

**PROCUREMENT OF X-ENGINES**

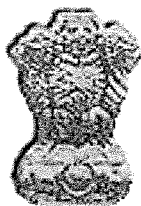
**MINISTRY OF DEFENCE (INDIAN NAVY)**

**PUBLIC ACCOUNTS COMMITTEE  
(2023-24)**

**EIGHTY FIRST REPORT**

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**SEVENTEENTH LOK SABHA**



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**LOK SABHA SECRETARIAT  
NEW DELHI**

PAC No. 2311

# **EIGHTY FIRST REPORT**

**PUBLIC ACCOUNTS COMMITTEE  
(2023-24)**

**(SEVENTEENTH LOK SABHA)**

## **PROCUREMENT OF X-ENGINES**

**MINISTRY OF DEFENCE (INDIAN NAVY)**



*Presented to Lok Sabha on: 18.12.2023*

*Laid in Rajya Sabha on: 18.12.2023*

**LOK SABHA SECRETARIAT  
NEW DELHI**

**December, 2023 /Agrahayana, 1945 (Saka)**

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\* Not appended to the report

## **COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2023-24)**

**Shri Adhir Ranjan Chowdhury** - **Chairperson**

### **MEMBERS**

#### **LOK SABHA**

2. Shri Thalikkottai Rajuthevar Baalu
3. Shri Subhash Chandra Baheria
4. Shri Bhartruhari Mahtab
5. Shri Jagdambika Pal
6. Shri Vishnu Dayal Ram
7. Shri Pratap Chandra Sarangi
8. Shri Rahul Ramesh Shewale
9. Shri Gowdar Mallikarjunappa Siddeshwara
10. Shri Brijendra Singh
11. Shri Rajiv Ranjan Singh *alias* Lalan Singh
12. Dr. Satya Pal Singh
13. Shri Jayant Sinha
14. Shri Balashowry Vallabbhaneni
15. Shri Ram Kripal Yadav

#### **RAJYA SABHA**

16. Shri Shaktisinh Gohil
17. Dr. K. Laxman
18. Shri Derek O' Brien\*
19. Shri Tiruchi Siva
20. Dr. M. Thambidurai
21. Shri Ghanshyam Tiwari
22. Dr. Sudhanshu Trivedi

#### **SECRETARIAT**

- |                            |   |                   |
|----------------------------|---|-------------------|
| 1. Shri Sanjeev Sharma     | - | Joint Secretary   |
| 2. Shri Partha Goswami     | - | Director          |
| 3. Shri Alok Mani Tripathi | - | Deputy Secretary  |
| 4. Shri Vijay Mishra       | - | Executive Officer |

\* Elected w.e.f. 19.08.2023 consequent upon retirement of Shri Sukhendu Sekhar Ray, MP on 18.08.2023.

## INTRODUCTION

I, the Chairperson, Public Accounts Committee (2023-24), having been authorised by the Committee, do present this Eighty First Report (Seventeenth Lok Sabha) on “**Procurement of X-Engines**” based on Para 3.2 of C&AG Report number 20 of 2022 relating to the Ministry of Defence, Indian Navy.

2. The Report of Comptroller and Auditor General of India was laid in the Parliament on 20 December 2022.

3. The Public Accounts Committee (2023-24) selected the subject for detailed examination and report during their current term i.e. 2023-24. The Committee took oral evidence of the representatives of the Ministry of Defence and Indian Navy at their Sitting held on 18.07.2023. The Public Accounts Committee (2023-24) considered and adopted this Report at their sitting held on 14.12..2023. The Minutes of the Sittings of the Committee are appended to the Report.

4. For facility of reference and convenience, the Observations and Recommendations of the Committee have been printed in **bold** and form Part-II of the Report.

5. The Committee would like to express their thanks to the representatives of the Ministry of Defence and Indian Navy for tendering evidence before them and furnishing the requisite information to the Committee in connection with the examination of the subject.

6. The Committee also place on record their appreciation of the assistance rendered to them in the matter by the Committee Secretariat and the office of the Comptroller and Auditor General of India.

NEW DELHI:  
14 December, 2023  
23 Agrahayana, 1945 (Saka)

ADHIR RANJAN CHOWDHURY  
Chairperson,  
Public Accounts Committee

## REPORT

### PART-I

#### PROCUREMENT OF X-ENGINES

##### A. EXCESS HOLDING OF INVENTORY- NON-CONSIDERATION OF IMMINENT DECOMMISSIONING

X-Engines are used onboard SS Class of ships as the main propulsion plant. These have a specific period of life and are required to be replaced after exploitation for certain running hours.

