencies, and it develops within a collaborative setup between aircrew, despatchers and planners. However, it is a problem when there is distrust amongst the parties themselves, or someone has an ulterior agenda. The element of trust is a necessity for synergy between district administration and defence forces in execution of rescue and relief operations.

Coordination amongst various agencies, effective utilisation of all available resources, adaptive response, out-of-box thinking and common sense solutions are

some of the factors that need to be incorporated to improve the rescue and relief operation.

Responsibility and Accountability

In the Armed Forces, the idea of responsibility and accountability are well-ingrained and laid out. However, such clear cut responsibility is not perceived in civil circles. In the initial stages of disaster relief, the Armed Forces need to take additional responsibility and help civil administration in executing the HADR.

In assessing the efficiency and performance of district administration in executing rescue and relief operations, one must remember that these are emergent events holding a lot of complexity. In the initial stages, due to lack of knowledge and other administrative issues, the district administration was not able to execute the task efficiently. However, with the assistance from the other participants and NGOs, in a weeks' time they recouped their resources and rose to the requirements. The most crucial first one week is generally lost by poor administration or nil administrative facilities available.

Role of Leaders and Military

The Government of India has strengthened the NDRF and State Disaster Response Forces as a primary force in HADR in the last few years. Notably, HADR cannot be undertaken by a single agency. Hence NDRF being the primary force will be involved and air assets and other assets of Armed Forces are essential to be in a synergised role with NDRF to put up an efficient and expedient rescue and relief operation.

In disasters, it has been noticed that personalities of leaders make a big difference in true sharing of goals, vision, information and coordinated action. Leaders need to be trained and well versed in networking, negotiating, relationship-building, consensus-building and communicating. Technology resources to support all these must be compatible and valid at the level and environment they are being used. While motivations are strong for the overall cause of humanitarian service, an equally strong desire to share and collaborate towards a common goal must exist among leaders of all agencies. Joint training, scenario-based exercise, exposure to each other's structures and process through planning, and other such interactive initiatives are keys to building trust and understanding. It is this reason that the European Union has replaced the earlier term of CIMIC (Civil-Military Cooperation) with CIMCO (Civil-Military Coordination) reflecting a need for much closer integration necessary for effective HADR.

Media Management

As is their tendency, media wants to get scoops and bites from wherever possible. In the initial days, they would approach anyone they could, to get some titbit, which could give an incorrect picture of the magnitude and the conduct of the operation. This also causes disturbances in the smooth conduct of rescue and relief activities. It was decided to nominate spokespersons, who would officially brief the media on the developments.

Simulation / Mock Exercises

Disaster Relief teams need to practice the simulated disaster relief operation in the disaster relief sectors identified by the NDRF teams. This is required to be done once in a quarter as per the policy issued by the National Disaster Management Authority, which includes simulations and table top exercises. This exercise should be as per the disaster envisaged at that sector. With this we will be better prepared for handling any type of disaster.

Conclusion

A highly complex, chaotic and big disaster requires another level of knowledge, skills and preparation for leadership that has to stay on top of the decision-making conundrum. Training or experience, based on linear thinking or a pure intuitive-based approach, may prove to be catastrophic in such a dynamic system. Decision-support tools with adequate visualisation, networking and updated information are needed to augment processes that lead to competent analysis and decision-making. For supply chains to quickly change to a more optimal "pull" model from an initial response "push" model, assessments and analysis has to be done realistically at 'ground zero' level. Far too often, as exemplified post the Uttarakhand Disaster of 2013, massive flows of unwanted material and persons land up causing bottlenecks and burdening the already strained network.



Air Vice Marshal Rajesh Isser, AVSM, VM (Retd) is an experienced military aviator with extensive operational and combat experience in Sri Lanka (IPKF), Siachen Glacier, Kargil War and Congo (UNPK 2003-04). He has been a Task Force Commander in many rescue and relief operations all over India including Uttarakhand 2013, Ladakh 2010, Andhra-Karnataka 2009 and Arunachal Pradesh 2000. He has also done operational rescue work in South Asian and African countries. An author of three books, he has more than 50 articles to his credit in national and international journals on diverse subjects such as disaster response, peacekeeping, counter-insurgency, irregular conflicts etc.



The author being briefed on the equipment available for disaster rescue and relief in the static display.

EXERCISE SAHAYATA 2016

– Streamlining Disaster Relief Operations

Indian Disaster Response has improved in the last few years, but there is always a scope for improvement. To that end, regular coordination exercises need to be conducted between the various agencies to enhance efficiency of response. In this article, the conduct of one such exercise in 2016 is discussed.

Natural disasters strike with unfailing regularity, leaving in their wake death, destruction and huge economic losses. In India, every time there is a disaster, a number of agencies swing into action to provide Humanitarian Assistance and Disaster Relief (HADR). The sheer ferocity of the catastrophe has a stunning effect on everyone, including the first responders. It is imperative to coordinate the efforts of various agencies for achieving the most effective results.

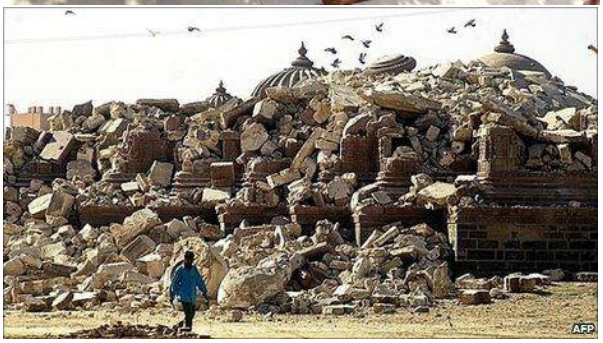
The Disaster Management Act 2005 gives the framework for establishing Disaster Management structures and organisations all over the country down to the Municipal Corporation levels. The National Disaster Management Authority (NDMA) Policy 2009 stipulates conduct of periodic exercises involving all the stake holders, to synergise efforts among the stake holders. However, these are rarely put into practice in the intended manner.

Structures and organisations have been raised at the Centre, the State and the District level, to deal with the disasters. These organisations have specific charters towards disaster prevention and mitigation. While Armed Forces are required to assist the civil administration only when the situation is beyond their capability, in practice, there is a tendency to involve the Armed Forces as immediate responders in all serious disaster situations. A number of factors make this inevitable - their vast potential to meet any adverse challenge, speed of operational response, resources and capabilities at their disposal, and the training and discipline.

During the Combined Commanders' Conference held in September 2015, the three services were directed to



NDRF personnel training for resuscitation.



Collapsed structures during the Bhuj Earthquake 2001.

conduct Joint HADR exercises incorporating all stake holders, including the Central Agencies, Armed Forces, para-military forces, National Disaster Response Force (NDRF) and civil administration down to Municipal Corporation levels. The aim of these exercises was to identify weaknesses in existing procedures and enhance synergy amongst various agencies, to improve disaster prevention, response and mitigation.

The Army was given the responsibility of exercising actions in a flood situation. The Army conducted Exercise Jalrahat in August 2016 in the North Eastern part of the country. The Navy was given the responsibility of simulating a tsunami situation. The Navy conducted Exercise Prakampana on the Eastern seaboard, centred around Vishakhapatnam, in early September 2016. The Indian Air Force (IAF) was given the responsibility of simulating a major earthquake in the Gujarat region. The IAF conducted Exercise Sahayata in the Kutch district of Gujarat in mid-September 2016. I was the Senior Air Staff Officer South Western Air Command (SWAC) at that time.

Once instructions were received at HQ SWAC from Air HQ and HQ Integrated Defence Staff (IDS), officers of the appropriate background and seniority were selected to interact with the State Government officials. There was some misconception initially that this was an IAF driven and funded exercise. There was much enthusiasm shown by some junior functionaries of the State Government to create "an earthquake affected site", estimated to cost several lakh rupees, and proceed to practice disaster response drills and procedures. It was seen as an opportunity for image projection. The enthusiasm was considerably dampened once there was a realisation that there is no such funding available. There was also some jousting initially to establish inter-se seniority between the state government officials and the IAF officers. These non-issues settled down by and by. Though quite irrelevant to the conduct of a rather important exercise, such issues are to be expected in the dynamics of inter-agency coordination, more at the levels of junior functionaries.

The State Government and the District Administration did not appear to have received adequate instructions from the Centre on their participation in the exercise. Hence there was a lack of clarity and reluctance on the extent of their participation. The issues were taken up with the Air HQ, HQ IDS and the State Government several times, to get the requisite response.

As part of the preparation, the State Government activated the State Emergency Operations Centre (SEOC), with communication lines established to concerned departments and agencies. The SEOC is a critical node for the conduct of HADR activities.

Exercise Sahayata was planned over three days, the initial portion being conducted at Gandhinagar and thereafter at Air Force Station Bhuj. It commenced on 14 September 2016 at HQ SWAC, with the Air Officer Commanding - in - Chief SWAC and the Chief Secretary co-chairing the opening session. Representatives of NDMA, NDRF, State Government departments, the Armed Forces, the Indian Coast Guard, NCC, HQ IDS, BSNL and others, participated in the exercise. The media was in attendance. A Table Top Exercise was conducted to discuss the simulated disaster and the contingencies. This was followed by live and static display by the various agencies at the IAF helipad.

The next morning, participants shifted to Air Force Station Bhuj. Survivors of the horrific earthquake of 2001 had been requested to talk to the participants and narrate their stories. As described by them, it was a terrifying experience to feel the earth beneath their feet become unstable and wobbly. One lost all sense of balance and control over one's body. They recounted vividly the feeling of utter helplessness and fear. They recollected with sadness that many servicemen and family members lost their lives in the earthquake. There were also heart-warming tales of raw courage, where individuals worked relentlessly over several days to rescue people trapped under the rubble, putting their own lives in danger. This session was very valuable in getting a glimpse of the extreme trauma experienced by the affected people.

For Phase II of the Exercise, a severe earthquake was simulated approximately 30 km North of Bhuj. Personnel of Air Force Station Bhuj were activated as first responders to provide relief to affected people, while the



Damaged buildings after the Bhuj Earthquake.

NDRF and SDRF arrived. Several transport aircraft of the IAF, were activated to position simulated relief material. The Rapid Action Medical Team of the IAF was also moved by C-17 aircraft to Bhuj. The main activities were:-

- Mobilising resources of the Air Force Station towards disaster management.
- Transport aircraft of the IAF bringing in relief material.
- Deployment of the Rapid Action Medical Team of the IAF to Air Force Station Bhuj and establishing a triage.
- Setting up of a field hospital.
- Live demonstration by various agencies of their equipment and capabilities.
- Demonstration and inspection of safe and unsafe procedures.
- Participation by NCC Cadets.
- Deployment of INS Delhi at Mundra port in the Rescue & Relief configuration.
- Demonstration of evacuation drills by the children of the local school.

A debrief was held on the third day to summarise the exercise and lessons learnt. The events which took place after the Bhuj Earthquake of 2001 were also highlighted. Some points which emerged are covered hereafter.

One of the major lessons from the 2001 earthquake was the need for effective management of relief material. In times of crises, relief material starts flowing in from different parts of the country, as well as from other nations. A number of aircraft arrive at the closest airport / airbase, at times overwhelming the organisation. Relief material needs to be offloaded expeditiously and managed efficiently, so that the aircraft can take off and make space for other aircraft. The district administration has to allocate the required resources to manage this in the best possible manner. There is a need to draw up Standard Operating Procedures and Check Lists for concerned functionaries, to be able to respond effectively. These drills need to be practiced regularly so that in the event of an actual disaster, training takes over.

The Bhuj earthquake was a double whammy for the Air Force station. Not only did the Air Force Base lose a number of personnel and family members, the airbase and support services were also severely affected. The Air Traffic Control building had collapsed as had the Base Operations room. Electricity was not available and all communication lines were affected. The closest airbase was a 100 kms away, so the relief material had to be necessarily received at Bhuj air base itself. It was the dynamism, the dedication and innovativeness of individuals, who despite suffering personal tragedies, made it possible for a stream of Indian and foreign aircraft to be flown in with relief material, reaching a figure of a thousand aircraft in 25 days.

End Note

The HADR exercises spearheaded by the three Services, were an important step towards achieving coordinated and effective disaster management. This was the first time the Central and State Government agencies, Armed Forces, and many more agencies got together to brain storm disaster management. Periodic exercises of this nature, conducted with intent and seriousness would go a long way in meeting the challenges of disaster management. For successful conduct of such an exercise, involving diverse agencies reporting to different ministries, clear and unambiguous instructions must flow down from a central authority to all the agencies involved. It should be a common directive, with roles and responsibilities clearly spelt out. Identified weak areas would need to be addressed with speed and seriousness to prevent or minimise the effects of disasters.



Air Marshal S Harpal Singh, PVSM, AVSM, VM (Retd) was commissioned as a fighter pilot in June 1980. He has about 2500 hours of flying experience mainly on MiG 21, MiG 23, MiG 27 and MiG 29 aircraft. He has commanded a MiG 29 Squadron and has also been a Chief Operations Officer at an Air Force Station. He has commanded two Air Force Stations in the West and East respectively. Besides his DSSC Course, he has also attended the Senior Officers Course at National Institute of Defence Studies, Japan. He has been the Deputy Commandant College of Air Warfare (CAW) and has held important appointments in the strategic arena. He was the Senior Air Staff Officer of SWAC and thereafter the Director General (Inspection and Safety) of the IAF till his superannuation in May 2019.



Child Soldiers of LTTE

THE NIGHT BEFORE OUR HERO DIED : A True Story

The death of colleagues during operations has an emotive impact, and a short tryst with a soldier prior to his demise in action also has a profound effect. In this real life narration, the author recalls his few hours with a brave young officer a night before he was killed in action in Sri Lanka.

