

## CHAPTER II : MINISTRY OF DEFENCE

### 2.1 Defective import of SMERCH Multi Barrel Rocket Launcher System

**The import of defective SMERCH MBRLS at the cost of Rs 2633 crore, delay in purchase of buyer furnished equipment and formulation of War Establishment had resulted in non operationalisation of the system.**

Ministry of Defence signed two contracts in December 2005 and March 2007 with M/s Rosoboronexport, Russia for import of a total number of 42 SMERCH Multi Barrel Rocket Launcher System (MBRLS) at the total cost aggregating Rs 2633 crore which included spares and Rocket Projectiles (RP) of different ranges. The system comprises of Launch Vehicle (LV), Trans-loader Vehicle (TLV), Command and Staff Vehicle (CSV), Meteorological Support (MET) Complex Vehicle and Workshop Repair Vehicle. Supplies against the first contract commenced from June 2007 and were completed by 2008-09. The supplies of systems against the second contract were completed in May 2009 except a few rocket projectiles. The audit scrutiny of the import revealed the following:

#### **Exploitation of the system**

The first consignment of MBRLS supplied was inducted in July 2007 in three Rocket regiments. The equipment was exploited to its limit in the annual practice- cum- firing conducted by one regiment in October/November 2008. The exploitation revealed critical defects in the sub systems SOCRIG<sup>3</sup> (of ALFCS)<sup>4</sup> and DTE<sup>5</sup> as stated below:

#### **Failures in Launch Vehicles**

In respect of the LVs the failures in two hydro pneumatic device which acts as a lifting and balancing mechanism of the LV and cost Rs 25 lakh each, were reported within the warranty period. Though the defects were attended to by the vendor yet the replacement was made from the two devices held by the Regiment under Spare Parts Tools and Accessories (SPTAs). While no more hydraulic assembly was available in the SPTA contracted, the two numbers earlier consumed by the warranty team were yet to be replenished. In the absence of ready availability of SPTAs, the failures in the hydro pneumatic device of the LV would result in forced dependence on the vendor when large scale exploitation of weapon system takes place. The Ministry had stated in November 2009 that the OEM had been directed to replenish all consumed SPTAs at the earliest.

<sup>3</sup> SOCRIG – Self orienting Coarse Roll Indicating Gyroscopic System is provided in the LV for automatic laying and fire control. It is critical for accuracy of weapon system.

<sup>4</sup> ALFCS – Auto laying Fire Control System

<sup>5</sup> DTE – Data Transmission Equipment for Encrypted Data communication. Automation of the Weapon System depends largely on the reliability of the DTE.

### **Failures in sub system of launch vehicle - SOCRIG**

The trials of the system were conducted in three phases between June and August 2002 prior to conclusion of contract in December 2005. In the General Staff Evaluation (GSE) of the trials, the Director General Quality Assurance (DGQA) (L) observed that electronic components should be able to function in operating environment specification of minus 40°C to plus 50°C. However, the maximum temperature recorded during trials was stated to be up to 36°C only when the trials were conducted. The need for verification of these aspects before finalization of contract was emphasized in the GSE.

Seven out of thirteen SOCRIG failed completely during exploitation of sub systems. As one sub system costs Rs 50 lakh and is critical for the accuracy of the system, the matter was taken up with the supplier who suggested to carry out the product improvement by installing a cooling system at the cost of buyer.

One of the possible reasons for the failure of SOCRIG was attributed to high temperature prevailing in Indian field conditions which suggested that despite the apprehensions expressed during trial evaluation the system was not tested at the temperatures stipulated in the contract.

### **Failure of Data Transmission Equipment (DTE)**

The sub-system DTE is fitted in LV, TLV, CSV and MET Complex for encrypted data communication. Eleven DTEs each costing Rs 25 lakh reported complete/partial failures due to defect in the internal component. The equipment is critical for the reliability of the system since complete automation depends on it. The Ministry stated in November 2009 that the matter had been taken up with the OEM who had agreed to carry out modifications in the manufacturing process and also carry out modifications in the sub system supplied. The Army Technical Board had taken up a project with IIT, Delhi to develop an alternative system so that it can be used in case of failure in future.

