

Report on Logistic Operations During XXI IAE

Maj. RK Sharma

OIC Army Team

Introduction

A 13 member Indian Army team was part of the wintering team. The team was in Antarctica with a very specific logistic task concerning maintenance of life support systems, vehicles and station utility items. Each member of the logistic team had a specific task assigned to him but was also required to assist in all other logistic related task of the Expedition.

The Army team was represented by

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| 1. Maj RK Sharma, OIC Army Team | EME |
| 2. Capt Amit Atri, 2IC Army Team | Engrs |
| 3. Nb/Sub Rattan Singh | EME |
| 4. HMT Sita Ram | EME |
| 5. HMT Lalit Kumar Sanklan | EME |
| 6. HMT Gangadharan | EME |
| 7. Hav Chettiannan | EME |
| 8. Hav Log Raj Joshi | Engrs |
| 9. Nk Dalbir Singh | EME |
| 10. Nk Narute | EME |
| 11. NkMRamesh | EME |
| 12. Spr Surender Singh Rawat | Engrs |
| 13. Spr Sanjai Singh Bisht | Engrs |

Logistic tasks carried out by 21st IAE

Major tasks—The major tasks assigned to the XXI, IAE logistic team were as under—

1. Upkeep of station infrastructure & life support system.

2. Maintenance & efficient operation of all the Generators & power lines.
3. Replacement of defective pipelines & the defective/ineffective radiators.
4. Convoy operation & maintenance of vehicles/cranes/bulldozers and
5. Activating of Polar Bear.
6. Cargo handling at shelf.
7. Establishment of field camps.
8. Installation of Fire-Alarm system.
9. Upkeep & restoration of Maitri & its surroundings.

Except the replacement of radiators due to their non-availability all other tasks have been completed successfully.

Additional Tasks/Achievements of the team

(a) Replacement of Engines—This team had taken over only 05 vehicles in working condition from previous team. New engines were fitted in 03 vehicles and regular repairs and maintenance of vehicles achieved 100% serviceability of the fleet.

(b) Repair of Trailers—Major overhauling of all the trailers has been carried out by this team. A total of 35 shock absorbers springs, 30 Grouser bars supporting plates and 03 Axle-assemblies were replaced. This was a major task carried out by this team thus enhancing the life /serviceability of the trailers.

(c) Repairs and activating of Polar Bear vehicle—The Polar Bear vehicle which was re-inducted with the previous team after major repairs was shifted to Maitri station from the Shelf by this team and necessary repairs carried out to make it road worthy. The trailer of this vehicle, which was lying at Sankalp Point, was also shifted to Maitri station. The vehicle and the trailer were utilized for local duties.

(d) Shifting of all assets from Shelf to DG—In view of danger of ice shelf breaking, an additional task of shifting all cargo containers, fuel tanks, crane & other assets was assigned to this team, which has been successfully completed. It took this team 21 days for retrieval of buried equipment and shifting of all the assets to DG. The team faced 04 blizzards during this period.

(e) Retrieval of equipment at Shelf—02 damaged Trailers, 02 Sledges, a Snow mobile Scooter and a large number of fuel barrels that were buried

under blue ice were recovered and shifted to DG. The Trailers were repaired at Maitri and made fully functional.

(f) **Retrieval of Assets at DG**—This team has recovered a total of eight 24 KL fuel tanks from the ice, out of which 04 were totally buried under ice. It was an extremely difficult task carried out after a number of attempts using own-resources & innovative means. The previous team had suggested NCAOR to seek official help of Russians to extricate/retrieve these fuel tanks. The 30 KVA Generator "Jeevan Jyoti" along with the sledge buried under ice was recovered & brought to Maitri. The complete overhaul of this Generator was carried out thus enhancing its life. The Mantis Crane at DG which was buried under ice and was in nonfunctional condition, was recovered after a lot of efforts and made functional.

(g) **Repair to D-50 Dozer**—One of the D-50 Dozers that was off-road for a long time due to broken track frame was repaired with the help of a Russian welder. This Dozer was got repaired earlier in India for the same defect, but the quality of welding being poor the axle had broken. This Dozer is now fully operational and is being utilized for dozing work.

(h) **Renovation of Banjara**—Complete renovation of Banjara including repairs, rewiring, & repainting has been carried out.

(j) **Repair & Overhaul of Generators**—Three 62.5 KVA Generators and one 30 KVA Generators were completely overhauled involving replacement of all the cylinder liners, pistons, piston rings, inlet & exhaust valves, big end & main bearings.

(k) **Major repair of Duct line**—There were two major incidents of fire in the duct line disrupting water supply to the station. The entire duct line was opened and complete trace heating cable and the damaged segments of both the pipelines were replaced.