Teenage Times

2nd Lieutenant Rajeev Sandhu, Our Hero studied at St John's High School, Chandigarh, a prestigious English Medium, all boys private school in Chandigarh from 1976 to 1982. He was quite popular amongst his classmates and a common opinion that they had about him was that he was a firebrand enthusiastic leader and a perfect fit to be an officer in the Army. *"It was in his blood; he could do anything since he had an admirable will power"* said Lieutenant Colonel PK Jaitly (Retd), a classmate. *"There were three officers from our class. Only he was the fittest. He had a never-say-die spirit,"* said Colonel Michael James (Retd), another classmate. After passing out from school, Rajeev joined DAV College, Chandigarh from where he graduated in 1987. The college has a tradition of remembering its students who laid down their lives for the service of the nation. There are four pillars at the entrance of the Administrative Block which depicts the name and laurels of the Martyrs. Our Hero figures in that revered list.



Upper Image. Batticaloa. Lower Image. IPKF Troops getting ready for a heliborne operation.

Donning The Olive Green

Rajeev Sandhu joined Officers Training Academy (OTA) at Chennai in 1987 and was commissioned into 7 ASSAM on 05 March 1988. At the entrance of this premier institution upon the impressive gate is written in shining brass against a granite background-**"Serve with Honour"** – a rather simple motto but loaded with the spirit of sacrifice so commonly found amongst the hundreds of Gentlemen and Lady Cadets commissioned from this great institution. He was pipped by his father, Mr DS Sandhu who had served in the Indian Air Force and mother Mrs Jayakant Sandhu, the first lady SSP officer from PPS cadre who was also a recipient of the Police Medal for meritorious service. Rajeev reported to his battalion which was deployed in Batticaloa District in Sri Lanka as part of the Indian Peace Keeping Force (IPKF) in April 1988.

The Combat Zone

The IPKF launched Operation Pawan in 1987 to take control of Jaffna and other areas from the Liberation Tigers of Tamil Eelam (LTTE) and disarm the Tigers as part of the Indo-Sri Lanka Accord. The Indian Army took control of the peninsula in nearly two weeks of brutal fighting, something that the Sri Lankan Army had tried and failed to achieve for several years. The main task of the IPKF was to disarm the different militant groups, not just the LTTE. The force was initially not expected to be involved in any significant combat. However, within a few months, the IPKF became embroiled in a battle with the LTTE to enforce peace. The differences started with LTTE trying to dominate the interim administration, and also refusing to disarm. Soon, these differences led to the LTTE attacking the IPKF, at which point the IPKF decided to disarm the LTTE militants, by force if required. Given LTTE's tactics in guerrilla warfare and using women and child soldiers to fight battles, it soon escalated into repeated skirmishes between the IPKF and LTTE.

Batticaloa District

Batticaloa having mostly Sri Lankan Tamil population is located in the Eastern Province. The district, like the rest of Eastern and Northern Sri Lanka, was affected by the civil war. The war killed an estimated 100,000 people. Several hundred thousand Sri Lankan Tamils, possibly as many as one million, emigrated to the West during the war. Many people from all ethnic and religious groups who lived in the district also fled to other parts of Sri Lanka, though most of them have returned to the district since the end of the civil war.

My battalion, 13 MAHAR was deployed in Batticaloa District as part of the 'Red Shield Division' of the IPKF in 1988. Our posts were spread all over the district and the battalion headquarters was located at Pullumalai where I was performing the duties of Adjutant. I was then a Captain with about ten years of service. We were deployed in Sri Lanka at a time when the duels between IPKF and the LTTE were at its zenith. There wasn't a single incident free day ever – the 'events' ranged from killing of innocents by the LTTE, ambushes and counter ambushes by the IPKF and LTTE, heavy volleys of LTTE fire upon an IPKF post, LTTE militants engaged in a fire fight with the IPKF etc. These were routine incidents!

On 18 July 1988, my Commanding Officer called me to his make shift office at about 4 p.m. and said that he had been called up to the Brigade Headquarters (about 40 km away) for an operational conference and that he would be back only the next day. Since I would be the only officer left behind in the headquarters, he cautioned me to be alert for the night since the LTTE were quite capable of creating some trouble, going by the events of the preceding few days. Soon after he left, I quickly went around the battalion headquarters to check the guard and also to activate the "Quick Reaction Team" to ascertain their level of alertness and reaction. Thereafter I got back to my office and buried myself into the files and other routine work.

That Night

At about 9 p.m, I was informed by the guard that a small convoy of 7 ASSAM had reached the gate, led by an officer. I instructed the guard to check out the credentials of the party including the name of the officer and then let them in. About half an hour later, there was a knock at my door followed by a crisp, *"Good Evening Sir!"* I looked up and there stood a tall, handsome young Second Lieutenant with a 9 mm Carbine strapped

across his shoulder. I rose up from my chair and said, *"Welcome to 13 MAHAR, Rajeev"*. The youngster was astonished. *"You know my name Sir?" "Ah Yes, I got it from my guard at the gate. I hope your boys are comfortable. I guess you are transiting through my battalion location."*

And that, dear reader, is Our Hero - Second Lieutenant Rajeev Sandhu.

Why would I call him a Hero? Rajeev hadn't performed any heroics. Well not yet. As Rajeev stepped in, he said, *"Yes Sir, we will be staying for the night in your headquarters and will be off tomorrow morning. My company has been placed under the neighbouring battalion and I have a task to perform tomorrow".*
"Well Rajeev there is a hot meal waiting for you at the Officers Mess and then you can proceed to my tent where you can knock off for the night."
"Thanks Sir, but how about your dinner?"
"Not before midnight friend, since I've got to catch up with some work", I replied.
"Sir, there is no way that I will have dinner while you are slogging away in your office alone. I will sit up till midnight with you and we will dine together."

Despite my best efforts to get Rajeev to break off for dinner and rest, he wouldn't budge. He insisted that we have dinner together. So, while I was still working on my files, we got into a conversation, thus:-
"When did you pass out of the Academy, Rajeev?"
"On the fifth of March this year, Sir, from OTA Madras"
"And where did you study?"
"St John's High School Chandigarh, Sir and graduation from DAV Chandigarh"
"Well, well, that's a coincidence. I studied in St Johns High School, Bangalore" I said.

Thereafter, the tone of our conversation changed from a *'senior-junior'* level to a *'school type'* level. The youngster looked more relaxed, now that he was in the company of another 'Johnian' though he was conscious that he was in conversation with an officer ten times his service. And that's good breeding!

I was quite impressed with this young officer; just four months into commissioning but brimming with confidence and well up with events. The conversation went on and finally at around 11.30 p.m, I wound up my files and took Rajeev to the Field Officers Mess. I liked the way he conversed - he smartly expressed his views with a subtle well timed humour which got us into splits of laughter. For me, it was a welcome change since, in the preceding few months the only other officer I was in conversation with in the Battalion Headquarters was my Commanding Officer - miles senior to me. The probability of 'humour' in that setting was few and far!

A quick dinner and then we walked across to my tent where Rajeev's bed was already prepared by my boys on a field camp cot. There was so much that we discussed – from hobbies to games (Rajeev was a national skating champion for seven years), to life in the infantry to the insurgency in Sri Lanka and more. Such an affable, well-mannered strapping young officer, full of life and mature much beyond his years.



Upper Image. IPKF War Memorial, Colombo. Lower Left. Captured LTTE Arms. Lower Right. DAV College, Chandigarh, from where 2nd Lt Rajeev Sandhu graduated.

"Chalo, Rajeev, you better knock off to sleep. When do you intend moving out?"
"Sir, I must leave by 5 a.m. since I have a fair amount of distance to traverse."
"Fine, I will see you off."
"No Sir, that's not required, you don't have to trouble yourself."
"Rajeev, as a rule no convoy moves out of this Headquarters until briefed by the Adjutant since we are in an operational area. So, my dear, I really do not have much choice."
"Well Sir, in that case it will be an honour to be briefed and seen off by you" said Rajeev and soon he was asleep.

The Fateful Day

Rajeev woke me up at 04.30 a.m. that fateful morning and we quickly got ready, jumped into our combat dress and walked up to the gate together where his small team was waiting in two vehicles. He briefed his boys first and I did so thereafter, cautioning them to be fully alert since the LTTE cadres were quite active on the route that they were to traverse. At 5 a.m. sharp, the party was ready to move and the youngster gave me a smart salute and said,
"Thank you Sir, looking forward to meeting you again!"
"Me too, Rajeev. Be careful and all the best!"






Upper Left. Martyrs Pillar, Chandigarh.
Upper Right. Rajeev is pipped by his parents at OTA, Chennai - March 88.
Lower Left. Room dedicated to Rajeev in the Sector 45 residence of his parents.
Lower Right. Rajeev's parents stand in front of his statue in St. John's School, Chandigarh.

I said as I shook his hand.

I liked this youngster. I fail to recall, but I think I did pray a silent prayer for his well being. Any move in that LTTE infested area was fraught with danger. I waited at the gate until the tail light of the rear vehicle dimmed out. Since I was dressed up for the day, I decided to go around the post to review the security arrangements and was back in my office after a quick breakfast.

Around 9 a.m, I received a radio call which confirmed that the 7 ASSAM convoy had crossed my unit area of responsibility and was now transiting through the neighbouring battalion area. A little while later, I got yet another call from a radio operator who said, *"Saheb LTTE ne 7 ASSAM convoy par ambush kar diya."*

I was stunned, to say the least. I tried to get it off my mind that something had happened to Rajeev. My best efforts to get more details of the ambush from the nearby posts drew a blank – radio communications in those days weren't the best and left much to be desired. I thereafter called up the Adjutant of the neighbouring battalion. He too was busy and picked up my call after a fairly long time. My worst fears were confirmed when he said, *"Yes Sir, there has been an ambush by the LTTE. The youngster from 7 ASSAM is no more. He put up a brave fight and succumbed to his injuries."*

Oh God! Rajeev was gone. It was difficult for me to come to terms. This brave heart was with me just last night. I never ever imagined that it would be his final adieu. Rajeev succumbed but not before he put up a brilliant fight. Fate can be cruel, but such is life. The event that took his life can be best explained by the original citation that is reproduced below:-

On the 19th July, 1988, Second Lieutenant Rajeev Sandhu was leading a convoy of two vehicles from Madurang Keni Kulam to Mangani in Sri Lanka for collection of dry rations. On the way his jeep was suddenly fired upon by the militants with rockets and AK-47 and 7.62 rifles. He was seriously wounded and a direct hit of a rocket completely mutilated both his legs. Totally crippled and bleeding profusely, he tumbled out of the jeep with his 9 millimetre carbine and crawled to a fire position. Presuming that everyone in the vehicle had been killed, one of the militants came out of hiding and approached the jeep to pick up the weapons and ammunition. But all was not over yet for Second Lieutenant Rajeev Sandhu. Despite the fact that his legs were totally smashed and his body was perforated with bullets, he lifted his carbine with his blood soaked hands, sprayed the militant with bullets and killed him. The militant was later found to be none other than Kumaran of the group led by Batticaloa Sector militant leader Karuna.

Second Lieutenant Rajeev Sandhu blunted every effort of the militants to come anywhere near his fallen comrades or their weapons. He displayed conspicuous courage and made the supreme sacrifice of his life in keeping with the traditional martial spirit of the Indian Army.

In his death, this young hero with just four months of service left behind a legacy of courage, honour, extreme bravado and supreme sacrifice. 2nd Lieutenant Rajeev Sandhu was thus the youngest Indian Army officer to be honoured with a Maha Vir Chakra (posthumous).

In Memoriam

A room at the Sector 45 residence of Mr DS Sandhu has been dedicated to Rajeev by his parents. Memorabilia of all kinds which were part of his life have been displayed in this room – from photographs to sports medals to his regimental accoutrements – in fact everything that would remind the parents, relatives and friends of their beloved son from childhood till martyrdom. They have also kept religious books like the Ramayana, Gita, Quran and the Bible in the room.

"My son was commissioned in the Army on March 5, 1988, and lost his life while fighting the LTTE on July 19, 1988, in Sri Lanka. We could not see his body, but he will always live with us. I still wear his chain, ring, watch and bracelet. On the 19th of every month, we give food to physically and mentally challenged kids in the memory of our son," said Mr D S Sandhu during a recent interview. Mrs Jayakant Sandhu, mother of the valiant warrior said, *"His bravery is an achievement for us. It gives us strength at every moment of our life."*

Rajeev's name is in the Martyr's Pillar at the Terraced Garden in Sector 33 of Chandigarh. The Pillar has been constructed most aesthetically and serves as a constant reminder of the valour and sacrifice of soldiers hailing from the region in various wars. The government has honoured the martyr by naming the gymnasium hall and dining hall after

him. An area in Manimajra has been named Rajeev Vihar after the gallant officer.

A 'Rajeev Memorial Park' has been constructed in the Assam Regimental Centre, Shillong to honour our hero. A beautiful memorial has been constructed in Sri Jayawardenapura Kotte on the outskirts of Colombo to honour the IPKF. The names of the 1200 soldiers who died are inscribed on black marble. Rajeev's name figures prominently in the list of martyrs.

Rajeev Memorial Park, Leimakong (Manipur)

Ever since Rajeev attained martyrdom, it was on my mind that I must pay a fitting tribute, in some form or the other to this brave heart. I did get that opportunity when, in 2010, I was given the command of the Red Shield Division on being promoted to the rank of a Major General. The headquarters of this Division is located in Leimakong, in Senapati district of Manipur. 7 ASSAM was part of this formation in Operation PAWAN in 1988 in Sri Lanka. I tasked Colonel SK Biswas, a fire brand Commanding Officer of 165 Territorial Army (Home and Hearth) Battalion (Assam Regiment) to develop the park in an area within the garrison and explained to him the theme upon which the park should come up. Within a few months, the park came up beautifully. An artificial lake with a few paddle boats, a beautiful fountain and a statue of Our Hero forms part of this wonderful park. Also, two traditional huts called the Nongin Hut and the Siroy Lily Hut have been most aesthetically located at the fringes of the lake. The Nongin is the state bird of Manipur, a brightly coloured chestnut and blue with white banding scapulars and wings while the Siroy Lily is a rare Indian species of plant found only in the upper reaches of the Siroy hill ranges in the Ukhrul district of Manipur.