The SPTAs of SOCRIG and DTE were provided in a very limited quantity in the contract as the quantities were meant for four years of operation. The Ministry stated in November 2009 that the matter had been taken up with the supplier to make up the deficiencies created by using group SPTA item for repair. However at the present rate of failure, the spares were not expected to last even beyond one year after expiry of warranty of 18 months.

### **Deficiencies in Communication system**

Radio Set R 171 M supplied by the vendor has a tuning system which was reported to be more defect prone than other sub systems of radio sets and also had reduced range. Though the defects reported so far had been rectified by using the SPTA, yet for long term use the diagnosis of fault in the communication control system of CSV was reported to be not possible in the absence of manuals for repair. The Ministry stated in November, 2009 that OEM has been directed to replenish all consumed SPTAs at the earliest and

the requirement of manuals for repair can be co-ordinated with Electronics and Mechanical Engineers (EME).

It was further noticed in audit that defective clause in contract and shortcomings in Pre-Despatch Inspection (PDI)/improper inspection as enumerated in succeeding paragraphs had resulted in import of defective SMERCH MBRLS.

The contract provided for PDI by the DGQA and sixteen personnel were trained in Russia to carry out inspection. The PDI could not be carried out properly as the team members were not exposed to the weapon system in the short training.

The clauses governing the PDI in the contract, with M/s Rosoboronexport (Russia) envisaged acceptance of Quality Certificates issued by the manufacturer, a third party. This rendered the outcome of the PDI as a foregone conclusion necessitating acceptance of the equipments offered. Reliance on third party inspection without enabling clauses in the contract defining the vendor's responsibility had increased risks in importing a defect prone system and the buyer's interest unprotected.

The PDI team involved in inspection of the LVs etc was not permitted by the vendor to carry out live firing from the LV (9A – 52 – 2T) supplied owing to defective wording of the contract. The scope of PDI under Article 12.1.3 of the contract stipulates 'check up of the major aggregates and assemblies of the equipment for serviceability and functioning in compliance with the chapter Acceptance Trials from technical conditions of the manufacturing plant.' The PDI of the RPs were conducted by the DGQA team by firing from the Launch Vehicle 9A-52-2 (of 1993 year of production) in the proof range at Russia and not from the Launch Vehicle 9A-52-2T covered under the scope of contract of December 2005 resulting in non validation of the LV by firing before acceptance. Later several critical defects in subsystems of the LV were reported by the Rocket Regiment during its exploitation /firing.

Further, the Buyer Furnished Equipments (BFE) mainly High Mobility Ammunition Vehicles (HMsVs), Global Positioning System (GPS) Heavy Recovery Vehicle (HRV), Trailer etc. required to operationalise the SMERCH system could not yet (November 2009) be procured. The formation HQ stated that War Establishment (WE) which authorises vehicles and equipments was yet to be approved. The requirement felt by the SMERCH stocking depot (CAD Pulgaon) in September 2006 for special Material Handling Equipments (MHEs) for movement of SMERCH ammunition within the depot could not be met. Due to non-availability of the special MHEs, four rockets were damaged during internal shifting in January 2009, resulting in loss of Rs 2.36 crore.

The Ministry replied in November 2009 that defects of SOCRIG and DTE had been taken up with OEM, who might come up with a comprehensive solution. The Ministry further stated that WE for authorisation of Ammunition Vehicle, GPS etc. to the units for SMERCH Weapon System was under formulation and units would be able to demand such items on its approval.

Thus, the SMERCH Weapon System procured at a cost of Rs 2633 crore could not be fully operationalised due to defects in various systems, delay in buying the logistics support equipment and formulation of War Establishment. The absence of suitable material handling equipment led to damage of four rockets and resultant loss of Rs 2.36 crore.