(l) **Installation of Dental Chair**—The Dental Chair received with the previous team has been installed in M.I. room and checked for serviceability.

(m) **Establishment of new Fuel Dump**—As the main Fuel Dump is located in an area prone to accumulation of water during summers, a new Fuel Dump has been established on the rocky ground.

(n) **Backloading of Containers**—A total of 13 cargo containers were shifted to DG for further backloading to India.

(n) **Repair of PB-270 Vehicles**—15 damaged Axle tubes of two PB-270 vehicles were replaced by the axle tubes cannibalized from discarded PB-170 vehicle. It was a major task carried out to improve the condition of the vehicles.

(o) **Installation of Incinerator**—A new Incinerator was installed at Maitri for burning of waste food material and garbage. It is being used regularly.

(p) **Accounting, marking & stacking of spares**—All the spares & stores have been counted, marked & stacked properly in different stores.

(q) **Erection of Mast at SASE Point**—A mast was established at SASE pt near Veteiah for collecting scientific data. The same has now been removed & shifted to Maitri after a period of one year as per the directions of the team leader.

(r) **Installation of INMAR SAT M Antenna**—A foundation was constructed near the summer camp for the installation of INMAR SAT M Antenna.

(s) **Retrieval of Fuel from Dozer Point**—30 KL of fuel was retrieved from barrels buried at Dozer point & shifted to main Fuel dump at Maitri.

(t) **Environmental Cleaning**—Cargo containers, half bins, fuel tanks, empty barrels, scrap and garbage scattered all over the area were shifted to the container complex and placed in an organized manner.

Problem areas

(a) **Workshop Shelter**—The facilities for repair of vehicle and equipment at Maitri are inadequate. The Workshop shelter is small & un-insulated. The hoist crane fitted inside is not fit for removal/fitment of engines due to low roof height. Moreover the trailers cannot be accommodated inside for carrying out repairs. Most of the times the men have to work outside in open in treacherous weather conditions. The exit for the exhaust gases from vehicles has not been catered for. The workshop shelter gets filled with exhaust gases, which are a big health hazard. The gases do not escape fully even if the main doors are kept open. Keeping in view the working condition, there is a requirement for better shelter for workshop.

(b) **Communication**—The communication between the convoy and Maitri was a major problem throughout the expedition. The repeater station at Veteiah is inefficient and needs to be replaced with better equipment. None of the antennas installed on the vehicles for long-range communication is in working condition.

(c) **Navigation**—Due to the non-availability of proper navigation aids the team perforce had to do most of the convoys with risk to human lives. The need of a GPS in each vehicle was strongly felt during convoys.

At Maitri we have total 5 GPS. Three SONY, one Garmin and one Trimble made. 21st ISAE convoy team verified the navigated route from Maitri to DG, currently navigated route waypoint positions are given below.

S.N.	LOCATION	LATITUDE	LONGITUDE
1.	MAITRI	70°-45.950' S	11°-43.396' E
2.	SHIV TURNING	70°-46.383' S	11°-37.654'E
3.	B-155	70°-47.059' S	11°-39.338' E
4.	SANKLP		
5.	RUSSIAN JN.		
6.	B-127	70°-51.242' S	11°-52.480' E
7.	B-125	70°-52.088' S	11°-55.896' E
8.	B-122	70°-52.639' S	11°-59.120'E
9.	5-KLTK-1	70-52.859' S	12°-00.902' E
10.	5-KL-TK-2	70°-53.098' S	12°-03.666* E
11.	B-114	70°-52.772' S	12°-08.550' E
12.	B-112	70°-52.409' S	12°-11.203' E
13.	STONE	70°-52.023' S	12°-13.325' E
14.	B-110	70°-51.943' S	12°-13.641'E
15.	B-108	70°-51.328' S	12°-16.103' E
16.	B-104	70°-50.394' S	12°-18.491' E
17.	B-97	70°-48.747' S	12°-22.353' E
18.	B-91	70°-47.584' S	12°-24.724' E
19.	B-86	70°-46.234' S	' 12°-26.805' E
20.	B- (BRL-1)	70°-43.667' S	12°-30.988' E
21.	5-KL-TK-3	70°-42.662' S	12°-32.254' E
22.	B-71	70°-42.097' S	12°-32.146' E
23.	B-68	70°-40.933' S	12°-32.240'E
24.	BRL-2	70°-40.629' S	12°-32.306' E
25.	B-63	70°-38.900' S	12°-30.771'E "
26.	B-59	70°-38.243' S	12°-30.660' E
27.	BRL-3	70°-36.486' S	12°-30.242' E
28.	5-KL-TK-4	70°-35.503' S	12°-29.011' E
29.	B-47	70°-33.458' S	12°-24.926' E
30.	B-44	70°-32.381' S	12°-22.502' E
31.	B-	70°-31.794' S	12°-21.319' E

(Contd.)