2. Navy Instructions 2006 (NI-1/S/2006), *inter-alia*, stipulate that in respect of shipborne equipment, provisioning is to be done based on Beyond Economical Repair (BER) and Anticipated Beyond Economical Repair (ABER) or against special sanction of competent authority for maintaining maximum stock ratio of R1 (between reserve and on-board).

3. Audit noticed (November 2019) that inventory holding of X-Engines was in excess of the stock level prescribed by NI 2006. The number of X-Engines to be held by Indian Navy, including those installed on-board ships was N30 for a complement of N13 ships. However, the holding of X-Engines was N31. Audit while masking sensitive and confidential information, scrutinised the case and reported as under :-

- Indian Navy concluded four contracts (October 2013, March 2015, March 2016 and April 2016) for procurement of N19 X-Engines for N21 ship against ABER (approved between February 2009 and October 2013), from Original Equipment Manufacturer (OEM) i.e, M/s 'C' at a total cost of USD 6,46,40,000 (Rs. 414.01 crore), inclusive of warranty up to 36 months from the date of supply. The BGTs were received between May 2014 and November 2016.
- Two ships viz., UU and VV were decommissioned as per the decision of the competent authority (March 2015) in April 2016. However, N24 X-Engines earmarked to be fitted on-board these two ships, were not excluded from the contract concluded in April 2016.
- As of March 2016, the number of X-Engines held in stock was N32, as against N10 required as per NI-2006. Hence, placement of orders in March 2016 and April 2016 for a total number of N15 X-Engines (N33 + N10) was not warranted.
- Two more ships WW and XX were decommissioned in January 2018. As such, the requirement of X-Engines for the remaining N13 ships in terms of NI 2006 worked out to N30 (N34 on board N13 ships and N24 as reserve) as against the holding of N31 X-Engines (December 2019). Thus, N17 X-Engines worth Rs.

242.40 crore received between September 2014 and November 2016, were held in stock as of December 2019.

- The warranty of all the X-Engines had since expired in storage.

4. This Audit Para was taken up by Public Accounts Committee (2023-24) for detailed examination. The Committee called for background information and took oral evidence of the representatives of Ministry of Defence (Indian Navy) and this examination revealed a series of pertinent observations and challenges that have been critically assessed.

In August 2020, Audit raised concerns about the procurement process for X-Engines, leading to excess inventory. The Ministry justified the stockpile, citing the short service life of X-Engines as under:-

".....Due to the short service life of X-Engines, sufficient stock of these X-Engines are to be held in stock for replacement at short notice."

5. Regarding the inventory holdings in excess of stock level, the representative of the Ministry during the course of examination explained that the stocking policy had been in place since 1987, maintaining a R2 ratio of spare X-Engines to installed ones. The Ministry argued that this was necessary due to the short X-Engines service life and long procurement lead times, as under:-

"The first one refers to the inventory holdings in excess of stock level prescribed in NI-1S of 2006. The background to stocking policy of X-Engines of these ships since induction of the ships in 1987 has been in the ratio of R2 for each spare X-Engine to the installed X-Engines. This is primarily due to the short service life of these X-Engines and long lead time for procurement. Further, these guidelines were reiterated in 2014 also. It is highlighted to the Committee that the NI is a general guideline and does not cater for equipment specific service requirements."

6. Regarding the observation related to procurement quantities and non-consideration of imminent decommissioning of two ships in 2016, the representative of the Ministry during the course of examination stated as under:-

"The second observation related to the procurement quantities of 2016 contracts, which have not taken into consideration the imminent decommissioning of two ships in 2016. It is highlighted that Nil stock situation directly affecting the operational capability of the platforms was experienced on four occasions before 2016, that is 2006, 2009, 2012 and 2013. The only procurement undertaken since 1995 was for two X-Engines in 2009. The subsequent indent from 2009 to 2013 had all got bunched up and fructified into contracts on three occasions, that

is in 2013, 2015 and 2016. The decommissioning of the two ships in 2016 could not be taken into account as it would have resulted in delay in supply of the required X-Engines. The RFP had already been issued in February, 2015 before the decision to decommission these two ships was taken. Further, the uncertainty created due to Crimea Annexation also necessitated early placement of orders to secure the supply chain. This was the reason for it."