## 2.2 Procurement of low capability missiles

**Outdated Missiles of 1970s vintage valuing Rs 587.02 crore were contracted in 2008 for procurement from BDL by compromising the Army's requirement, though the third generation missiles are available globally.**

The Anti Tank Guided Missile (ATGM) Milan-2 held by the Army is a second generation missile of late seventies vintage. It was produced by M/s Bharat Dynamics Ltd. (BDL) since early eighties under Transfer of Technology (TOT) arrangement with a foreign firm and supplied to the Indian Army. The missile with single warhead has limited capability to defeat modern tanks but its upgrade version i.e. Milan-2T fitted with Tandem<sup>6</sup> warhead can defeat modern tanks. Army HQ formulated a General Staff Qualitative Requirement (GSQR) in 2003 for the upgrade version, with tandem warhead. The tandem warhead was to be obtained under TOT from the OEM. The GSQR of in-service missile Milan-2 provided for essential range as 1850 metres and desirable range of 2000 metres. The GSQR of 2003 for Milan 2T indicated the range as 2000 metres to meet the need of modernisation of forces. Based on GSQR of 2003, RFP for procurement of 4100 Milan 2T was issued to BDL in January 2007. The Technical Evaluation Committee (TEC) did not find the product offered by BDL compliant with the GSQR as the range of 2000 metres offered had only 1850 metres under guidance phase while the last 150 metres was left unguided. The case for procurement was therefore closed in May 2007.

Subsequently, the BDL confirmed that the range of Milan 2T would be 2000 metres. The case was reopened and trials of Milan 2T were conducted in February 2008. Based on trial results, the General Staff did not recommend its introduction into service in view of difficulties in engaging moving targets during last 150 metres. Besides, requirement was not met as regards flight time and weight. Further, third generation missiles were already available in the global market.

Based on the representation of Staff union of the BDL to the then Raksha Up Rajya Mantri as non-placement of order for Milan-2T, would result in redeployment of work force of BDL and wastage of already procured material common to Milan-2/2T, it was decided to procure minimum required quantity of Milan-2T in May 2008 by amending the GSQR for Milan 2T with 1850 meters range and with waiver of trials, considering the time required for procurement of the 3<sup>rd</sup> generation missile and that the shelf life of existing stock of Milan-2 would expire by 2013. In August 2008, the GSQR of 2003

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<sup>6</sup> Tandem Warhead: Two Warheads, one behind the other.

was amended in favour of BDL to suit the trial results of February 2008. The revised RFP was issued to BDL in September 2008 as per amended GSQR seeking commercial offer.

The Ministry concluded a contract with BDL, Hyderabad in December 2008 for supply of 4100 Milan ATGM equipped with Tandem warhead (Milan 2T) at a cost of Rs 587.02 crore with a staggered delivery schedule to be completed within 36 months from the effective date of contract.

Audit scrutiny revealed that even before issue of the first RFP to BDL in January 2007, Army was aware that an adversary was having ATGM of range longer than the Milan-2T and as such reducing the standards of GSQR of 2003 was not desirable. The Army in fact wanted ATGM of even longer range so as to avoid risk of exposure. It was also known to Army (June 2006) that third generation missiles were available in the global market. The Army had not even formulated GSQR for third generation missile for over two years when GSQR for Milan-2T was amended (August 2008).

Thus, due to reduction in standards of Milan-2T to suit the offer of BDL and to avoid wastage of material already procured, Milan-2T missiles of lower capability were contracted at the cost of Rs 587.02 crore by compromising the Army's actual requirements. This is when the missile was being phased out in the country of origin and better systems were available in global market.

In their reply, the Ministry stated in November 2009 that the holding of Milan missiles in May 2008 was below the operational requirements of Army. In view of the critical void in the holdings of missiles, procurement of quantity 4100 Milan 2T had been made as a stopgap – interim measure pending the selection and induction of the 3<sup>rd</sup> generation ATGM. The fact remains that low capability missiles were procured by compromising the Army's requirements in spite of availability of better missiles in the global market as BDL could not produce them. Further, Army has failed to formulate GSQR for third generation missiles for over three years.

### **2.3 Non replacement/rectification of imported ammunition**

**Indigenous and imported ammunition valuing Rs 273.75 crore reported defective was awaiting repairs for over five to eight years. Although the imported ammunition was still under warranty, Army HQ did not make efforts to get it rectified/replaced from the supplier under warranty.**

The Ammunition 'A' was designated to be fired from T-72 Tanks. Mention was made in the paragraph 8 of the Report No. 6 of 2003 of the Comptroller and Auditor General of India, Union Government – Defence Services (Army and Ordnance Factories), about the defects in manufacture of the ammunition and the resultant segregation of ammunition valued at Rs 607.43 crore since January 2002. In their Action Taken Note, the Ministry stated in January 2005 that 38,200 rounds of the 1.35 lakh segregated ammunition had been made serviceable and action to get the remaining quantity repaired/replaced was under progress. Audit, however, observed that as of November 2009, 67,453 rounds valuing Rs 245.28 crore were still lying in segregated state.

