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INDIGENOUS CONSTRUCTION OF INDIAN NAVAL WARSHIPS

MINISTRY OF DEFENCE

PUBLIC ACCOUNTS COMMITTEE
(2015-16)

THIRTY-SECOND REPORT

SIXTEENTH LOK SABHA

LOK SABHA SECRETARIAT
NEW DELHI

PAC NO. 2064

THIRTY SECOND REPORT

PUBLIC ACCOUNTS COMMITTEE
(2015-16)

(SIXTEENTH LOK SABHA)

INDIGENOUS CONSTRUCTION OF INDIAN NAVAL WARSHIPS

MINISTRY OF DEFENCE

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LOK SABHA SECRETARIAT
NEW DELHI

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(2015-16)

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22. Shri Ramchandra Prasad Singh

[†] Vacant *vice* Shri Rajiv Pratap Rudy who has been appointed as Minister w.e.f. 9th November, 2014.
[‡] Vacant *vice* Shri Jayant Sinha who has been appointed as Minister w.e.f. 9th November, 2014.
[§] Vacant *vice* Dr. M. Thambidurai who has been chosen as Hon'ble Deputy Speaker, Lok Sabha and has since resigned from the membership of the Committee.

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22. Shri Ramchandra Prasad Singh

[**] Elected w.e.f. 3rd December, 2014 *vice* Shri Rajiv Pratap Rudy who has been appointed as Minister w.e.f. 9th November, 2014.

[††] [††] Elected w.e.f. 3rd December, 2014 *vice* Shri Jayant Sinha who has been appointed as Minister w.e.f. 9th November, 2014.

[‡‡] [‡‡] Elected w.e.f. 3rd December, 2014 *vice* Dr. M. Thambidurai who has been chosen as Hon'ble Deputy Speaker, Lok Sabha and has since resigned from the membership of the Committee.

COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2013-14)

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17. Shri Prakash Javadekar
[***]18. Shri Ashwani Kumar
19. Shri Satish Chandra Misra
[†††]20. Dr. V. Maitreyan
21. Shri N.K. Singh
22. Smt. Ambika Soni

[§§] Elected w.e.f. 14th August, 2013 *vice Dr. Girija Vyas* appointed as Minister of Housing, Urban Development & Poverty Alleviation w.e.f. 17th June, 2013.

[***] Elected w.e.f. 3rd September, 2013 *vice* Dr. V. Maitreyan ceased to be a Member upon his retirement as a Member of Rajya Sabha w.e.f. 24th July, 2013.

[†††] Elected w.e.f. 3rd September, 2013 *vice Dr. E.M. Sudarsana Natchiappan* appointed as Minister of State for Commerce and Industry w.e.f. 17th June, 2013.

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7. Shri Anant Kumar Hegde
8. Shri Bhartruhari Mahtab
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10. Shri Shripad Yesso Naik
11. Shri Sarvey Sathyanarayana
12. Shri Ashok Tanwar
13. Dr. Shashi Tharoor
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COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE
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21. Shri N.K. Singh
22. Prof. Saif-ud-Din Soz

‡‡‡ Elected w.e.f 6th December, 2012 *vice* Shri Sarvey Sathyanarayana appointed as Minister on 28th October, 2012.
§§§ Elected w.e.f 6th December, 2012 *vice* Dr. Shashi Tharoor appointed as Minister on 28th October, 2012.

COMPOSITION OF THE PUBLIC ACCOUNTS COMMITTEE (2012-13)

Dr. Murli Manohar Joshi - Chairman

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21. Shri N.K. Singh
22. Prof. Saif-ud-Din Soz

**** Vacancy occurred vice Shri Sarvey Sathyanarayana appointed as Minister on 28th October, 2012.
†††† Vacancy occurred vice Dr. Shashi Tharoor appointed as Minister on 28th October, 2012.

INTRODUCTION

I, the Chairman, Public Accounts Committee, having been authorised by the Committee, do present this Thirty-second Report (Sixteenth Lok Sabha) on **"Indigenous Construction of Indian Naval Warships"** based on C&AG's Report No. 32 of 2010-11 relating to Ministry of Defence.