The Rajeev Memorial Park was inaugurated on 24 March 2012 by Mr and Mrs DS Sandhu, his proud parents who flew in to Manipur from Punjab for the occasion. During the impressive inauguration ceremony, the Brass Band of Assam Regimental Centre from Shillong and the Pipe Band and Jazz Band of Manipur Terriers presented some heart rendering patriotic tunes and songs which touched the souls of everyone present.

A few months later, when I was about to relinquish command of the Red Shield Division, a flock of migratory birds descended upon the lake on a bright sunny morning – the first time ever, as if to suggest that Rajeev's soul had found eternal peace in the precincts of that beautiful lake.

Statue of Our Hero in St John's School, Chandigarh

On 29 November 2017, a statue of 2nd Lieutenant Rajeev Sandhu was unveiled in the school premises. What a wonderful way to honour THE HERO of the school. The ceremony was attended by Rajeev's parents. A number of classmates of Rajeev including nine sitting High Court judges, all alumni of the school were present, amongst others. During an interview, Mrs Kavitha Das, the Principal said,

"The motto of the school is **'Pro Deo Et Patria'** *which means* **'for God and for Country'.** *If anybody ever lived by both these pillars of St John's, it was that young man. To sacrifice one's life at such a young age shows courage and loyalty that goes beyond comprehension. He was a young man when he died but he lived life to its fullest. We in St John's are so proud of him. He set an example that few have."*

In Conclusion

"Did you hear it? It is the drums of victory being played from heavens by our martyrs"

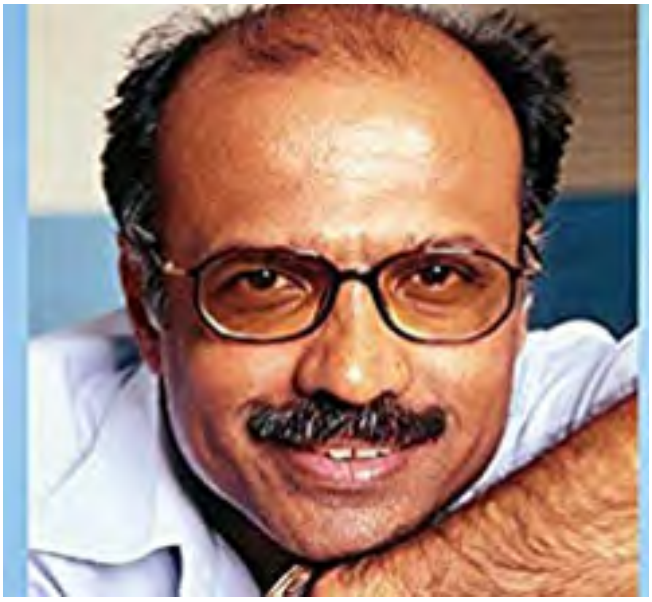


Rajeev Memorial Park, Leimakong

Rajeev, you will always be remembered as Our Hero, for, you are the bravest of the brave. Your name has been scripted in gold in your battalion, your regiment, the army and our nation. You will live in our hearts forever. The Spirit of Supreme Sacrifice is Ever Abiding!



Major General Binoy Poonnen, AVSM, VSM (Retd) was commissioned in 1978 into 13 MAHAR as a second generation Army officer, and went on to command his battalion from 1997 to 2000. During his illustrious service, he attended many professional courses to include Defence Services Staff College, Higher Command and National Defence College courses. After commanding a mountain brigade in an operational area, he went on to command a Mountain Division in a Counter Insurgency role in Manipur. He has served in Sri Lanka as a part of IPKF, and has also done stints in Bhutan and Lebanon. He has handled defence cooperation and defence diplomacy aspects with foreign countries during his tenure in Army HQ. After 37 years of dedicated service in the Indian Army, he has settled in Mhow, Madhya Pradesh.



When I offered to send out talking points for our fireside chat in advance, Capt Gopinath brushed me aside saying his life was an open book, and he would address everything we asked of him on the spot! Our subsequent 90-minute conversation was punctuated with an almost-brutal honesty, some self-deprecating humour, oodles of candour, and unmeasured spontaneity. No wonder then, that the man and his life personify the motto 'Simply Fly'.

'SIMPLY FLY'

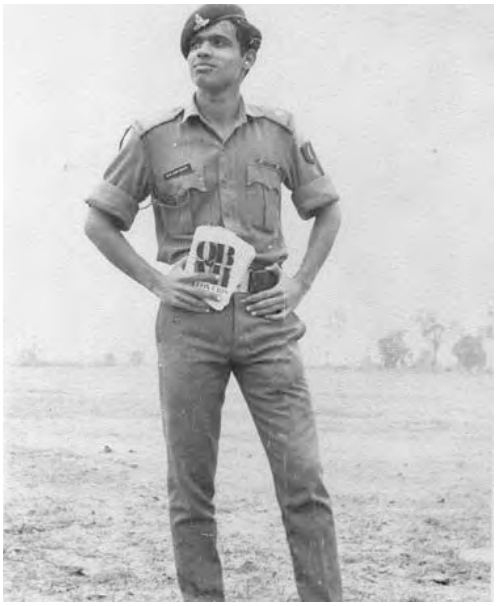
A Fireside Chat with Captain GR Gopinath

It's easy to see why Captain Gopinath was destined to be a legend of sorts. During my entrepreneurial journey, I read his autobiography 'Simply Fly'. His idealism, wit, and zest for life are indeed inspiring, but what stands out is his ability to prioritise his dreams over the fear of uncertainty. In many ways, I tried to emulate his somewhat unconventional rulebook for entrepreneurs, while also believing there can never truly be anyone quite like him.

Excerpts from the interview

You grew up in modest surroundings in a village in Karnataka. How much did your childhood shape you?

My father was a poor teacher in rural Karnataka, and I used to attend the local Kannada-medium school barefoot. Although he was not paid well, he had aristocratic values – hard work, integrity, and devotion. He would always say, 'Whatever you want to do, have shraddha. Don't lose yourself in despondency. Lose yourself in action'. Also, we were never taught to envy the rich, but to understand that there were those less fortunate than us -the Harijans, the Dalits, those who worked all day in the fields. My childhood was filled with sunshine because there was no envy or jealousy.





Indian Army : The Initial Years

How did you come to join the Sainik School?

When the headmaster told us that there was an exam for entry into a military school, I put up my hand instinctively. The exam happened to be in English. I naturally failed and came back crying to the headmaster. He wrote a rather angry letter to the Ministry of Defence, telling them that along with aspirations of starting a military school and recruiting people from the village, there should be provision for exams to be held in the local language, not just in English. English is not equal to intelligence, he wrote! Fortunately, somebody took note and he came back later saying the exam would be held again, this time in Kannada. I re-attempted it and passed. There was also a lifetime's lesson in this – 'Don't take no for an answer. Challenge and question it - not to be a nuisance – but to have the courage to disagree if you feel something isn't right. By not doing anything, there is certainly no chance of success. But by doing something, there is the possibility of success.'

Was the Indian Army the natural progression from there?

While at the Sainik School I took the competitive UPSC exam for the NDA and got selected. Then from the NDA, I went to IMA and chose the Artillery. There is a descriptive motto for our batch called 'Born to Battle'. At Devlali, at the School of Artillery, our course was cut short because 'war was in the air'. We knew that things were heating up at the border, and I was posted to my unit - 52 Mountain Regiment. It had 75mm howitzers, which were posted at a high altitude in Sikkim. I took a train straight from Devlali to my unit!

That was the Bangladesh Liberation War of 1971, wasn't it? Tell us a little about your memories of it…

I arrived at Lake Chhangu in Sikkim, the headquarters of my Regiment, for acclimatisation. The unit had got orders to move for the war straight away. There was a buzz in the air, a mix of excitement and tension. Trucks have to be marshalled, ammunition has to be loaded, so at a 48-hour notice, the unit had to be prepared to go to war. I was posted to the 38 Battery. Major Balkar Singh, a stout, hearty Sardar was my Battery Commander. Lt Colonel KLK Singh, who went on to become a General later, was our outstanding Commanding Officer (CO).

We moved to Siliguri to the 33 Corps Headquarters. I was made the Intelligence Officer – to the CO. In those days, they were appointed like an ADC to the CO. He would constantly take me with him to the innumerable meetings he had to attend! It was a great lesson to a young mind that was impressionable, since he was such a quick decision-making CO.

Just before we moved into the war, General Sam Manekshaw came to visit the senior officers. When Colonel KLK met him, I went along as well. I still remember, we stood in a row, along with the Corps Commander. Manekshaw shook hands with us and made a brief speech, which I still remember vividly. Of course, I was too junior to speak to him, but he was such a charismatic leader. The Unit moved immediately to a place a few kilometres from a large village named Bhurangamari, the Panchayat headquarters. We were in dugouts outside that village. I was with the CO when the attack began – much before the actual 14 days of the December War when it was announced. The atrocities in Bangladesh increased and the Mukti Bahini was under the training of the Indian Army. The first battle was very intense. I was with the CO, so right after the attack, and capture of Bhurangamari we went to visit the injured jawans and officers in a jeep.

We were going from room to room and heard some voices of women there. When the doors opened, we saw women held captive by the Pakistani Army. They had raped these women and abandoned them there along with boxes of condoms and stacks of ammunition. These heinous atrocities alienated them from the local population, who then started helping us. It became a big turning point in the war.

Then two of our officers got injured severely, so I was asked to head back to the gun positions of the Battery. The Observation Post Officer (OP Officer) who accompanies the infantry in the attack got injured and the Gun Position Officer (GPO) was moved to the observation post. My CO asked me to become a GPO, where I remained for the rest of the war. I was made in charge of commanding 6 Guns of the Battery -



Bayonet Fighting

that was a great experience for me because ultimately you learn only on the job.

Finally, as the war raged and the Pakistani Army fled we ended up in Dinajpur, with the 33 Corps surrounding a large number of Pakistani Army soldiers along with their armour and guns and weapons in the District Headquarters, and throughout that period I remember hearing General Manekshaw's speech on the radio, asking them to surrender. The gist of it was, 'We won't harm you. We'll respect you. We'll take care of you. But please surrender, otherwise, you'll be invaded and killed.' This speech was repeated on the radio to the Pakistani soldiers, and on the 14th day of the war, they surrendered. It was a resounding victory for India.

You quit the Indian Army not long after that, at just 28. Did you have a roadmap ahead for what you wanted to do?

I always had a love for farming. When I returned to my village, I thought I'd do that. My father was shocked. He had been so proud that I'd joined the Indian Army and was devastated by my 'foolishness'. I told him my army life now stood me in good stead. It had inculcated in me several attributes, which I could now use in civil life. After the Sainik School, NDA, IMA, and the years in the Army, I would be able to make a living with the qualities I had imbibed. There was this inextinguishable optimism bubbling within me, that I could discover for myself what I wanted to do.

We'd been allotted some beautiful, virgin lands with fertile soil by the government. I wanted to convert this barren land skirting along a lovely stream into a coconut and banana plantation. I didn't have much experience in agriculture other than what I'd seen my father do as a child, so emotion overtook me that I could create something out of nothing. For the next two years, I lived in a tent on that land. I planted coconuts, bananas, and various other crops, I bought Holstein Frisian cows and set up a gobar gas plant for cooking and light since there was no electricity there. That is how my farming life began.

Like all farmers, I got into debt. It suddenly occurred to me that ecological farming – farming without chemicals, pesticides, fertilizers – was a friendlier method. No one fertilizes a forest, and you don't get diseases in the prime forest. You get diseases only in social forestry, but prime forests have an ecological balance. I started innovating, creating experiments, and applying these ideas. Not only did I bring my expenditure down, but I also became the largest silkworm farmer in Karnataka at one time. I received the Rolex Global Award for ecological farming as well. That gave me a lot of publicity and credibility. So I set up a consultancy company for water management. Along the way before things became financially viable, I did a lot of other things – An Enfield motorcycle and Kinetic Honda scooter dealership which grew into eight branches in Hassan and Chikmagalur districts and even an Udipi hotel – to add to my farm income and make ends meet.

From farming, how did you get into aviation?

In Bangalore, where I had set up an agricultural consultancy company, I met a former colleague, Lt Col Samuel. He was a helicopter pilot who had resigned from the Indian Army. In his early 40s with three children, he didn't have a job because there were no helicopters! He would go once in a while on call to the North East to fly for ONGC, and be paid by the hour. So, it was quite an unstable life for him, and he was looking for a job. Finally, he found one, as an Administrative Security Officer in a courier company. I was devastated since

he was a great pilot and a gallantry award winner. Above all he was made of sterling qualities. He was still forty.

One day, he remarked while I was playing a game of squash with him in the RSI Army Club, 'Why don't we start a chopper company?' Those words kept ringing inside me and grew on me. Then I took a delegation of silk farmers to China for a month in 1996, right after I won the Rolex Award. The experience hit me like a tonne of bricks! A communist country had embraced capitalism, and we were still 15 years behind them, not able to get our act together. Karaoke bars, nightclubs, massage parlours… Beijing had it all! They realised foreign investment would not be forthcoming without good social infrastructure. Not just nightlife, even good education for children, and good accommodation were needed. That realisation lit a spark.

The spark further brightened when I read an article about the Vietnam war, where a survivor spoke about its aftermath. Roads were absent, bridges were destroyed, and the only safe way of going from place to place was by helicopter. Suddenly the idea flashed to me that India hasn't been bombed, but our infrastructure was as bad as a bombed city in those days! If it took 24 hours instead of half an hour to go from Place A to Place B, this was an opportunity. So, I thought we could set up a helicopter company!

PV Narasimha Rao just had come in as the PM and started reforms. I knew that these reforms were now unstoppable and inexorable regardless of who would be in power. The government at the centre and even at state level - especially southern states - had realised that they couldn't come back to power if they didn't create jobs. It was the pressure of India getting isolated that led us to usher reforms.

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Family Time : with Bhargavi and the girls

Three things occurred to me. Firstly, there were hundreds of pilots and engineers from the Indian Army, Navy, and Air Force who had retired young but without jobs. Secondly, there was not a single helicopter in the whole of south India, except for old Chetak helicopters owned by the state governments. Thirdly, I didn't have any competition, plus I'd got resources such as pilots and engineers. I came back, told Captain Samuel to resign from his job, and help set up the helicopter company. We didn't know how much a helicopter cost (fortunately!) but we knew we were going to do this! He was a great partner, a great pilot, and looked after operations, while I looked after the business aspect. We called it Deccan Aviation.