S.N.	LOCATION	LATITUDE	LONGITUDE
32.	B-	70°-30.646' S	12°-19.597' E
33.	B-38	70°-30.309' S	12°-19.575' E
34.	B-	70°-28.929' S	12°-19.586' E
35.	B-	70°-26.946' S	12°-18.884' E
36.	B-	70°-26.172' S	12°-18.980' E
37.	B-	70°-25.357' S	12°-18.773' E
38.	PIPE-1	70°-24.414' S	12°-18.170' E
39.	RING-1	70°-24.068' S	12°-18.312' E
40.	5-KL/ B-25	70°-22.991' S	12M2.414' E
41.	B-	70°-20.401' S	12°-19.065' E
42.	B-19	70M9.143' S	12°-19.406' E
43.	PIPE-2	70°-18.398' S	12°-19.433' E
44.	B-	70°-17.095' S	12°-18.915' E
45.	B-	70°-14.393' S	12M4.258' E
46.	B-	70°-13.254' S	12°-13.212' E
47.	PJNG-2	70°-12.192' S	12°-12.156' E
48.	B-	70°-11.526' S	12°-11.213' E
49.	RUSS JN	70°-07.117' S	12°-04.184' E
50.	DG	70°-04.524' S	12°-00.360' E

- (d) **Cargo Handling at Shelf**—The present shelf which has developed a deep crack and there is a danger of its breaking at any moment, is not safe for loading/unloading of cargo. Moreover the ship (Magdalena Oldendroff) with cranes of short boom lengths is not safe for loading/unloading of cargo containers at the shelf. The leaders of the previous as well as present team have already brought this to the notice of the concerned authorities but no action has been taken so far to ensure the safety of the men involved in cargo handling. This issue needs to be viewed very seriously.
- (e) **Clothing**—The kind of clothing being provided to the team members was not fit for carrying out the out door duties like convoys in the difficult weather conditions. The clothing provided to the convoy team members was quite old and badly torn. A better quality of clothing must be provided to the team member involved in/ out door activities during winters.
- (f) **Living module and generator for convoy team**—The living module "Banjara" is not suitable for convoys as it is not properly

insulated and does not provide adequate protection to the men during convoys. The Jeevan Jyoti sledge and the generator hut being used for providing electric supply for Banjara during halts have deteriorated over a period of time and need to be replaced. There is a requirement of a better living module for the convoy team, which must be met at the earliest.

Important points/suggestions for convoy teams

- (a) All the vehicles must be thoroughly checked and repaired/serviced before marching out for the convoy. Adequate spares, coolant and lubricants and spare wheels must be carried. Cabin heaters and wipers blades must be checked for serviceability. A fuel tanker with 2-3 KL of fuel for re-fuelling of vehicles en-route must be carried.
- (b) Inter vehicular communication and the communication with Maitri station is very important and must be ensured before leaving for convoy.
- (c) The convoy route from Maitri to Shelf must be strictly followed to avoid any crevasses and water channels.
- (d) The portable generator kept inside the Banjara must be carefully used to prevent any incidents of carbon monoxide poisoning. Conditions permitting, the generator must be kept outside if it is to be used for a longer period.
- (e) During moves the drivers must keep an eye on the temperature and the pressure gauges and other warning lamps. The convoy must be stopped whenever any fresh coolant/lubricant/hydraulic fluid drops are noticed on the convoy track.
- (f) The porta cabins, containers and fuel tanks at DG and the Shelf must be shifted from time to time to avoid their getting buried under the snow.
- (g) Before starting the vehicles after a blizzard, the engine compartment must be cleared of snow and free rotation of the cooling fan must be ensured.
- (h) Inter vehicular distance of 100m must be maintained during convoys and convoy commander must ensure on the radio set from time to time that none of the drivers goes off to sleep as it can cause serious accidents. No vehicle should be sent for any task alone.
- (j) GPS along with adequate number of spare batteries and a list of navigation points must be carried during convoys.

- (k) Adequate rations and supplies and toilet items for at least a month must be carried. Fire extinguishers must be carried in all the vehicles and Banjara to prevent any untoward incident of fire. Kerosene stove must be carried in Banjara as there maybe occasions during winters when the LPG cylinders may freeze.
- (l) At short halts during convoys, the vehicles should not be switched off and the drivers must go around and check their vehicles for any leakages/defects,
- (m) Cranes at Maitri, DG and the shelf must be maintained from time to time.
- (n) A First Aid kit with fresh stock of medicines must be carried in Banjara and replenished after every convoy. At least one of the convoy members should be properly trained and briefed by the station doctor about the medicines and the first aid before the convoy.