2. The Report of Comptroller and Auditor General of India was laid on the Table of the House on 22nd March, 2011.

3. The Public Accounts Committee (2012-13) took up the subject for detailed examination and report. The Committee took evidence of the representatives of the Ministry of Defence, the Indian Navy, Mazagon Dock Limited, Goa Shipyard Limited, and Garden Reach Shipbuilders & Engineers Limited on the subject at their sitting held on 31st January, 2013. The subject was subsequently carried forward by the successor Committees (2013-14), (2014-15) and (2015-16) for examination. The Committee considered and adopted this Draft Report at their sitting held on 21st December, 2015. The Minutes of the Sittings form Appendices to the Report.

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

5. The Committee thank the predecessor Committees for taking oral evidence of the Ministry of Defence, the Indian Navy, Mazagon Dock Limited, Goa Shipyard Limited, and Garden Reach Shipbuilders & Engineers Limited and obtaining information on the subject.

6. The Committee would also like to express their thanks to the representatives of the Ministry of Defence, the Indian Navy, Mazagon Dock Limited, Goa Shipyard Limited, and Garden Reach Shipbuilders & Engineers Limited for tendering evidence before the Committee and furnishing the requisite information to the Committee in connection with the examination of the subject.

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

NEW DELHI;
December, 2015
Pausha, 1937 (*Saka*)

PROF. K.V. THOMAS,
Chairperson,
Public Accounts Committee.

REPORT

PART – I

I. INTRODUCTION

(i) Warship Building - An Overview

1. India is a major maritime nation with vital economic and security interests linked to the seas. Although the Indian Navy's primary role revolves around deterrence to security threats, yet by virtue of India's emerging economic strength and its geography, the Indian Navy has a significant peacetime role as well. Hence, it is imperative that the Indian Navy be equipped with the requisite number of ships in a timely manner. The Indian Navy has a detailed ship procurement plan which has been prepared after considering specific requirements for ships, funds availability and decommissioning schedule of existing ships. The Navy has, in its Maritime Capability Perspective Plan (MCPP), formulated in 2005, projected a 160 ship-strong navy, including 90 front-line combat platforms.

2. Universally, navies around the world take longer periods for development and consolidation due to complex defence systems, cutting edge components, state-of-the-art weapons, communication and navigational technologies. Huge capital outlay is synonymous with modern ship building processes. Indian Navy has based its vision of ship acquisition on construction of its ships at Indian Shipyards.

3. Between September 1986 and March 2003, the Competent Financial Authority (CFA) approved the indigenous construction of 16 frigate, destroyer and corvette class ships to be built in the DPSU shipyards under project 15A, 16A, 17 and 28. But performance audit has reviewed three projects *viz.* P15A (Destroyer), P17 (Frigate), and P28 (ASW Corvette) projects respectively. Between 2003-04 and 2009-10, the Ministry of Defence released ₹ 5240 crore for the indigenous construction of P-17 Frigates, ₹ 3132 crore for P-15A

Destroyers and ₹ 948.07 crore for P-28 Corvette ships. The period under the audit was 2005-06 to 2009-10. The details of the Audit examination & findings will be dealt within the subsequent paragraphs.

4. Before going into details of the warship building and also Audit findings, it would be proper to know the complexities involved in indigenous naval shipbuilding processes. Warship design and building is different from the process of design and manufacturing of any other engineering/industrial product on account of the following:

(a) Being a complex multidisciplinary engineering activity involving integration of multitude of equipment and systems, Naval shipbuilding requires significantly higher shipyard effort and dependence on a large number of agencies/OEMs;

(b) Due to long gestation period, telescopic design & construction are resorted to in most of the projects;

(c) The need to have state-of-the-art systems onboard the ships leads to frequent mid-course changes;

(d) Considering long gestation for warship construction, generally 07 to 08 years, the experience gained on the first ship is implemented on remaining vessels. However, since the batch size is small, each new class has its own learning curve;

(e) Thrust on indigenization to overcome dependence on other Countries and possible 'sanctions' at crucial times;

(f) Non-receipt of inputs relating to various equipment and systems under development on-time, sometimes because of concurrent development of technology by the industry;

(g) Delay in finalizing the weapon package leading to late receipt of binding data, resulting in frequent design changes and in some cases re-work;

(h) Unfamiliarity with modern technology experienced by the shipyard and navy, leading to delays;

(i) Some of the weapons/equipment were still at development stage at the time of nomination leading to a situation of risk of unproven systems; and

(j) Acceptance of equipment etc. with diluted/changes parameters vis-à-vis NSQRs.