What challenges did you face?

For starters, it took us three years to get our license. We did not give up. When we went to New Delhi, we used to stay in the officers' messes of friends in the Army to cut down our costs, because we couldn't afford hotels. A friend of mine - the Late Captain Ben Abraham - was a General Manager in Nirula's, so he would help us with all the typing. That is how we scrounged, but we kept going.

The aviation sector was tightly controlled, and still is, so by the time you get one clearance, another clearance gets expired. Of course, if you have money, it can be faster. On principle, we didn't want to bribe, and we also didn't have the money! But ultimately, doors will open. Persistence is more important than talent. You can hire good talent if there's something you're not good at, and complement your skill sets by bringing in people who can fill in the gaps for you. What is required from a leader is to show integrity, courage, and passion – that has to rub off on the people below you. Your energy and commitment are more important than capital. Capital will find you if you have the right ideas and have created the right ecosystem.

Did you ever feel like giving up? What gave you the courage to persist during those three years?

Many great enterprises started only because they had a big dream, they believed in the dream, and they dared to follow through. But it isn't enough to dream. The dream must be combined with commitment and hard work. When you start, you start small. If all obstacles have to be



Deccan Aviation : Idea to Action

overcome, no venture can ever start! If you have an idea, you have to be obsessed to the point of madness with the idea – the idea must possess you. And then you must have the courage to take that leap of faith. As someone said - The glory of man is not in never falling but in rising each time he falls. Business - as is life - is the art of picking up the pieces and rising each time you fall.

Where did you eventually find the capital?

You just get started with what you have – in our case it was the idea of a helicopter company. I had put in about INR 6-7 lakhs, and Captain Samuel put in the same amount. We survived with that for over 3 years. He had some pension coming to him and some savings. So that was our seed capital. I was able to mobilise others to join me such as Colonel Poovaiah and Colonel Rawal who was also an aviation pilot, and who eventually in the later stages put in about INR 6 lakhs. I gave them all equity. Finally, when we got the license, we also had, pilots, engineers, who had committed to join the day we told them to join. I received one acre of land in Bangalore, from the Chief Minister – where I'm still sitting in my office as I speak to you. But despite the land and license, I still didn't have helicopters. Then another investor put in INR 20 lakhs, and a Japanese added another 50 lakhs and all on equity as well. Interestingly, the person who had given me INR 20 lakhs, liquidated his shares when I sold to Vijay Mallya and received INR 145 crores after 9 years. That's the value of equity!

I started with one helicopter, then one became 10. And then 15. Then we acquired two planes, so the company was profitable, but didn't have big money.

When I decided to launch Air Deccan, the low-cost airline, the first investor who had given me INR 20 lakhs gave me INR 5 crores on interest. Although I told him that his initial investment would become much bigger if he gave me the INR 5 crores, he asked for 18 percent interest and also 50 percent of the company as security! I didn't bat an eyelid and said yes. In six months, I had bought back my company and repaid the entire amount. With those 5 crores, I started with two ATRs. Within 6 months, another investor gave us INR 20 crores on the same terms. Six months after that, from the same shares, I got 45 million US Dollars from private equity. Then we raised INR 400 crores by going public.

We leased the aircrafts when we started Air Deccan. With INR 200 crores you could buy just one aircraft, but by leasing with a good business model that can be scaled up we can build an airline of 200 aircrafts. Nobody owns the aircraft. The aircraft can become a liability.

When did you diversify into airlines?

One day, Mr SM Krishna, the former CM of Karnataka, wanted to go to the Palani temple. Since he felt helicopters were noisy, he requested a plane. The nearest airport was Madurai, but from there, you had to travel another two hours by road. So, I sent a pilot to look for any airstrip around Palani. He found a disused World War II airstrip near Dindigul, belonging to a textile company. Captain



Deccan 360 : A Project ahead of its time.

Rahul, the young pilot, called me and said it was still in good shape. There was a termite mound and some cows were grazing. A little bit of cleaning, and he could land in our Pilatus 9 seater. We spoke to the textile company, who were happy to let us land there. I found out that there were 500 such airfields across India, from WW II and pre-WW II, and new ones right from Bellari to Tirunelveli to Vijayawada and Coochbehar across India. . Some of these were under defence control, but many under state governments and the private sector. Then we successfully flew Mr Krishna to Palani temple. That was the seed of the idea of connecting all the 500 airfields in India deep into the bowels of the country.

Then in an unrelated incident, while flying over villages in a helicopter, I found something shining. On closer observation, it happened to be a dish antenna. For every cluster of people in the village, there'd be one big dish antenna. These were early days, before the cable TV boom. Even on Kannada movie channels, there were advertisements for soap, toothpaste, cookers, or motorcycles. I realised that a new India was emerging. There were a billion - not hungry people to be subsidised - but hungry consumers. We are talking about caste issues even now, but I think there will ultimately be one caste – the consumer caste. When I buy a sari, I don't look at who made the sari. The weaver could be Muslim, the farmer could be a Hindu Gowda, the wholesaler could be a Marwari… it's all integration. Trade unites. Consumers were buying everything except air tickets. Again, there was the spark of an idea -India needs an airline for the masses. This crystallised when on a flight in the US – a carpenter sat next to me in a low-cost domestic airline. Though he hadn't travelled outside the USA, he travelled domestically by flight. India was heading in that direction. 'Every Indian must fly' was an impossible dream, but nothing is impossible. If you can dream it, you can do it. That's how I gave the slogan 'Simply Fly'.

Why did you decide to merge with Kingfisher Airlines and what went wrong?

Firstly, the oil prices went from USD 21 for a barrel to USD 157. Then five new airlines launched – SpiceJet, Kingfisher, IndiGo, Paramount, and GoAir. Suddenly, there was excess capacity. Even today only 4 percent of India travels by air, while 96 percent are still not able to afford air travel. Internationally per capita, air travel in India is comparable to some of the poorest African countries. In stark contrast, four times the population of Norway travels by air - there are only 4 million people, but 20 million tickets are sold! Airlines were losing money, so we thought it was a good idea to merge the entities to create a stronger base, and also to ensure returns to our investors, who





Leading from the front

put in money trusting us. We had already gone public by then, which was the reason Mallya made us an offer – he was still private. The company was valued at a billion dollars before Mallya could finally merge the airlines. I did not sell entirely and exit. He invested in Air Deccan and became a larger shareholder than me.

The agreement was that we would build the low-cost carrier within India – so Air Deccan and Kingfisher Economy would become one as Air Deccan - and Kingfisher International would remain as a premium International airline. After the merger, he reneged on this, which was a surprise. He eliminated the low-cost model and instead created Kingfisher Red a sexier costlier Air Deccan. People stopped flying Kingfisher Red and switched to IndiGo because it was cheaper. Also, he was cannibalising his passengers from Kingfisher to Kingfisher Red, because they were competing against each other. It was an inherently flawed model, but he did not listen to me and we eventually fell out over big differences of opinion. Although I fought tooth and nail, eventually I had to exit and sell my shares later to the public. We did not want to sell the airline. We thought he was investing in the company and we could expand. He did not cheat me of money but robbed me of my dreams. But from the investors' point of view, I'm still looked up to as a genius as I made big money for all of them.

What did you do after exiting?

I had two companies – Deccan Charters and Air Deccan. Only Air Deccan merged with Kingfisher. Deccan Charters continues. It's a small, boutique company that maintains about 40 – 50 aircraft. We still have the controlling stake of Deccan Charters. It has got helicopters and some third-party aircraft. We are in 15 locations, including Chennai, Bangalore, Mumbai, and New Delhi.

Are your daughters involved in the family business?

No one from my family is involved. I've got a CEO who was previously in the US. He's now been with me for more than 10 years. My CFO, Business Development Director, was with Tata Steel earlier and then in the UK. I gave them generous stock and they run the company. I'm passionately involved in mentoring them and review periodically.

Why didn't you start another airline?

I had a non-compete with Mallya, so I could not. During that period, I started Deccan Cargo, which was India's first cargo and express (like FedEx) airline. We were a decade ahead of our time, with 8 aircraft and 3 Airbus jets. Unfortunately, some of the sectors were not profitable and we couldn't sustain. Mukesh Ambani was a 50-50 partner with me in that venture. I held on for a few years but I couldn't continue. He didn't want to run it on his own either, since they were focussing on Jio. Today they may regret it since e-commerce has boomed, and needs the very logistics we were offering.

You've been very sceptical about Tata's takeover of Air India…

Tata has always viewed Air India as the family company, which was 'stolen by the government' when everything was being nationalised. They have an emotional connect to it as it was JRD Tata's pet project. He set it up and built up a great airline brick by brick. Those days, it was impossible to compete with Pan Am and British Airways, but he did it. Today however, they already have two airlines that are bleeding cash heavily – Vistara and Air Asia. Now with three airlines bleeding cash, unless they do something magical, it might be difficult to sustain. India today is different from India then. They had a monopoly in the domestic sector, which they don't anymore. Unless they merge all three entities, they will all be competing with each other.

Are you planning any new ventures?

As they say, you should burnish and not rust! My team is trying to do something new. Let's see how it shapes up and takes wings. I'll make it public very soon, in a few months.

Col David Devasahayam (Retd)
Founder and Publisher



Neeraj Chopra after winning the Javelin Throw Olympic Gold Medal Tokyo 2021

JOSH OF A CHAMPION

– Subedar Neeraj Chopra, VSM Online

Subedar Neeraj Chopra, VSM was propelled to fame in the Tokyo Olympics, and became India's golden athlete and an iconic hero for India's youth. Behind his success is a story of tremendous dedication, hard work, commitment and discipline. Deservedly, he has been conferred with India's highest sporting award, the Major Dhyan Chand Khel Ratna Award in November 21. Scripted below is our online interaction with him.

Q: Childhood friends are invariably lifelong friends. Tell us something about your childhood friends, those with whom you have shared great times.

Neeraj: I have a close group of friends, who have been close to me since the beginning. I enjoy sitting and spending time with them whenever I get some free time at home, because I feel I can be myself in front of them and that they've known me since before. One of them is my first coach and the person who introduced me to the sport of javelin: my senior Jaiveer Chaudhary. He has been a constant presence by my side over the last decade and has become much more than a friend, now he's almost part of our family.

Q: Teachers play an important role in the life of students. Which teachers influenced you the most, and what subjects did you enjoy in school?

Neeraj: I wasn't exactly the best student in school and realized very quickly after picking up javelin that I wanted to spend more of my time doing that, so I switched to open schooling. Having said that, I view sport as an education and my coaches as important teachers in my life who have all played an important role. Everyone from my first coach Jaiveer - who I am still extremely close to - to my present coach Dr. Klaus Bartonietz have played their role in my journey and I will always be grateful for their support.

Q: Your success is an inspiration for youth in our country. Please tell us how you developed an interest in the javelin throw sport?



Neeraj Chopra in action Tokyo Olympics 2021

Neeraj: My introduction to the sport happened by chance. As the eldest child in a joint family of 18 members in a village in Haryana, I was pampered a lot and had put on quite a lot of weight by the time I was 13. That's when my youngest uncle suggested that I do some exercises and pay attention to my fitness. I happened to be going to the Shivaji Stadium in Panipat and noticed some seniors practicing javelin. Something about the sight of the javelin flying through the air really fascinated me and I thought of giving it a try. I noticed I had a natural ability to throw well and decided to start practicing more regularly with my seniors. At that point, it was just out of my interest for the sport and not to become a professional athlete.

Q: You picked up the basics of javelin at Panchkula and later at the National Institute of Sports, Patiala. Can you tell us some interesting anecdotes while you trained at Tau Devi Lal Sports Complex, Panchkula and Patiala?

Neeraj: I actually picked up the basics at Panipat, and then at a young age, decided to shift to Panchkula for better training and facilities with my senior. It was in Panchkula that I honed my skills further, before being called up for the National Camp, which was when I moved to the National Institute of Sports in Patiala. Those times were not easy and I did have a fair bit of struggle, financially, and in terms of equipment etc. but I feel it was a great learning experience and helped me develop into the athlete I am today. The biggest factor for me was that my family and friends really supported me throughout and allowed me to concentrate completely on my sport without having to worry about external factors.

Q: Foreign coaches enabled you to lift your performance to world standards. How does coaching by foreign nationals differ from that done by Indian coaches?

Neeraj: I genuinely believe that I have learned and picked up something from all the coaches I have worked with. I first worked with a foreign coach when I joined the national camp and was training for the Junior World Championships with coach Gary Calvert. I think the major difference is due to the fact that javelin as a sport was not as popular earlier so we didn't have too many coaches with international experience or exposure. That was the biggest difference for me, because the foreign coaches could help identify technical changes that helped. Having said that, there are now an increasing number of Indian coaches who are also gaining the relevant experience and certifications and I'm sure this will bode really well for future throwers in India.

Q: Injuries do cause major setbacks to top level athletes. You too have been affected by injuries, which cause pain and anguish. Recuperation after the treatment is also required to be done carefully. How did you cope with such worries, treatment and situations?

Neeraj: I think injuries are a part and parcel of any elite athlete's life; when you push yourself to the limit day in and day out, injuries are bound to happen. What one can do is to prepare oneself to the best possible condition to prevent injury first and then rehabilitate in a holistic manner if injured so that one can return to the field stronger than before. My biggest learning from my injury setback in 2019 was to be able to understand my body better, and know when to draw the line between training and overtraining. My team of support staff also ensured that I didn't rush back to training and competition, instead focussing my down time to address other conditioning issues while my elbow was healing. This resulted in me returning as an even stronger javelin thrower post my injury.

Q: Physique and physical fitness are crucial factors during training for competitions. What fitness regime to you practice? Is yoga part of your training routine and how helpful is it?