Audit further observed that 1906 rounds of the ammunition were rejected during visual inspection by Western Command in August 2004, due to the reasons such as loose/cracked primary and secondary cartridges and shot detached from cartridge case and reported it to Army HQ. This ammunition was part of the 26,000 rounds of ammunition imported under a contract concluded by the Ministry in July 1999, about which mention was made in paragraph 4.6 of the Report No. 7A of 2001 of the Comptroller and Auditor General of India on Review of procurement for OP Vijay (Army).

Although the imported ammunition was under warranty for a period of 10 years and the seller was contractually bound to either replace or rectify the defects free of charge, Army HQ did not take up the matter with the seller. Instead, Army HQ in September 2008 requested Ordnance Factory Board to carry out thorough analysis of ammunition and to carry out repair or replacement of 67,453 rounds (valuing Rs 245.28 crore) of indigenous ammunition and 6191 rounds of imported ammunition (valuing Rs 28.47 crore) held in defective state.

In November 2008, Directorate General of Quality Assurance suggested to Army HQ to take up the matter with supplier as the imported ammunition was under warranty. Army HQ however did not take up the matter with the supplier as of November 2009. In reply to an audit query, Master General of Ordnance (MGO) branch of Integrated HQ/MOD stated in November 2009 that the delay in taking further action was due to the delay in getting complete details of defective lots from all the Depots. MGO reported to OFB in December 2009 that there had been no progress in carrying out repair or replacement of 67,453 rounds of indigenous ammunition and 6191 rounds of imported ammunition, despite repeated requests.

The Ministry stated in April 2010 that 1705 rounds of the imported ammunition was held in segregated state, but added that no defective ammunition was held. The contention of the Ministry that no defective ammunition was held is indefensible since only ammunition in doubtful category are kept in segregated state. As mentioned in the foregoing paragraph, even in December 2009, the MGO had reported to the OFB about the delay in carrying out repair/replacement of the indigenous/imported ammunition. Thus, indigenous and imported ammunition costing Rs 273.75 crore remained in a state "unfit for use" for over five to eight years. Such delays in making the ammunition fit for use are inexplicable.

## **2.4 Excess procurement of batteries and battery chargers**

**Erroneous assessment of requirement of batteries and battery chargers for a class of radio sets used by the Army resulted in their excess procurement costing Rs 5.30 crore. Timely intervention by Audit prevented further over-provisioning and proportionate reduction of requirement from the subsequent procurement of the batteries/chargers.**

Army placed indents on M/s BEL in March 2007 for supply of 4000 each of 5Watt and 25Watt radio sets along with spares support valuing Rs 467.61

crore. The entire lot of 4000 radio sets of 5W capacity was to be in man-pack version while 2400 numbers of 25W were in man-pack version and the remaining 1600 in vehicular version.

The radio sets to be used in High Altitude Area (HAA) were required to be fitted with non-chargeable battery, which would be discarded after use. The radio sets to be used in other than HAA were required to be fitted with rechargeable battery which is to be charged through a battery charger for re-use. One battery charger was required for three radio sets.

Since 1000 5W radio sets and 600 25W radio sets included in the 4000 sets ordered as above were for use in HAA, they did not require rechargeable batteries. However, rechargeable batteries worth Rs 3.47 crore were procured for those 1600 sets. In addition, 533 battery chargers at the scale of one for three radio sets were also procured for those 1600 sets at a cost of Rs 2.93 crore. Thus, the procurement of batteries and chargers worth Rs 6.40 crore for the radio sets meant for use in HAA was unwarranted.

In November 2008, Army HQ projected a requirement for batteries and chargers, once again disregarding the fact that the radio sets to be used in HAA did not need rechargeable batteries. In January 2009, the Ministry requested BEL to quote for supply of the items as demanded by Army HQ. In February 2009, when Audit pointed out the excess procurement of batteries and chargers against the indents of March 2007, Army HQ amended the requirement projected in November 2008 not only to make it realistic, but also to adjust the excess procurement made earlier. Similar reduction was also made in respect of the battery chargers.