(ii) Warship Building - Processes and Practices

5. Warship building is a highly sophisticated and complex activity involving various processes. A ship construction programme has a number of elements, which interact with each other, including feasibility studies, design issues, system integration, construction, tests and trials. It also involves technology application and transfer, selection of equipment, development of new equipment, identification and purchase of large number of items including weapons and sensors, from numerous indigenous and foreign suppliers. The warship build procedure commences with mission requirements and culminates with build ability and cost estimates. The following processes succinctly describe warship building such as mission requirements, hull form, hull structure, design of ship systems, selection of equipment, powering, selection of main machinery, arrangement of machinery and equipment, selection of weapons, weapons system integration, signature management, and buildability and cost estimates.

6. The Naval Ship Building Procedure, which was implemented from 1st July, 2005 outlines the following steps as shown below:

(i) Outline Staff Requirement;
(ii) Acceptance of Necessity;
(iii) Preliminary Staff Requirements;
(iv) Nomination of Shipyard;
(v) Preliminary Design;
(vi) Preliminary Build Specifications;
(vii) Budgetary Cost;
(viii) Price Negotiations;
(ix) Approval of CFA;
(x) Letter of Intent and Mobilisation Advance; and
(xi) Contract conclusion.

(iii) Organisational Structure

7. Various Directorates are involved in the construction and manufacturing of naval warships. At the Naval Head Quarters, various Directorates are involved in the construction and monitoring of warship building, the Vice Chief of Naval Staff (VCNS) is concerned with all activities regarding the activities leading upto sanction and construction of warships. The Controller of Material Monitoring is responsible for monitoring the construction activities. Both report to the Chief of Naval Staff (CNS).

8. The Assistant Chief of Naval Staff (Policy and Plan) is responsible to the VCNS for promulgation of all perspective, force level, financial and infrastructure plans and programmes of the Navy. The Directorate of Staff Requirements (DSR) is responsible for formulation of Staff Requirements of all ships and on-board weapons etc. The Directorate of Naval Design (DND) has a team of engineers who undertake the design of various ships. The Directorate of Ship Production (DSP) functions as project manager for each class of ship. Both DND and DSP are under the Controller of Warship Production and Acquisition (CWP&A). The Directorate of Cost and Contract Management (DCCM), also under the CWP&A, exercises the budget control and coordinates the signing of contract for ships under construction. Thus, together, these directorates are responsible for design, production, equipment/material procurement and financial control related to the ships under construction.

9. The Controller of Material Monitoring is responsible for the management of various types of equipment on-board ships. The Assistant Chief of Material (Dockyard and Refits) is responsible for planning and co-ordination of induction, exploitation and management of hull and hull related equipment and systems as well as Marine Engineering equipment and systems for which the Directorate of Marine Engineering under him is responsible for undertaking systems integration of Marine Engineering Systems on ships and

drawing up specifications for their selection, procurement, tests, acceptance and maintenance schedules. The Assistant Chief of Material (Information Technology and Systems) is responsible to the COM for identification and induction of emerging technologies in the field of information Technology, Electronics, Electrical, Weapons, Sensors and missiles in consonance with the Naval Staff Requirements promulgated by Staff Branch. The Directorate of Electrical Engineering (DEE), which reports to him, is responsible for all technical matters pertaining to Inspection, Acceptances, Testing and Tuning and Maintenance of Electrical, Electronics, Sensors and Communication Systems, whereas, the Directorate of Weapon Equipment (DWE) is responsible for technical evaluation for acquisition of new weapons and sensors.

10. Warship Production Superintendent (WPS), the official representative of Naval HQ and head of the Warship Overseeing Teams exercises financial control, monitors progress of production schedules and ensures assurance of quality in respect of ships under construction at the shipyards. WPS and the team under him acts on behalf of, and corresponds directly with NHQ in regard to all new construction ships.

11. Under the Ministry of Defence, 3 Defence Public Sector Units (DPSU) shipyards are engaged in the construction and production of naval warships namely, Mazagon Dock Ltd. (MDL) in Mumbai, which oversees production of destroyers, submarines, stealth frigates, etc.; Goa Shipyard Ltd. (GSL) in Goa, which builds medium-sized sophisticated vessels for the Indian Navy and Garden Reach Shipbuilders & Engineers Ltd (GRSE) in Kolkata which manufactures warships, vessels and various engineering products for onboard deck use for the Indian Navy and the Indian Coast Guard.