Neeraj: My regular training routine is chalked out in consultation with my coach and support staff. We plan a calendar of competitions to target and then work backwords to plan training and peaking cycles. Physical fitness is obviously a pre-requisite but javelin is a fairly technical sport, so that also requires attention during training. Most of my

physical fitness is related to strength training in the gym, and working on my speed, agility and core strength, among other major things. The fitness regime changes based on where we are in our training cycle, but this typically involves training twice a day (about 6-8 hours in total) for total of about 8-10 sessions a week (sessions are a mix of gym, cardio, core and throwing training).

Q: The pandemic resulted in many international tournaments being cancelled. Did this break from competition give you much needed rest, and how did this affect your foreign training schedule?

Neeraj: I was training in Turkey, getting ready for the Tokyo Olympics in July 2020 when the pandemic hit. I was able to rush back to India just before the flight ban came into effect and was quarantined at the National Institute of Sports in Patiala for the next few months. I was actually coming back to competition after missing the entire 2019 season to injury, so it was difficult for me, because it caused a further delay to my returning to regular competitive throwing. Initially, I was able to work on my fitness inside the institute, but as the months progressed, it did impact my training schedule since I could not leave the facility. At the same time, my competitors in other regions were training and competing regularly ahead of the rescheduled Tokyo Olympics, so seeing that was slightly disheartening since I couldn't get that exposure. Finally, after a lot of effort and support from multiple stakeholders, I was able to go to Europe for a training-cum-competition camp a few months before the Olympics, and I felt that it was extremely beneficial for me since I got to experience some high-level competition leading into the Games.

Q: You have interacted with Arshad Nadeem, the Pakistani javelin thrower. How do you find him as a person and as a competitor?

Neeraj: Arshad is a fellow javelin thrower and I have interacted with him at different events and tournaments. I feel he is an extremely talented thrower who is doing a great job for the sport in his country. I interact with him like I would with any other competitor and I feel it is great for the sport of javelin that athletes from countries like India and Pakistan are starting to do well since this would increase the popularity of the sport in our regions as well.



Neeraj while training for the 2022 season

Q: Other than javelin throw, which other sport or game do you like to play? What other hobbies or pastimes do you have?

Neeraj: Other than javelin, I enjoy playing a lot of volleyball and it is part of my training at times. Among other hobbies, I love watching online videos, listening to music in my free time and have recently taken an active interest in photography. I'm also a big fan of shopping and like to visit the malls whenever I am travelling for training or competitions.

Q: There are many Indian sportspersons who have achieved success and fame. Who amongst them do you consider as role models who have inspired you?

Neeraj: There have been many Indian sportspersons who have inspired me in my journey. Athletic legends like Milkha Singh ji and PT Usha ma'am have been role models to all Indian athletes growing up. Additionally, seeing the impact that Abhinav Bindra's Gold medal at Beijing had on Indian sportspersons was quite inspirational to me growing up since it made me believe that we Indians can also hold our own against the best in the world.

Q: Which major tournaments are coming up in the next year or so, where we will again see you in action?

Neeraj: At the moment, I have returned to training and am working on getting myself conditioned ahead of an important off-season training programme. For next year, my major goals are going to be the World Championships followed by the Commonwealth and Asian Games. Along with the Diamond League circuit, it will be a packed calendar so I need to focus on getting a good off-season in so that I can prepare my body for what will be an important 2022 season.

- Lt Gen J S Sandhu (Retd)
The Editor

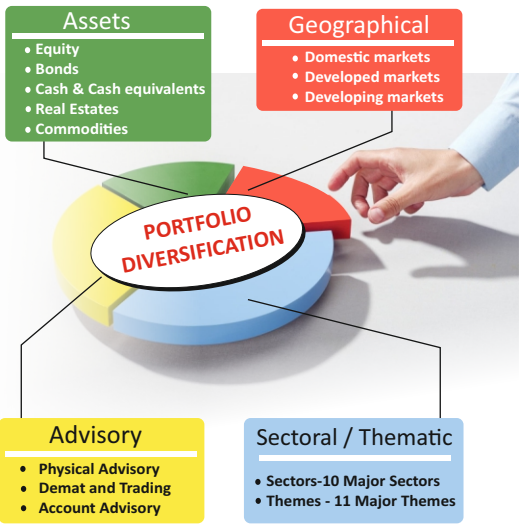


DIVERSIFICATION TO MITIGATE RISKS WITH FINANCIAL GAIN

Our financial guide explains the importance of diversifying investments to mitigate risks as also to earn better returns, and takes us through the different investment options

The beauty of diversification is it's about as close as you can get to a free lunch in investing.
– Barry Ritholtz

Portfolio diversification is an investment strategy to reduce or minimize risk to your capital by mixing a wide variety of investments in your portfolio. Proverbially, it is like not putting all your eggs in one basket. You diversify to maintain a healthy and profitable portfolio by offsetting or counterbalancing the poor performance of some assets in it by other better performing assets. Diversification must take place in all categories of high risk, medium risk, low risk, and risk-free assets as per your risk bearing capacity. Risk bearing ability of an individual is a direct function of an individual's age, liabilities, and financial well-being. Younger the individual, more is his risk-taking capacity since numerous earning years lie ahead of him and vice versa. Accordingly, while diversifying, an aggressive investor with more risk-taking ability tends to invest a higher proportion of his investment in a high/medium risk asset and lower proportion in a less risk/risk free asset. Similarly, a moderate investor with medium risk-taking ability tends to invest near equitably in high, medium, and low risk assets. A conservative investor with a lower risk-taking ability tends to invest a higher proportion in low risk/risk free asset and lower proportion in high/medium risk assets. Asset, geographic, and sectoral/thematic diversification are the primary means to achieve portfolio diversification, while advisory diversification saves you from wily and commission-driven financial advisors.



Asset Diversification

You should be clear about the various asset classes and understand their characteristics. The basic approach to asset class selection is amply clear from the image below[1]. It is not necessary that all salaried people should have a similar asset mix. A salaried person will need to rebalance his portfolio as his age increases, his family composition changes and his liabilities vary.

A BASIC APPROACH FOR ASSET CLASS SELECTION

	Students	Salary Earners		Professionals	Traders	Housewives	Retd.Persons
		Private	Govt.				
Returns	VI	VI	I	VI	VI	I	I
Liquidity	LI	I	I	LI	LI	I	I
Safety	I	I	VI	I	I	VI	VI
Tax Savings	LI	VI	I	VI	VI	LI	LI

Key: VI - Very Important, I-Important, LI - Less Important (Source : Ministry of Corporate Affairs, Primer for First-time Investors)

Equity – It constitutes shares of ownership, also referred to as stocks or securities, in a publicly traded company purchased either directly or through the mutual funds. Stocks/shares are very sensitive to market cycle and thus give high returns. However, that is accompanied with high risk of capital loss. The returns from these are classified as capital gains, due to increase in the stock price, and income, which is dividend announced through corporate action from time to time. They are highly liquid and easily tradeable in secondary market. Equity is commonly subclassified by the market capitalization of the companies that is the aggregate valuation of the company based on its current share price and the total number of outstanding stocks. According to SEBI Circular dated Oct 6, 2017, large cap companies are the top 100 companies as per their market cap, mid-caps are companies from 101st to 250th ranking as per their market cap, and small caps are 251st and upwards as per their market cap. As per data released by SEBI, the average market cap for all exchanges for six-months ending June 2021 indicates large-cap companies with market cap of above ₹ 37,000 crore, mid-caps ranged between ₹ 37,000 to 11,800 crores, while small-caps were below market cap of ₹ 11,800 crore. These figures may vary from time to time. The two most common investment approaches in stock market are growth and value investment. When you invest in growth stocks, you invest in stocks that will probably outperform the average growth rate of the market over time due to their future growth potential. Their substantially high growth rate generates higher and faster earnings than the average stock in the market. On the other hand, value investing is investment in undervalued stocks that are trading below their intrinsic value and will therefore provide superior returns. In India, capital gains from equity (direct investment or through mutual funds) up to ₹ 1 lakh in a financial year are tax exempt. For gains above 1 lakh, you pay 15% tax on short-term capital gains (holding period less than 12 months) and 10% tax without indexation benefit on long-term capital gains (holding period more than 12 months). Also, dividend income from equity is taxable in the hand of the investor at his applicable tax slab rate. The only equity instrument that gives tax-saving option u/s 80C is Equity Linked Savings Scheme (ELSS) with a three-year lock-in period.

Bonds – These are government and corporate fixed-income debt instruments. Bonds are primarily loans taken by government or corporate from investors for their infra-structure or business expansion, or business diversification among other reasons. Accordingly, these fixed-income instruments pay interest at fixed rate (coupon rate) to the investor, also called debt holder. Some bonds are also issued with floating or variable rates of interest. Fixed-income debt instruments are generally less risky than investing in equities or other asset classes. Bond's market price is inversely correlated with bank interest rates. When the bank rates are high, investors flock towards bank fixed deposits and thus the demand for bonds reduces because of which their market price falls. Similarly, when bank interest rates fall, the demand for bonds increases because of which their market price rises. Bonds have maturity dates at which point the government or corporate must pay back the principal amount (issue price of the bond multiplied by the number of bonds purchased) or risk default. All bonds come with credit risk, interest risk, or liquidity risk in varying degrees. Government bonds are a relatively safer option due to their inherent sovereign guarantee. Various rating agencies grade corporate bonds and investors should generally restrict investment to AAA grade bonds. An investor can either directly invest in bonds or take the mutual fund route to invest in debt mutual funds.

In June 2021, SEBI came out with a risk classification matrix of debt mutual funds that takes credit and interest risk into account. Risk classification goes from A1 (lowest risk for credit and interest rates) to C3 (highest risk for credit and interest rates)[2].

Max Credit Risk (CR)	Class A	Class B	Class C
Max Interest Rate (IR) Risk (Below)	(low credit risk)	(Moderate credit risk)	(high credit risk)
Class 1 (low int rate risk)	Safest	Safe in small allocation	Moderately risky
Class 2 (moderate int rate risk)	Safe	Safe in small allocation	Moderately risky
Class 3 (high int rate risk)	Safe in small allocation	Moderately risky	Very risky

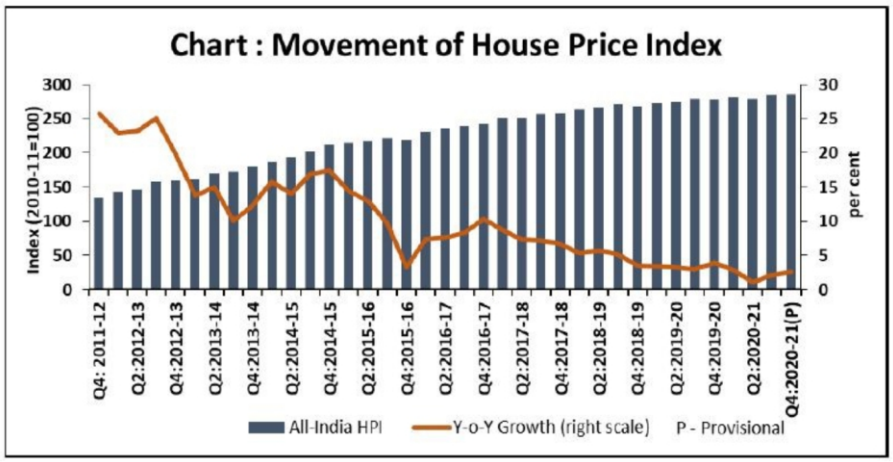
[1] https://nsdl.co.in/downloadables/pdf/Presentation%20on%20Understanding%20Different%20Asset%20Classes.pdf

[2] https://advisor.moneylife.in/blog/mutual-funds/article/understanding-sebi-and-rsquo-s-credit-and-interest-rate-risk-matrix-for-debt-mf-schemes/3729.html

If you invest directly in bonds, then you must know their taxability. Bonds are either tax-free or tax-saving. The interest income of tax-free bonds is tax-exempt, but the investment amount enjoys no tax exemption benefit. Tax saving (infrastructure) bonds provide additional tax exemption on investment up to ₹ 20,000 u/s 80CCF (deduction offered u/s 80CCF is over and above tax deduction u/s 80C that offers tax benefit up to ₹ 1.5 lakh), and tax-saving (capital gains) bonds provide exemption on capital gains taxation for investment up to ₹ 50 lakh u/s 54EC. However, interest income from all types of tax-saving bonds is taxable as per your applicable tax slab rate. In case you take the mutual fund route, then short-term capital gains (holding period less than 36 months) are taxable as per your applicable tax slab rate. Long-term capital gains (holding period more than 36 months) are taxable at the rate of 20% with indexation benefit. Dividend income from mutual funds is also taxable in the hand of the investor as per his applicable tax slab rate.

■ **Cash and Short-Term Cash Equivalents (CCE) –** This includes the hard cash in hand and cash equivalents like bank balance, foreign exchange, flexible/sweep fixed deposits, liquid mutual funds, and other money market instruments that are short-term investments. Money Market instruments available in India are Commercial papers, Treasury Bills and Certificate of Deposits (CDs). Commercial papers are issued by a company to raise money for a short period of time of 15 days to one year. Treasury Bills are less than one year borrowing instruments issued by the RBI on behalf of the government and CDs are borrowing instruments of banks with short term horizon of 3 months to one year. This is an ideal asset class for meeting your emergency requirements. Normally, one should keep 3 to 6 months expenses as emergency funds. However, after the recent pandemic some investment advisors are suggesting keeping 9 to 12 months expenses as emergency funds. These instruments are extremely low-risk to risk free investments and that is why this asset class earns a meagre 3 to 4 percent return and can hardly beat the inflation. Financial prudence demands that an investor holds some cash reserve to invest during market dips. The interest earned from bank deposits (savings or otherwise) are tax exempted up to ₹ 10,000 u/s 80TTA for citizens below 60 years of age. For senior citizens, the limit is ₹ 50,000 u/s 80TTB.