7. Explaining further, the representative of the Ministry stated that during a specific period, various activities had a significant impact on their supply chain. Fortunately, existing orders were already in progress, allowing for timely deliveries. However, they encountered a temporary challenge when considering the extension of two ships' operational lifespan beyond 30 years. After conducting a Life Review Board assessment, they decided to decommission the ships, leading to a surplus of additional X-Engines in their inventory for a two-year period. Eventually, they returned to a normal state. This period highlighted the difficulty in synchronizing the decommissioning timeline, the induction of new X-Engines, and the actual decommissioning of the ships. The representative of the Ministry has submitted as under:-

".....now when all these activities that took place, the entire supply chain got impacted at that particular time. But fortunately for us at that time, since the orders were already in motion, the delivery took place for us. But temporarily, in between, there were two ships that we were thinking of stretching to beyond 30 years. But when we did their Life Review Board, the condition was such that we felt it is safer for us to decommission it that time. For that period of two years, the additional X-Engines that we had got became excess on our ledger. But two years further down the line, we came to normal place again. So, there was a temporary period when our decommissioning timeline, our induction of new X-Engines timeline, and the actual decommissioning of the ships, we were not able to match it all the times."

## **B. MAKE IN INDIA**

8. When asked about the source of procurement, the Ministry's representative explained that they now have established procedures in place. They emphasized their focus on the "Make in India" initiative for these X-Engines, indicating that the company has been invited to engage in partnerships with suitable Indian firms for local manufacturing in India.

## **C. SPARES AND INDIGENOUS MAINTENANCE**

9. When asked about the availability of spare parts for X-Engines, the Ministry's representative stated that they have already established a significant indigenous maintenance capability within the country. They mentioned that they have been conducting overhauls of M/s 'C' X-Engines through naval establishments over a 30-year period, indicating a wealth of experience in this area. While there are challenges related to the availability of certain spares, they mentioned having measures in place to



address these challenges. Their long-term solution involves developing the indigenous industry to bolster spare parts availability.

10. In further justification of the procurements made, the Ministry's representative explained that the extension of service life beyond the design life of twenty years necessitated additional efforts to maintain the operational readiness of these ships. The procurements conducted in 2016 were crucial in ensuring the full operational availability of these ships in the prevailing operational scenario. They emphasized that no additional procurement has been undertaken since then. Furthermore, they pointed out that the subsequent decommissioning of two ships in 2018 could not have been predicted at the time of the 2016 procurements.

11. When asked about the excess stock of newly purchased X-Engines worth Rs. 213.96 crore in October 2020, considering the imminent decommissioning of ships, the end of warranty cover, and the expiration of the calendar life in storage, the Ministry's representative explained that during the audit, there were four indents for these X-Engines in progress. The audit correctly pointed out that, given the decommissioning, one of those orders should have been canceled. However, at that time, they did not consider it wise to do so. They did not have the benefit of audit guidance when these indents were being procured. Since they had not engaged in such procurement for 25 years, it was a new development for them. They believed that it was still a good idea to receive these X-Engines because they had plans to extend the service life of each of these ships to thirty years. So, from their perspective, they believed there would not be an issue with overstocking.

#### **D. DELAY IN PLACEMENT OF ORDER AND RECEIPT OF X-ENGINES**

12. Regarding the expiration of warranty for the X-Engines in storage, the Ministry's representative explained that the X-Engines preserved in storage have a calendar life of at least ten years, allowing them to be used as replacements on ships until Year Y1. They also emphasized that these X-Engines are accepted after undergoing performance trials during their acceptance stage, ensuring their performance post-installation, precisely when required. The representative further mentioned that procuring these X-Engines based on emergent requirements was not feasible due to the extended lead times associated with procurement. As an example, they cited an order placed in 2013, which took four or five years for the X-Engines to be delivered.