12. While explaining the whole process involved in the warship building, from conception till commissioning, MoD furnished the following reply:

"The need for a new warship evolves from the Maritime Capability Perspective Plan (MCPP) of the Navy. Acceptance of Necessity (AON) for the project is accorded by Defence Acquisition Council (DAC) based on a paper prepared by Principal Staff Officer amplifying the development of need for the warship/project. This paper contains Outline Staff Requirements and a concept design with broad category of weapons and sensors to be fitted on the ship along with the status of their indigenous development if applicable, operational necessity, approximate cost and budgetary provisions. On AON being accorded, IHQ MoD (N) carries out a capacity assessment of the shipyards in consultation with Department of Defence Production (DDP) and forwards recommendations on the nomination of a single shipyard or more than one shipyard with allocation of number of ships for each yard. Preliminary Staff Requirements (PSRs) are promulgated based on the parameters of the concept design. The formulated PSRs form the basis of Preliminary Design wherein hull form design, weapons/sensors/equipment fit, identification of OEMs/vendors for specific weapons, sensors, machinery and equipment, model tests, validation studies and other design activities are carried out by IHQ MoD (N)/Shipyard in consultation, as necessary. Based on the preliminary design, the Preliminary Build Specifications (PBS) of the vessel is prepared by IHQ MoD (N) and forwarded to the nominated shipyard(s). The IHQ MoD (N) and nominated shipyard interact to finalise these and other related documents. A Build Strategy is prepared by the nominated shipyard based on the ship specifications, yard infrastructure and resources. This would include a draft construction schedule and the procurement schedule for major long lead items including weapons and sensors. After approval of the build strategy by IHQ MoD (N), the shipyard(s) forward a budgetary cost for the construction of the ship on the basis of the Build Strategy, along with draft contract. Before seeking the approval of CFA, negotiations on the price and the other aspects of the contract with shipyard are to be undertaken and concluded by a Contract Negotiation Committee (CNC) chaired by the Acquisition Manager (Maritime Systems). The Committee is to include representatives from the concerned directorates of the IHQ MoD (N) in addition to the representatives of MoD (Fin) and shipyards. The contract is signed within a specified period from the date of CFA approval. In cases, where subsequent CCS approvals are necessitated, Supplementary Contracts are to be signed within two months of such approval. In case of delay in signing of contract, approval of Raksha Mantri (RM) is to be sought with full justification for the delay. On conclusion of contract, shipyard commences the Detailed Design, orders equipment & material and obtains binding data for the detailed design from IHQ MoD (N). The actual construction of the ship, however, starts in parallel along with the detailed design. Warship overseeing teams positioned at the shipyards monitor progress of shipbuilding activities on a daily basis. As the production progresses, various trials are undertaken by various naval trial agencies to prove the installed functionality of equipment and systems. The trials are spread over various stages of construction and continues even after delivery of the ships until performance of all weapons and sensors are proven at sea. The Navy takes delivery after the first reading of D-448, wherein all pending liabilities of the shipyard are indicated with probable timelines. Post completion of all D-448 liabilities, which is generally completed during the guarantee period, a second reading of D-448 is carried out and this concludes the final stage of payment to be made to the shipyard".

13. When the Committee wanted further information on the Maritime Perspective Plan, to which, the Vice Chief of Naval Staff, during oral evidence stated as under:

"Prior to framing Maritime Capability Perspective Plan each and every factor is considered like threat perceptions as well as our requirement. As stated, there is a maritime capability perspective plan assessing the capabilities in Navy after 15 years. It is divided in five year plan period. Thus, all the factors are counted such as what are our shipbuilding capability, threats as well as their capabilities. It is decided on the basis of requirement of capabilities as to how many ships, submarines and aircrafts we need in order to counter these or to take care of our maritime interest in maritime domain because India is a maritime nation. This plan is framed on the basis of the same. I would like to say that the plan we have has been framed considering our threat perceptions and as per this plan our warship construction requirement is going on well. At present the details are as follows; the ships under construction include 15 Alpha destroyers which are being built at the Mazagon Dock Ltd. you may have heard about Delhi Class Destroyer. After that three big destroyers are being manufactured. After that there will be four destroyers for 15 Bravo. Under Project 28, four ships are being manufactured in Garden Reach. These are anti submarines corvettes. Other aircraft carriers like these are being manufactured in Cochin. At present there are 44 ships being manufactured in total out of which only two are being manufactured from outside – one is Goroshkov and another one frigate from follow-on-Russia, which are yet to be obtained. The rest 42 ships are being manufactured in our own shipyards - 34 in defence public sector and 8 in private sector."