In October 2009, the Ministry of Defence agreed that 1600 rechargeable batteries were procured in excess which had been offset by reducing equal number from the subsequent purchase of March 2009. Regarding battery chargers, it stated that only 333 chargers were excess in the earlier purchase since there has been an increase in their requirement. This too had been reduced when subsequent purchase was made. Thus, timely intervention by Audit not only led to a saving of Rs 5.30 crore, but also checked the recurrence of such excess procurement.

In their reply to the Audit comment about weakness in system of internal control that led to excess procurement of high value items, the Ministry stated the requirement had been worked out more scrupulously in the subsequent procurement. The existing system of controls warrants comprehensive improvement to avoid such unwarranted procurements.

## 2.5 Procurement of defective Oxygen Masks

**Despite being aware that the oxygen masks offered by a foreign vendor have serious defects, the Ministry did not ensure that the defects are rectified by the vendor before effecting supply to the Army. This resulted in purchase of defective masks valuing Rs 5.06 crore which have been returned by the Army Aviation Units on account of difficulties being faced by the pilots in inhaling oxygen from the cylinders.**

Pilots of Army Aviation operating in high altitude areas have to use oxygen from oxygen cylinders as the cockpits of Cheetah and Cheetak Helicopters are not pressurized. To alleviate this problem, Army Aviation Directorate had projected a case for procurement of 177 Integrated Oxygen and Communication Mask Helmets (IOCMH) for aviators operating in high altitude areas which was approved in 1996. Ministry of Defence concluded a contract in 1998 with M/s Ulmer Aeronatique, France for procurement of 177 units of IOCMH which was cancelled in October 2001 as the vendor did not submit the performance bond.

Fresh request for proposal was issued in December 2001 to four vendors including M/s Ulmer, France and the technical proposals of these firms were opened in February 2002. Technical Evaluation Committee found that the equipment of M/s Ulmer met essential General Staff Qualitative Requirement (GSQR) characteristics and recommended it for trial evaluation. The trial team made following essential recommendation to be addressed by the vendor before its induction into the Army Aviation:-

1. Investigate the cause of reverberations felt while inhaling oxygen with the regulator set to 100 *per cent* and rectify the deficiency in the regulator/masks.
2. Rectify the problem of inspiration resistance and unusual fluttering sound during inspiration
3. Increase the length of the tube connecting regulator inlet by six inches.

Based on trial team recommendation, General Staff evaluation was accepted in January 2004 subject to the above rectifications/modifications. The improvement to be undertaken by the Original Equipment Manufacturer could be validated for completion and correctness during bulk production clearance as it related to optimisation after performance of the equipment.

Ministry in June 2004 requested the vendor to produce the equipment with said modifications for confirmatory trial. Army Aviation Project Team Bangalore received two sets of IOCMH for confirmatory trials in August 2004 which were validated by the trial team. These were found satisfactory and recommended for induction. Accordingly, Ministry concluded contract with M/s Ulmer, France in March 2006 for procurement of 177 units of IOCMH with Manufacturer's recommended list of spares at a total cost of EURO 910,581.82 (Rs 5.06 crore) which included the clause for inspection by buyer's inspectors/Army experts at the seller's factory to witness inspection of the goods in order to check their compliance with specification in accordance with its usual standard procedure. The Pre-dispatch Inspection (PDI) was



carried out in June 2007 and the store was inspected as per Acceptance Test Procedure (ATP) given by the firm. Some additional tests of flexing and load test of R/T chord were also carried out at the firm premises. The team recommended for acceptance of the consignment. The vendor supplied the entire stores within delivery period and payment for Rs 5.06 crore was made in September 2007. During Joint Receipt Inspection (JRI) carried out in August 2007, no deficiencies were noticed and the whole quantity was accepted and issued to the user units, barring 16 kept in reserve.