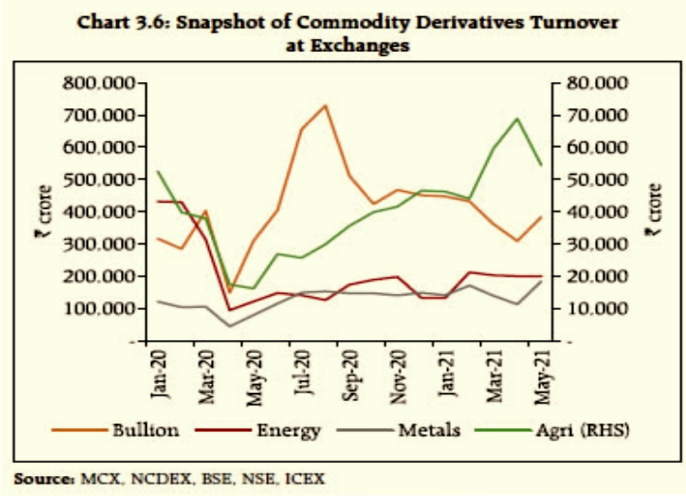
■ **Real Estate –** An investment in real estate entails purchasing land for agriculture, flats or plots for house construction, and natural resources like water and mineral deposits. This capital-intensive investment requires due diligence and careful analysis. It is also illiquid and fraught with dangers of fraud by land/construction mafia during purchase process, and encroachments, if left unattended over protracted period. A distress sale of this asset class reduces your gains substantially and may result in heavy capital gains taxation. RBI's quarterly Housing Price Index (HPI) chart[3] over last 10 years based on transaction-level data received from housing registration authorities in ten major cities viz., Ahmedabad, Bengaluru, Chennai, Delhi, Jaipur, Kanpur, Kochi, Kolkata, Lucknow, and Mumbai show a decline in year-over-year growth in the last 10 years, yet the average returns from real estate



in last 10 years are about 11.6% per year. Government taxes short-term capital gains (holding period less than 24 months) on sale of real estate asset at your applicable tax slab rate and long-term capital gains (holding period more than 24 months) at 20% with indexation benefit. IT Act u/s 54EC tax-exempts your capital gains, arising from sale of immovable property, for maximum investment up to ₹ 50 lakh if invested in bonds of REC/NHAI/PFC/IRFC, with a lock-in period of 5 years. It also exempts tax on capital gains on repurchase of property u/s 54F within specified time stipulation.

■ **Commodities –** These are raw materials or basic goods from agriculture, energy, metals, and bullion sectors, which are necessary to produce other products or services. The returns of this asset class are largely independent and not related to bond and stock markets. Since they directly impact the consumer goods prices, they act as a hedge against inflation. Moreover, since stock and bond markets do not influence their returns, this distinct asset class effectively diversifies your portfolio. Indian regulators permit traders, hedgers, arbitrageurs, mutual funds, banks, and alternative investment funds (AIF) category 3 to participate in commodity markets. The major commodity exchanges in India

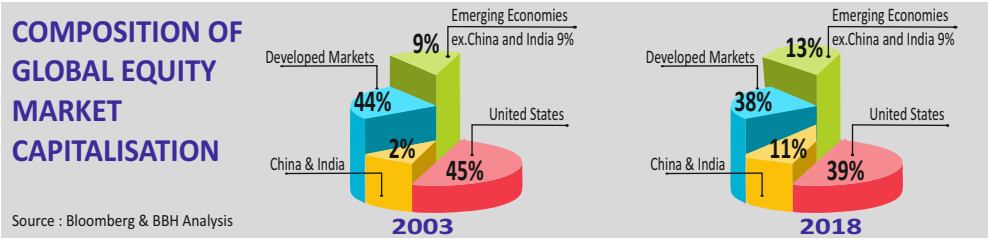
[3] https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=51771



are the Multi Commodity Exchange of India Ltd (MCX) at Mumbai, National Commodity and Derivatives Exchange (NCDEX) at Mumbai, National Multi Commodity Exchange (NMCE) at Ahmedabad, Indian Commodity Exchange Ltd (ICEX) at New Delhi, and ACE Derivatives and Commodity Exchange Ltd at Mumbai. The snapshot[4] of Commodity derivatives turnover at various exchanges alongside indicates that maximum turnover is in the bullion trading.

Geographical Diversification

This happens when an investor spreads his investments across various geographic regions to reduce the overall risk and improve returns. Market cycles across the globe rarely move in sync because each market is affected by its local geo-political and economic events. Thus, investment losses in one country's market may be offset by gains made in another country's market. Moreover, investing in developing countries offers greater growth potential than developed economies. A Bloomberg and BBH analysis shows the



diminishing percentage of market capitalization of developed markets and the USA as against emerging economies, China and India. However, investing in other country's markets runs the risk of negative currency fluctuations and political instability in that country. Two reasons may preclude you to invest in global markets, viz., your belief and trust in the Indian growth story, and your apprehensions about investing abroad due to fear of the unknown. However, the chart[5] shows that winners rotate every year and staying invested only in domestic market may not be very beneficial. Investing in foreign stocks directly, especially US, is possible after opening an overseas trading account with a domestic or foreign broker. Alternatively, one can invest indirectly through exchange traded funds (ETFs), but you will require both Demat and trading accounts for this. A simpler way is to invest through feeder funds, also known as fund of funds, that invest in foreign companies and/or foreign index funds. While investing through fund of funds you do not need an international account, or Demat and trading account. Besides, there is no Liberalized Remittance Scheme (LRS) limit while investing through feeder funds, while a limit is applicable in case you invest directly in foreign companies.

Winners Rotate – Diversifying globally helps to reduce risks

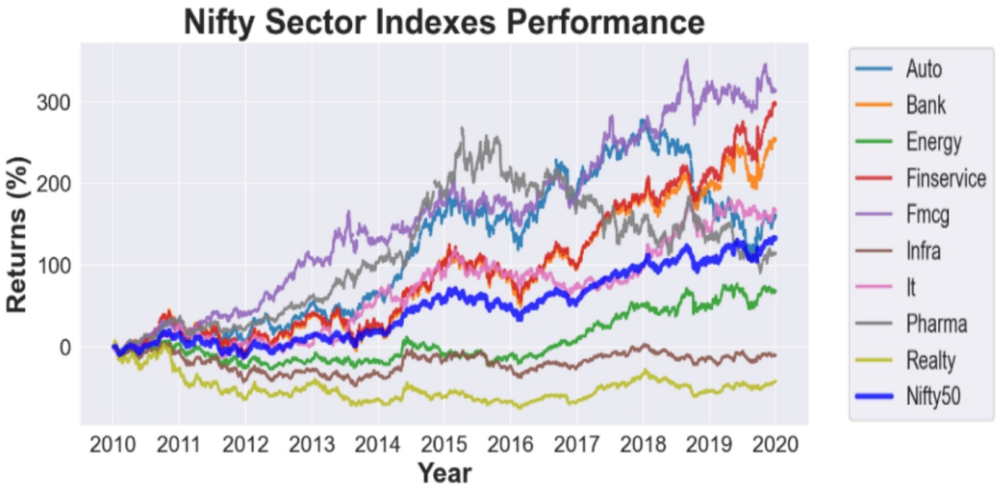
2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
US 21%	India 30%	US 50%	India 26%	US 6%	US 15%	China 45%	US 4%	US 35%	China 33%
World 11%	China 27%	Europe 41%	US 16%	Asia 5%	World 11%	India 30%	India 1%	World 30%	US 24%
Europe 6%	Europe 24%	World 39%	China 10%	World 3%	Asia 7%	Asia 26%	World -1%	Europe 28%	Asia 24%
Asia 0%	World 20%	Asia 28%	World 7%	Europe 2%	Europe 4%	Europe 19%	Asia -5%	China 27%	World 20%
China -3%	US 19%	China 17%	Asia 3%	India -1%	China 4%	World 17%	Europe -6%	Asia 22%	India 19%
India -25%	Asia 19%	India 9%	Europe -5%	China -3%	India 1%	US 15%	China -11%	India 10%	Europe 8%

Past performance may or may not be sustained in future. Source : MSCI, RBI, Returns mentioned are absolute for the respective year.
Returns are Gross returns in INR for MSCI standard (Large cap+Midcap) indices
US : MSCO USA Standard Asia : MSCI AC ASIA Standard World : MSCI ACWI Standard
Europe : MSCI AC EUROPE Standard China : MSCI CHINA Standard India : MSCI INDIA Standard

Sectoral / Thematic Diversification

Investing in different sectors or different themes helps one to achieve suitable diversification, and capitalize on future trends to achieve better returns. In sectoral diversification, although you invest in various sectors, but

[4] https://m.rbi.org.inScriptsPublicationReportDetails.aspxUrlPage = &ID = 1181
[5] https://www.franklintempletonindia.com/blogs/a-case-for-global-diversification



within a particular sector you invest only in companies pertaining to that sector. Broadly, the Indian investment landscape is classified into 10 sectors, namely, Software/IT, Banking, Refineries, FMCG, Financial, Pharmaceutical, Power, Automobile, Chemicals and Cement. The historical returns[6] of these sectors are as per the image shown above. In contrast, in thematic diversification, you invest in stocks of companies participating in a particular theme while they may belong to different sectors. The performance of some themes is tabulated below to indicate their return potential. However, investors must possess sufficient financial wisdom, a long-term investment horizon with high-risk appetite, and carry out proper research and analysis before undertaking sectoral/thematic investment.

Theme	One Year CAGR	Three Year CAGR	Number of Stocks
Consumption	101.99%	36.72%	10
Digital India	108.12%	36.82%	8
Arogya Bharat	47.43%	30.18%	10
Budget 2020-21	112.66%	26.51%	10
Currency Sensitive	67.91%	44.33%	10
Financialization	62.59%	21.49%	10
Grameen Bharat	65.52%	24.32%	10
Growth	90.13%	53.97%	8
Infrastructure	122.97%	39.18%	10
Transportation & Logistics	71.14%	17.82%	10
Atmanirbhar Bharat	NA	NA	NA

Source: https://www.moneyworks4me.com/themes

Advisory Diversification

Though not essential, it is certainly preferable to engage at least two financial advisors for investment advisory services. These may be two independent financial advisors through whom you maintain two separate portfolios. Alternatively, in case you maintain a Demat and trading account, then its relationship manager may serve as one of the financial advisors, while the other financial advisor looks after your physical portfolio holdings. This provides the advantage of not being dependent only on one financial advisor who may be commission-driven and have vested interests in certain specific schemes. Besides, it also gives you the opportunity to see whose portfolio management gives better returns and thus helps you to rebalance your portfolios for better returns.

I hope you have got a hang of these diverse investment options, and would be better informed about financial instruments and securing one's hard earned wealth.



Colonel Raj Rakesh is a 1980 batch ex-NDA officer who commanded an armoured regiment and converted it to state-of-the-art T-90 tanks. He served as a Brigade Major of an independent armoured brigade and as Colonel General Staff of an infantry division. Post retirement, he is a consultant with an investment advisor at Jaipur and edits their monthly investment magazine. The officer has also contributed to DIAV annual magazine 'SAMMAAN' and a number of web portals.

[6] https://medium.com/analytics-vidhya/nifty-in-the-last-decade-2010-2019-historical-analysis-9d681e6e0b21

SCREENING AT SELECTION CENTRES

Continuing with our Armed Forces career guidance series, we bring out the nuances of the Screening or Stage 1 Testing done at Selection Centres on the first day of the Services Selection Board (SSB) Interview.

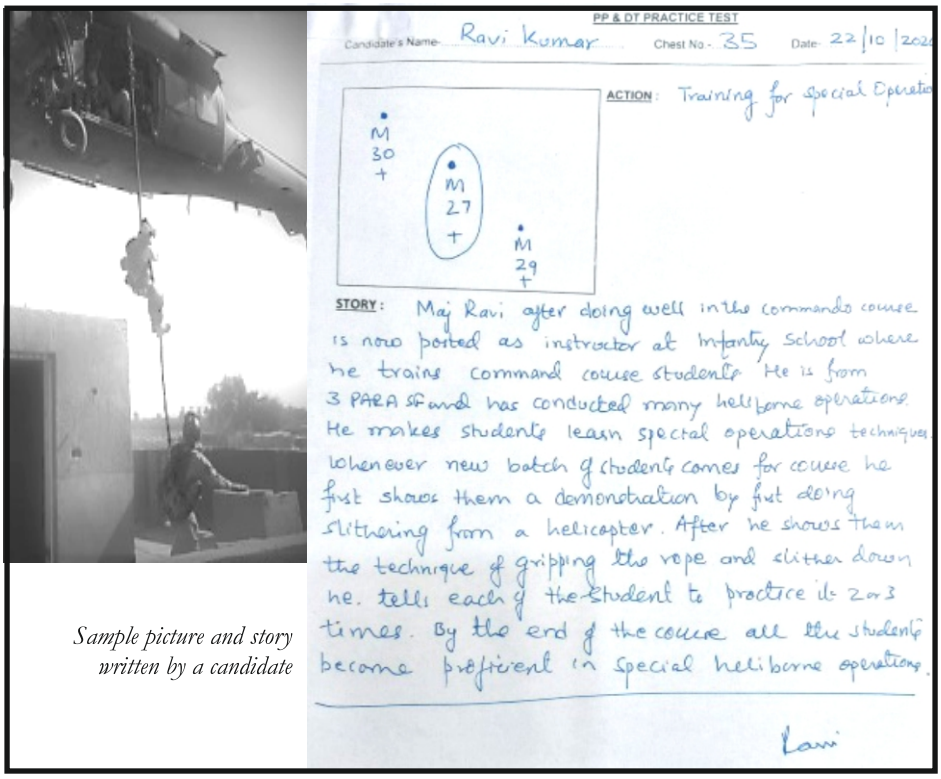
The SSB Interview is a personality assessment test. The selection system at SSB was converted from a four-day selection system to a two stage and five-day selection system in 1998 by introducing a Stage 1 screening test. Stage 1 testing was introduced to weed out the candidates who possess feeble chance at getting selected and also to be able to call up more candidates to appear in the SSB tests, thus increasing the selections and thereby help in reducing the officer deficiency.