#### **E. FUTURE ROADMAP**

13. During the course of the examination, the Ministry's representative stated that there had been no consequential wastage of public money. They explained that all the X-Engines had been earmarked for installation within their service life. They also mentioned that the benefits of bulk procurement had been accrued when concluding the 2016 contracts. Additionally, the representative pointed out that these procurements

had ensured the operational readiness of SS Class of ships in the ongoing operational scenario. They further stated that, despite all these considerations, a concrete roadmap had been prepared for the management of X-Engines in these ships to cater to future requirements

## PART-II

### OBSERVATIONS / RECOMMENDATIONS

The Committee take note of the critical role played by the X-Engines in achieving high navigational speeds required by the Indian Navy's SS Class Ships. The SS Class Ships are missile corvettes acquired by Indian Navy and integrated into their fleet. These X-Engines have a short life time, thereby, necessitating a sufficient stock for prompt onboard replacements. The Engine provisioning guidelines of 2014 were introduced to address past stock shortages and prevent future stock situations. However, the audit has brought to light several issues regarding the inventory holding of X-Engines, non-consideration of decommissioned ships while placing order, and non-adherence to stock levels prescribed under NI-2006, which warrant careful scrutiny.

2. The Committee note that the Navy's Instruction is a general guideline and does not cater for equipment specific service requirements. It has been reported that the matter of 'Nil ' stock situation directly affecting the operational capability of the platforms was experienced on four occasions before 2016, that is in 2006, 2009, 2012 and 2013. The only procurement undertaken since 1995 was for two engines in 2009. The Committee also note that the subsequent indents from 2009 to 2013 had all got bunched up and fructified into contracts on three occasions, that is in 2013, 2015 and 2016. The Committee have been informed that the decommissioning of the two ships in 2016 could not be taken into account as it would have resulted in delay in supply of the required X-Engines. Also, the Request for Proposal had already been issued in February, 2015 before the decision to decommission these two ships was taken. It has also been informed that the uncertainty created due to Annexation of Crimea also necessitated early placement of orders to secure the supply chain.

3. The Committee observe that in all likelihood the procurement decisions in 2015 and 2016 were influenced by geopolitical uncertainties, which necessitated bulk procurement to address potential supply chain-disruptions due to the Crimea crisis. The Committee note the affirmation of the Ministry that there has been no consequential wastage of public money on account of ending of

warranty as all the X-Engines have been earmarked for installation within their service life. It has also been stated that the benefits of bulk procurement have been accrued on account of the conclusion of contracts in 2016. The Committee believe that the procurements have ensured operational readiness of SS Class ships in the on-going operational scenario. The Committee desire that the concrete roadmap prepared for the management of X-Engines of these ships may strictly be followed for catering the future requirements.

#### **PREVENTION OF RESOURCE WASTAGE**

4. The Committee appreciate the decision of Indian Navy for taking timely measures in the context of Crimea Annexation. However, they are not inclined to agree with the decision of not reducing the number of X-Engines on account of decommissioning. In Request for Proposal (RFP)s, Indian Navy could consider adding the clause that the number of items may be increased / decreased at the time of final order, if not already included which is a general clause for each tender/Request For Proposal. The Committee, therefore, desire that Indian Navy should prepare standard Tender Document and conduct a thorough and timely review of X-Engines stock levels annually for all depots and initiate the process for procurement, maintenance, re-use, disposal/de-commissioning, as the case may be, and implement corrective measures as per guidelines in Navy Instructions (NI) -2006. The Committee, further, desire that future procurements should be based on actual needs, while simultaneously maintaining a plan for contingency/crisis keeping the national interest paramount.

#### **ENHANCING 'MAKE IN INDIA' AND RESEARCH & DEVELOPMENT EFFORTS**

5. The Committee appreciate the Indian Navy for Innovative X-Engine Design prepared by their officer(s). Currently the progress is theoretical and its industrial production and its evaluation for use is yet to be done. The Committee, emphasize the need to expedite actions aimed at achieving indigenous production of X-Engines, aligning with the goals of the 'Make in India' initiative and therefore, recommend that the Indian Navy needs to undertake research and development initiatives to address the current challenges and explore innovative approaches.

## **COLLABORATION WITH RELEVANT INDUSTRIES AND ACADEMIC INSTITUTIONS**

6. The Committee are of the opinion that by investing in preservation techniques, specialized lubricants, and equipments/processes required, for innovative storage methods, Indian Navy can mitigate the effects of prolonged inactivity of the X-Engines and enhance their operational reliability. The Committee, therefore, recommend that collaboration with relevant industries and academic institutions may be made for exploring the best storage practices. Further, training of manpower may also be undertaken for the purpose.

**NEW DELHI:**  
**14 December, 2023**  
**23 Agrahayana, 1945 (Saka)**

**ADHIR RANJAN CHOWDHURY**  
**Chairperson,**  
**Public Accounts Committee**