In December 2007, one of the user units intimated about the defect found in five masks out of 18 masks issued to them. In September 2008, Additional Director General Army Aviation intimated the firm about temporary withdrawal of the IOCMH from operations on the ground that during its exploitation by the field units in high altitude areas (HAA) some problems like erratic supply/delivery of oxygen during flight, puckering of mask and loud fluttering noise during inhaling while on 100 *per cent* setting, not getting enough oxygen on normal setting and severe headache were reported by the pilots. The Defence Bio-Engineering and Electro-Medical Laboratory was requested by Army Aviation to carry out trial for the equipment. They found that Oxygen system (Regulator) was inadequate in delivering required concentration at desired flow rates. Accordingly ADG Army Aviation stopped usage of the equipment. The test result was also sent to the firm in February 2009 for rectification of the equipment. 24 Quality claims were raised for various defects. The firm had taken a sample of IOC MH for defect investigation. In October 2009, firm confirmed the defect of fluttering and rectified the sample unit by replacing valve and promised to investigate more units for the defects of dilution of oxygen.

In November 2009 Army HQ stated that the rectified unit would be put to test for confirmation of snag rectifications and after successful testing, the equipment would be fully exploited. The fact remains that confirmatory trial, PDI and JRI failed to deliver correct evaluation of product. The expenditure of Rs 5.06 crore on procurement of equipment did not serve any intended purpose as of November 2009 after more than two year of delivery of stores and future use of equipment was yet to be decided.

The matter was referred to the Ministry in September 2009; their reply was awaited as of April 2010.

## 2.6 Overpayment of maintenance charges for Unmanned Aerial Vehicles

**Absence of monitoring of the work done against maintenance contract resulted in overpayment of Rs 98.59 lakh to a contractor. Army HQ even paid for non-existent unmanned aerial vehicles. Though the firm agreed in March 2009 to repay the overpaid amount, the amount was yet to be received as of November 2009.**

Unmanned Aerial Vehicle (UAV) searcher is deployed for aerial surveillance of ground areas, target acquisition, artillery adjustment and assessment of

damage. These UAVs along with ground support equipments and related spares were being imported by the Army from the Original Equipment Manufacturer (OEM). Some of those vehicles had crashed over the period of time. Out of the crashed vehicles, one was repaired and replaced by the OEM.

Annual Maintenance Contract (AMC) was concluded by the Ministry of Defence with the OEM on a regular basis for maintenance of the UAVs. The AMC for the period November 2007 to October 2008 was concluded in March 2008 for US \$ 47.94 lakh (Rs 19.12 crore)<sup>7</sup>. Audit pointed out in February 2009 that the AMC catered for maintenance of one additional UAV than those actually held. In reply, the DGEME<sup>8</sup> (Aviation) i.e., the maintenance authority in Army HQ, stated that the matter was taken up with the OEM and the latter had admitted in March 2009 that some damaged UAVs had been unintentionally included in the AMCs during the period from 2005-06 to 2007-08. The OEM added that the error occurred since the hardware list was not updated during contract negotiation meetings. The OEM, therefore, offered in March 2009 to adjust the overcharged sum of US\$ 1.96<sup>9</sup> lakh (Rs 98.59 lakh). Instead of independently investigating the circumstances leading to overpayment and evaluating the actual amount involved, the DGEME merely relied on the admission of claim by the vendor.

In reply to the draft audit paragraph, Master General of Ordnance (MGO) branch of Army HQ stated in November 2009 that overpayments were due to inclusion of severely damaged UAVs in the previous three AMC. MGO also admitted that the representatives of the user directorate failed to bring out the unserviceable state of the UAVs, though they were present at various stages of negotiations for the AMC.

The case therefore indicated an absence of effective system in the inventory control of operationally sensitive equipments like UAV which resulted in unmonitored payments for a period of three consecutive years. Further, the mechanism for ascertaining the actual amount of the overpayment and recovery thereof was also non-existent. Though the OEM had agreed to refund of US\$ 1.96 lakh in March 2009, the recovery of the overpaid amount was still awaited as of November 2009, despite its detection at the instance of Audit in February 2009.

The matter was referred to the Ministry in August 2009; their reply was awaited as of April 2010.

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<sup>7</sup> USD = Rs 39.89

<sup>8</sup> Director General Electronics and Mechanical Engineering

<sup>9</sup> USD = Rs 50.30