The Stage 1 Test :

A scientifically designed battery of tests by Defence Institute of Psychological Research (DIPR) was introduced as part of Stage 1 test. It consists of two parts, namely Officer Intelligence Rating (OIR) test and Picture Perception and Description Test (PPDT). It is conducted on the day of arrival of the candidates. After doing the basic documentation, the candidates are given Chest Numbers and they are administered the tests in a testing hall.

OIR Test :

This paper and pen test consists of two tests of 30 minutes duration with multiple type questions. Based on the type of questions, the tests can be divided into Verbal and Non Verbal Tests. The number of questions in each test varies from 40 to 50. The questions are given to the candidate in printed booklets and the answers have to be filled on an OMR sheet.


PP & DT PRACTICE TEST

Candidate's Name: Ravi Kumar Chest No.: 35 Date: 22/10/2021

ACTION: Training for special Operation

M 30 +

M 27 +

M 29 +

STORY: Maj Ravi after doing well in the commando course is now posted as instructor at Infantry School where he trains command course students. He is from 3 PARA SF and has conducted many helborne operations. He makes students learn special operations techniques. Whenever new batch of students comes for course he first shows them a demonstration by fast doing slithering from a helicopter. After he shows them the technique of gripping the rope and slither down he tells each of the student to practice it 2 or 3 times. By the end of the course all the students become proficient in special heliborne operations.

Ravi

Sample picture and story written by a candidate

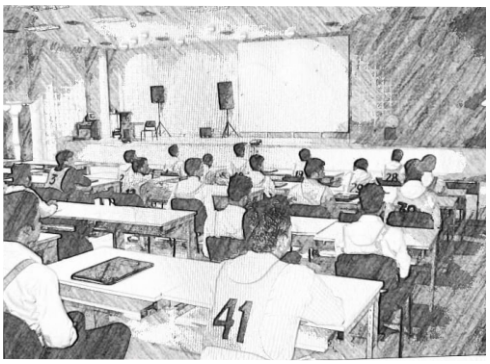
PP and DT :

This test is divided broadly into the following parts

- Seeing a picture – 30 seconds
- Writing a story about the picture - 4 minutes
- Narrating your story in front of your group, and
- Discussion in the group to arrive at a consensus on the picture

Seeing the Picture and Writing a Story on a Picture. The candidates sit in a hall with a large screen. Before the test, a detailed briefing is given by a psychologist of the Selection Centre as to how the candidates must perceive a picture and what points should be kept in mind while writing the story. After the briefing, a picture is flashed on the screen for 30 seconds. The candidates are told to first fill the details of the characters seen in the picture, their age, gender and mood. After that the candidates have to write the caption of the story. The candidates are then given four minutes to write a story. After the time is over the PP and DT answer sheets are collected.

Narration and Discussion. After a break, the candidates sit in a testing hall in a semicircle as per their chest numbers. The Group Testing Officer (GTO) then briefs the candidates about how the second part of this PPDT exercise is conducted. The



Sketch showing screening test in progress

candidates have to first narrate their individual stories that they have written in the story sheets. Each candidate gets about a minute to narrate his story. The language used is English, however in case anyone gets stuck he or she can switchover to Hindi, but must come back to English as soon as possible. They should not use any other language. After the last person in the group has finished narrating his story the group starts a discussion in order to form a common consensus about the picture, in terms of number of characters in the picture, their age, gender, mood and the action and the story as such. The final story must be in a format, to indicate what has led to the event in the picture, what is happening in the picture and what is the outcome. The time for discussion is about 10 to 15 minutes, at the end of the discussion any one of the group members nominated by the group gives the consensus story to the assessors.

For PPDT assessment there are three assessors, namely the GTO, Interviewing Officer and the psychologist. The GTO controls the candidates in the discussion phase which involves listening to each candidate's story individually and then giving time to the whole group to discuss and arrive at a consensus. While the candidates are discussing, all the three assessors are listening to them and noting down their points. After this discussion phase is over, the candidates leave the hall. A mini-conference takes place between the three assessors and they come to a final decision as to which candidate should be taken in this Stage 1 screening. While taking this decision, they also take into account the performance of the candidate in the OIR test, the score of which has come to them by then.

Pass percentage in Stage 1 Screening : The percentage of clearance in Stage 1 purely depends on the performance of the candidates in the OIR tests and in PPDT. It has however been seen that the number of candidates retained in Stage 1 is more in entries like National Defence Academy (NDA), Combined Defence Services (CDS) as compared to other entries where they have not qualified in any UPSC written examination. In entries which do not have any written examination, the reporting numbers are much larger and the competition at Stage 1 is higher. Hence, it is seen that in entries like Short Service Commission (Technical), NCC, Judge Advocate General, just about 20-30% are retained for Stage 2 as against 50 or 60% in NDA or CDS.

What does the assessor look for in a candidate while assessing PPDT?

PPDT is a very versatile test and gives a lot of insight into the personality and preparation of the candidate. The broad aim of Stage 1 is to select the candidates who the assessors feel have some chance of selection at stage 2. The assessors are provided with a list of attributes (not Officer Like Qualities) which they should keep in mind while assessing a candidate. These attributes mainly fathom the intelligence, imagination and logic in framing a story, confidence, seamless narration and positive contribution in the 'individual narration and discussion phase' of PPDT. Each assessor first gives his grading and afterwards the final decision is taken at the mini conference after each batch.

How should a candidate prepare for OIR?

OIR consists of verbal and nonverbal tests which are easily available in many books. Students must prepare well for OIR tests from the books available.

How should a candidate prepare for PPDT?

The preparation of PPDT needs to be done keeping in mind the three stages of PPDT:-

a. **Writing a story-** develop good perception to identify the characters, followed by good writing skills. Build up a positive attitude for selecting themes for the story, which should be linked to the picture.
b. **Narrating your Story -** In order to improve narration, it is very important to have good communication skills and self-confidence. Practice of speaking in public like in school assembly, speaking on stage, etc will remove stage fear and you will be able to narrate well.
c. **Group Discussion -** For a realistic preparation for Group Discussion in a Do-It-Yourself mode you need to have a group of 8 to 10 friends, and then you can practice discussing various themes while coming to a common story.

Conclusion :

Stage 1 Screening is an important first step, and hence deliberate preparation should be done. Most aspirants generally tend to ignore this stage, thinking that this is very easy and just focus on the Stage 2 of SSB. My advice to them is to treat Stage 1 as an important test and prepare accordingly.



Colonel Mohinder Pal Singh, PhD is an alumnus of St Xavier's College, Mumbai and was commissioned into the MAHAR REGIMENT in December 1989. He has been an assessor for over six years in Selection Centres and has authored many selfhelp books. He is presently the Director of a training start-up, AMAS Training at Greater NOIDA, mentoring SSB aspirants passionately.



WELLNESS IN THE GOLDEN YEARS

If you are 50 years or older, isn't it time to savour and enjoy each of life's moments, with good health as your accessory? Dr Renuka David has pointers to optimise your wellness quotient.

Abraham Lincoln famously said, "In the end, it's not the years in your life that count. It's the life in your years."

As you enter your fifth or sixth decade, I am sure there are lots of things in your life to be grateful for. Aren't you more mature in handling life, aware of yourself as a human being, appreciative of life with all its ups and downs, blessed with wisdom and experience, unafraid to make decisions taking accountability, and embracive of imperfections? For some though, it is a time and a definitive need to slow down and savour each moment.

However, to enjoy life to the fullest, it is also important to take care of one's health as the years roll by. Starting early is the key. If you have led a healthy life all through, with proper diet, exercise and lifestyle, chances are you already know what to do! Even if you haven't, it's not too late to begin. Here are some important factors to consider while prioritising your health.

Weight Gain & Metabolism

Among the other downsides of ageing, is the gradual loss of muscle mass. Adults lose approximately 3 percent of their muscle mass every year, especially if they are sedentary, stressed, and are not eating right. This in turn, leads to weight gain and slowing down of the metabolism, since the body stores more fat as it loses muscle. Weight gain is more commonly seen in women around this age, especially since hormonal changes during menopause can play havoc with the weight on the weighing scale. The other contributing factor for both men and women towards weight gain is medications – as one ages, they're more likely to be on blood thinners, or anti-diabetes medications. Genetics and heredity are another reason you could be putting on weight quickly.

I always believe that every problem has a solution. All you need is to find it and act. Your solution would be easier if you have been doing weights and resistance training regularly or practicing yoga, brisk walking, and also doing any form of cardio exercise at least 2-3 times a week. If you've been inactive so far, don't suddenly begin an intensive regimen. Start slowly, and work your way upwards under the guidance of a professional coach in whatever area of fitness you're exploring.

Of course, you'll need to tweak the way you eat – we'll read more on that in the section on nutrition. Treat

your menopause symptoms and manage your medications. Also get your thyroid checked regularly, as it could be the reason for potential weight gain. As you age, the quality of your sleep tends to deteriorate. Don't let this deter you from sleeping well for at least 7 hours a night (8 is ideal!) by keeping the room dark and quiet, the temperature ideal, and eating your last meal at least 3 hours before bedtime. Stay relaxed and don't stress as far as you can help it!

Osteoarthritis & Osteoporosis

It is first important to understand the difference between osteoporosis and osteoarthritis – they are easily confused because people who suffer from the former invariably suffer from the latter. Osteoporosis is progressive bone degeneration, an attribute that typically sets in as you age and your body's calcium reserves lessen. Osteoarthritis on the other hand is joint degeneration, where the cartilage between large joints such as the knee, hip and lower back breaks down, making movement very painful.

However, these are not inevitable phenomena. With the right kind of diet rich in calcium and vitamin D, and weight-bearing exercise, it can be prevented. After checking with your doctor, women should get in 1200mg of calcium supplements daily, while men should take in 1000mg. Eat dark leafy greens like spinach, dairy, nuts, seeds, eggs and omega 3-rich fish. Lack of exercise and being overweight can put more pressure on these areas, causing bone and cartilage erosion, thus compounding the situation. Stay active and make sure you don't have any excess weight on those problematic joints. Avoid falls and physical injuries– even if you recover, falls can cause trauma that weaken the muscles.

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Aches & Pains

Since stiffness, aches and pains set in gradually and slowly, sometimes you don't even realise they're there – until one day you realise you can't lift a box easily. Or get out of bed with the same spring in your step. Aching muscles are a natural tendency when we age – especially around the knees, back, neck, shoulder and so on. Obviously if you exercise regularly, maintain good posture and eat right, this can be lessened to a large extent. But what happens when you do end up suffering from aches and pains?

The first step is to use your common sense and distinguish between regular soreness and serious pain, which could mean an injury or an underlying medical condition. If you have the slightest doubt, don't hesitate to go for a check-up and address any issues that you may uncover. If these are ruled out, then start with exercise or physiotherapy under the guidance of a trained instructor. Work on posture, balance, coordination, strength and blood circulation. Always stretch before and after your workout to prevent any injury.

Depression & Anxiety

This is a time when you should ideally leave behind the frenetic pace of your 20s, 30s and even 40s and prepare to relax, just live for yourself and do what you enjoy. However, your 50s also usher in the dreaded Empty Nest Syndrome, if your children have left home to study or to work or settle down elsewhere. This is not a clinical diagnosis, but rather a phenomenon that requires transition – sometimes with professional assistance. Parents who feel an extreme sense of loss might find it hard to cope, but there are certain practical mechanisms to do so. Focus on your partner – you have the opportunity to reconnect with him or her, and rekindle any common interests and hobbies. Accept your adult child's decision to lead their own life, and while it is important to stay in touch, respect the amount of space your child wants to put between the two of you. Look for new professional avenues, find a charity to involve yourself in, focus on your own health and creative pursuits. Pick up those paint brushes and canvas and indulge in what your heart desired when you were busy raising your babies. Like me, you could maybe invest in a karaoke system to bring music in the form of singing, or playing your favourite instrument. Call your besties for regular karaoke evenings. Trust me, music does wonders! If all else fails, seek support from a counsellor. You can also find (or even form!) a like-minded group that has the same issues, and shares coping mechanisms.

As you near retirement, those with non-pensionable jobs also have to think about their financial situation, and make arrangements to safeguard their futures. 'What if I outlive my savings? What if there is an emergency medical expense? How do I maximise my investments?' All this and more tends to play on your mind. Firstly, consider sound life insurance and medical insurance schemes, so that you and your family have security to fall back on in case of such events. Take care not to get into debt, and ensure that at least 30 percent of your current income is stashed into diversified investments that don't involve more risk that you can afford. Consult a trusted professional for the same, choose a strategy and stay focussed. Try and pay off any pending home loans or EMIs while you're still employed.

Staying organised with your finances is

the key. Once you've done your best, there isn't any point worrying about what tomorrow holds! Employ a philosophical approach, and focus on enjoying every day of your life rather than being stressed.

Nutrition & Exercise

The fact is, as you age, your body's needs and necessities keep changing. The 50s and above are a crucial period, where everything you eat has a bearing on your quality of life going forward. Let's face it, your metabolism isn't what it was, and neither is your ability to defy lifestyle diseases!

The first step is to eat low-calorie, but high-nutrition foods. So every calorie has to count. Women need anywhere between 1600 to 2000 calories a day depending on their activity levels, while men need 2000 to 2600 calories a day. Eat two fresh fruits a day in rotation and at least three daily vegetables, in a rainbow of colours. Opt for unprocessed grains, dairy, and high-quality protein like fresh fish, skinless poultry, free range eggs, beans, nuts and seeds. While calcium and protein are essential added nutrients, vitamin B12-rich foods should also be consumed for brain function, to prevent diseases like dementia and Alzheimer's. Avoid processed foods, deep-fried foods, trans-fats, excess salt and sugar (except those found naturally in fruits) like the plague! Drink the recommended amount of water even if you're not thirsty, and cut out juices, except for coconut water. Don't skip meals. If you do that, your body will start storing fat. Consult your doctor before you take supplements – don't take anything that might interfere with a pre-existing ailment.

As far as exercise goes, this is non-negotiable, although you need to be realistic about what you can and cannot do based on your health. If you've already been active throughout, pursuing yoga, weights or even just brisk walking, then continue with that and perhaps slowly up the ante every week, within comfortable limits. Add something new to your schedule like gardening or cycling or take on some cleaning at home to burn extra calories. My personal favourite is dance. I've been a trained classical dancer and it is a hobby and passion that has held me in good stead throughout. Dancers have the benefit of getting a good cardio workout while also building muscle strength. A few thumb rules – avoid any new exercises that put extra stress on your knees, lower back, neck and hips, as these are sensitive areas. Start strength training with body weights and light kettlebells or dumbbells. Consider downloading an app on your phone which tracks your daily diet and activity levels.

AS YOU TOUCH 50, HERE IS A ROSTER OF PREVENTIVE TESTS TO GET DONE, EITHER EVERY YEAR OR ONCE IN TWO YEARS DEPENDING ON YOUR GENERAL HEALTH.

- Blood and urine profile, to screen for sugar, cholesterol, renal and liver function, thyroid and so on.
- Ultrasound of the abdomen and pelvis
- ECHO and ECG
- Colonoscopy
- Skin screening for moles
- Vision test
- Hepatitis C
- Lung screening
- Periodontal exam (for teeth health)
- Bone density scan
- Vitamin D test
- Endoscopy



For women only:
- Mammogram
- Pap smear
- Pelvic exam



For men only:
- PSA for Prostate cancer



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Tsunami strikes Kalutara, Sri Lanka. 26 December 2004. (photo credit earthobservatory.nasa.gov)

THE WAVE & ITS WAKE:
Larger implications of the December 2004 Tsunami

The December 2004 Tsunami affected a great number of countries, and resulted in large scale international cooperation in Humanitarian Assistance and Disaster Relief (HADR) operations. Consequently, cooperative structures evolved, like the Quad and Indian Ocean Naval Symposium, etc. These developments are discussed hereafter.

The 26th December 2004 "Tsunami" (which in Japanese means, very accurately, "harbour wave") in some ways defined the spread of the Indian Ocean Region (IOR). It was triggered by a massive oceanic earthquake South of Sumatra in Indonesia that rose to become the destructive "harbour wave" as it approached shallower waters along coasts. It impacted Aceh, Thailand, the Andaman & Nicobar Islands, a fair bit of peninsular India especially the Coromondel and Malabar coasts, Sri Lanka, Maldives, on to far off Somalia, and even the Southern coast of Africa. The tsunami quite literally ravaged the Indian Ocean from the East to the West. It swept away almost 230,000 lives in 14 countries (130,000 in Indonesia alone).

Action Stations for the Armed Forces

In the hour of the IOR's tragedy, the Indian Armed Forces became the first responders who attended not only to India's own citizens in distress but reached out to several neighbouring nations. The speed as well as the quantum of assistance mustered and then deployed was unprecedented. In a report written soon after and available with the United Services Institution, New Delhi (by Vice Admiral Raman Puri, who was then heading HQ Integrated Defence Staff), the effort within the first few days was clearly astounding. The Navy deployed over 30 ships, 25 fixed and rotary wing aircraft and 5500 personnel. This was supplemented by nine ships, eight aircraft and 2000 personnel of the Coast Guard. The Army deployed nearly 9000 soldiers in the first few days in the coastal states. The Indian Air Force (IAF) pressed in more than 26 heavier aircraft and upto 16 big and small helicopters. In subsequent days all Services stepped up efforts including setting up field hospitals, power generation, repairs to bridges, roads, runways and harbours, not only in India but in neighbouring countries too.

The Critical Initial Hours

The first information of something unusual happening was reported by the then Commander-in-Chief, Andaman and Nicobar Command during the forenoon of 26 December on phone to Admiral Arun Prakash who was dual-hatted as the Chief of Naval Staff (CNS) and Chairman Chiefs of Staff Committee. In a very recent conversation with this author, he recounted that it was not immediately clear that a Tsunami had struck because local stations were also largely unaware of the phenomenon of receding waters and then the sudden high waves. Communications were also disrupted. Soon thereafter, the Defence Adviser (DA) at our High Commission in Colombo called him to report that there was widespread death and destruction along much of Sri Lanka and that they would need a lot of urgent help and that the formal request would follow. The DA, Captain Suraj Berry (now Vice Admiral) had received an alarm report at 1015 hours on 26 December about a "sea invasion." The wave and sudden destruction and mayhem did seem like that. There were some quick actions Naval HQ initiated that included Admiral



Exercise Malabar in progress in November 2020 (Photo credit AFP)
Inset. Ships from the quad countries in the Malabar Exercise 2020 (Photo credit reddit.com)

Prakash calling the National Security Advisor, speaking to all the Naval Commanding-in-Chiefs and other Service Chiefs. By then, the initial assessments of the impact along the Malabar and Coromondel Coasts and in the Andaman & Nicobar Islands were coming in. The major wave created by an earthquake that becomes the tsunami travels at around the speed of a commercial jetliner, at about 800-900 km per hour. In deeper oceans, it may pass by ships and be barely noticed. So, even as these actions were in hand, the tsunami was yet to hit islands in the Western IOR and the African Coast.

In the Wake of the Wave: Helping at Home and Overseas

Other articles in this issue give the reader an excellent view of the many ways and across diverse calamities in which Armed Forces rise to help their fellowmen. In Army and Air Force parlance, this is "aid to civil authority" and for the Navy these are termed benign / humanitarian missions. Humanitarian Assistance and Disaster Relief (HADR) is very traditional to what Armed Forces have done and in which their overall training, organisational structures, innate administrative skills, discipline and professional integrity are unmatched attributes. So it was in the wake of the December 2004 wave! But, there were also lessons to be learnt, many of which have been implemented in what is called "a-whole-of-government-approach."

Admiral Arun Prakash quickly determined that significant military effort would be needed to help our oceanic neighbours and the first steps would have to be quick. Among these, were a few phone calls to the Secretaries in a couple of ministries to let them know that a few units were getting ready to sail and that diplomatic clearances, financial sanctions could follow in their wake. There was no time to waste over these permissions. Normally, these used to be ponderous and complex processes for approvals and sanctions of a few ministries involved. As it were (as shared by Vice Admiral Berry-- then DA-- from reports he rendered later), a Navy Dornier landed in Sri Lanka at 1900 hours the same evening with 600 kg of emergency supplies. On 27 December, two Indian Navy (IN) ships each had reached Trincomalee and Galle with nearly 55 tonnes of relief supplies; in addition, another Dornier and the first of IAF helicopters reached the island. From the 28th onwards, a virtual sea and airbridge was established with Sri Lanka that included the IAF's IL-76 as well. By 31 December, the first field hospital was up at Embilipitiya, besides medical teams deployed in smaller numbers elsewhere. The entire relief effort by India was arranged and coordinated by the DA from the Indian High Commission where an operations room was set up and fully in touch with the Sri Lankan Armed Forces HQ and their Ministry of Defence. The High Commissioner and consular/administrative staff networked with the other ministries in Sri Lanka as well as in India. One could go on about the quantum and duration of assistance, but that would not be necessary. Three points should be made, though. First, Maldives, Myanmar, Indonesia and Thailand were also provided humanitarian assistance. Second, India herself suffered with about 15,000 deaths, seriously injured people, loss of livelihood and property, damage to infrastructure. Third, some of the consequences and lessons learnt—some quickly, some not quite—impacted favourably on how India has coped with HADR in later years and how it might have sown the seeds of very significant foreign policy steps taken subsequently.

Facing Our Shortcomings

The scale, spread and suddenness of the disaster that had arrived at the doorsteps of several IOR countries (at least 14 were directly impacted) took everyone off guard. That the Armed Forces and some government departments reacted quickly was good, but any execution requires planning if greater efficiency and effectiveness are to be valued. In December 2005, the National Disaster Management Authority (NDMA) was set up under an Act of Parliament. NDMA not only coordinates relief effort, but is responsible for the strategic and operational planning needed to reduce/avoid the impact and consequences of "Pearl Harbours" that storms, cyclones, floods, earthquakes or pandemics can bring.

Regional and global mechanisms were largely absent in 2004 to cope with information exchange as well as to coordinate the subsequent management of the disaster. It was soon realised that several nations and especially their Navies and Coast Guards would be central to what needed to be done in the wake of the Tsunami. Again, we lean on what Admiral Prakash had to say. On the day after "Boxing Day" he got a call from an old friend, Admiral Walter Doran, in Pearl Harbour, Hawaii. He was the Commander of the Pacific Fleet and a classmate of Admiral Prakash several years back at the Staff College in

Wellington when both were Lieutenant Commanders! Their two and a half stripes had made way to four stars. He said he would be redirecting several ships to the IOR from current deployments and from bases in the Pacific including in Guam and Japan. Admiral Prakash advised that while India did not need assistance and was already deploying to help others, more assistance would surely be welcome. Likewise, as CNS he was already in touch with his opposite numbers in IOR countries and the Defence Attaches in some capitals had already started coordinating with information and situation reports. I was the DA in Canberra, having reached there earlier in the month and participated in what became the Quad (the Quadrilateral Security Dialogue) as we know it today.

Quad and its Genesis in the Tsunami

Within a day, an informal Tsunami Core Group (TCG) was formed. In a fascinating short essay that Martin Grossman wrote early in 2005, he explains how a quartet of four senior diplomats sowed the seeds of the Quad. Its four members were the Indian Foreign Secretary, Shyam Saran; Australian Deputy Foreign Secretary Doug Chester; DG of the Japanese Foreign Ministry (MOFA), Koji Tsuruoka; and, Grossman himself as Under Secretary of State in Washington DC. In wording that cannot be bettered, he wrote, ***"The (TCG) was an organization that never met in one of diplomacy's storied cities, never issued a communiqué, never created a secretariat and took as one of its successes its own demise....this was an ad hoc coalition that ignored traditional groupings... we pulled these countries together because they were the ones with the resources and the desire to act effectively and quickly."***

Specifically, as written by Admiral Prakash elsewhere, "Joint Task Force-536" was set up at Utapao in Thailand. Our DA in Bangkok, an IAF officer, was the Indian member. This was the genesis of the quadrilateral task force. Two related points are important. First, China did not deploy for any relief operations even to neighbouring Indonesia until some weeks later. Second, the Quad did slip into a coma as Mr Grossman pointed out, and was revived only in 2007 at a somewhat lower diplomatic level. From 2017 there is wind in its sails and the Quad may yet become the partnership that could be one of the most defining developments in Indo-Pacific diplomacy and security in years to come.

The lessons of December 2004 helped the IN give birth to the Indian Ocean Naval Symposium in which HADR remains an important intellectual and practical activity that involves over 30 Navies and maritime services. Internationally, Tsunami warning systems are now in place. Earthquakes and the waves they cause cannot be prevented, but warnings may help evacuation and safety measures to prevent/reduce loss of life, limb and livelihood. In the UN and in regional fora like the IORA, there are whole-of government measures that are discussed and fine-tuned. Of note also was the quick acquisition of the old ex-USS Trenton that became INS Jalashwa. It is a Landing Platform Dock (LPD) that provides amphibious assault capability in conflict and very good ability for HADR at other times.

Media and One-upmanship?

In closing, I would like to make a personal observation which is based on experience and analysis. In the assistance that India so readily offered to our neighbours, the Armed Forces and the Ministry of External Affairs demonstrated immense grace in not going overboard with publicity. We need to be better aware that it is never nice to get mileage from what is someone's misery. In such situations every cameraman and journalist invited into an aircraft means that an actual relief provider or a few dozen kgs of material cannot be loaded. In an age of social media we have to be more mindful of inter-services and inter-agency jockeying for appearing to have "saved more/done more/flown more" etc. One reason why Indian help in Sri Lanka is often recalled by them is perhaps due to the humility with which it was given and the sensitivity with which it was executed. It does not pay, especially when any nation is assisting another, to overplay this. Companies offering CSR, organisations based on volunteers, some NGOs that help without fanfare and with minimal or no media trumpeting, eventually earn more goodwill from those who benefit from their help or watch them doing it.

Thus, in the wake of that December 2004 wave, we learnt several lessons, implemented substantial mechanisms and started looking at the Indo-Pacific from different and larger lenses. It was a severe tragedy, no doubt, but it took one to possibly make the changes that needed to be made.



Rear Admiral Sudarshan Y Shrikhande, AVSM, (Retd) was commissioned in July 1980. During his long service, he commanded IN ships Nishank, Kora and Khukri. He is a post-graduate (with distinction) of the Soviet Naval War College (1988), DSSC Wellington (Scudder Medal), Naval War College and of the US NWC with highest distinction (2003) winning the Levy, Bateman and Forrestal Prizes. He was the Defence Adviser in Canberra with concurrent accreditation to four other South Pacific nations from end 2004 to early 2008. He contributes as a Strategic Analyst and post retirement is involved in teaching strategy formulation, operational art, force structuring, RMA, China, the Indo- Pacific, the Peloponnesian War, leadership and ethics in several military as well as civilian institutions. He is associated with the Vivekananda International and Observer Research Foundations as well as FINS and the Stimson Center, Washington DC. Apart from being an Adjunct Professor at the Naval War College, Goa and Takshashila Institution, Bengaluru, he is editor-in-chief of the Indian Naval Despatch. He has participated in Track 2 dialogues with a few countries as well as in other national and international conferences. He is also studying for a PhD in sea-based nuclear deterrence.

Runway on the Expressway



Mirage 2000 doing a 'Touch and Go' landing on the Purvanchal expressway on 16 November 2021, in the presence of the Hon'ble Prime Minister and other dignitaries.

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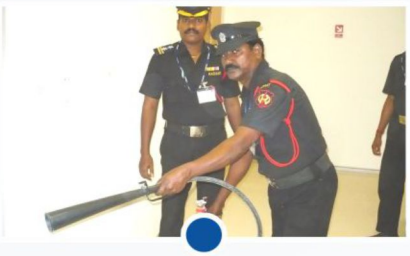

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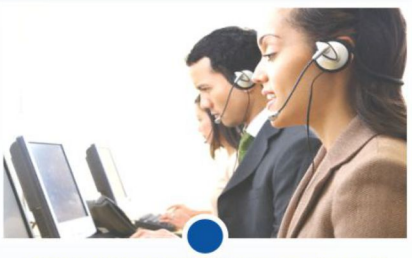

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