14. Further, he emphasized:

"There is separate time schedule for each project. Let me tell you, normally 4 to 5 new ships will be inducted in Navy each year. These are the details of various stages of process and the time of their induction. 4 to 5 ships like frigates, destroyers and aircraft carriers are likely to be inducted this way each year in years to come. These ships are meant for our capability perspective plan and to enhance the capability of Navy. All these plans have been framed for strengthening our Navy."

15. During oral evidence, when the Committee desired to know the ship building processes as compared to advanced Countries, the Defence Secretary stated as under:

"Our emphasis is on indigenization. I must say that at least in the field of warship building, we have achieved some good success. As far as the other countries' help that you are mentioning is concerned, we are comfortable with all countries; we strictly negotiate our commercial terms with them; we are having collaboration for submarine building with France; we have a large number of platforms with Russia like aircraft carrier Korsakov; we are going to have a contract with Korea for MCMB. So, it is not that we are confined to any single country. We are comfortable with other countries

also, but we negotiate our terms and conditions with counties strictly and see that what best technology we can get from them. The purpose is that we must learn from out of that experience also. In most of these cases, in submarine for example, it is being constructed in India only, in MDl, though we have taken the technology from France. So, I would not say the same thing with respect to other platforms, but at least in ship building, we have been immensely benefited by our earlier experience vis-à-vis foreign countries and we have learnt a lot. Again, transfer of technology is a very complex issue because advanced countries will not transfer technology for no gains. The first thing is that they will definitely not part with most critical part of the technology. In most of the cases, we have seen this, that they will give you 60-70-80 per cent and some 20-25 per cent or maybe in some cases, 5-10 per cent, they would keep with them. Secondly, they will not give you the best technology that is available with them. So, there is no substitute for the indigenous effort of R&D. For example, there was a mention about stealth technology. We have done it ourselves; this is for the first time that a stealth frigate was made in India. There is no substitute for our own indigenous R&D; no country will give you 100 per cent technology; it is never given and nobody gives."

II. AUDIT REVIEW

16. The Performance Audit on the construction of warships was conducted by the C&AG between 1998 to 2009, covering 3 projects; P-15A (Destroyer), P-17 (Frigate) and P-28 (Anti Submarine Warfare Corvette). The main objectives for close scrutiny were:

- Proposal for the building of a particular class of ship indigenously has been taken keeping in view the envisaged force level;
- Designated shipyards have been selected after due diligence and giving due weightage to their capacity and expertise;
- Contracts concluded with the designated shipyards are within the reasonable time, as per the laid down procedures, and will incentivize ship construction processes;
- Internal control mechanism is adequate and exists to ensure timely and economical completion of the projects; and
- Financial management and control measures are adequate to ensure timely and economical completion of the project.

17. The audit criteria used for the audit were drawn from various documents like the Long Term plans prepared by Indian Navy, papers leading to approval of the project and nomination of shipyard, various guidelines issued on the subject, instructions issued time-to-time by Ministry of Defence and Indian

Navy, Naval Staff Qualitative Requirements regarding performance parameters of the equipment/systems fitted onboard the commissioned ships, Defence Procurement Procedure/Manual applicable, and the Indigenous Shipbuilding Procedure.

18. The C&AG's Audit Report No 8 for the year 1998 had highlighted the following areas of concern in the construction of frigates under Project-15 and 16A at MDL and GRSE respectively. The reasons that were identified then are such as, depletion in force levels of frigates; tardy progress of construction of new frigates in MDL and GRSE; increase in cost; and deficient internal controls.

19. Against this backdrop, the Public Accounts Committee (2012-13) selected the subject for detailed examination and report. The Committee obtained Background material and detailed Advance Information from the Ministry of Defence and the contracted 3 DPSU shipyards. The Committee took oral evidence of the representatives of the Ministry of Defence, the Indian Navy and the DPSU shipyards on 31st January, 2013. Post Evidence replies were also obtained. However, as the subject could not be examined due to paucity of time, it was carried forward and again taken up for examination during the year 2013-14. Based on these written and oral depositions, the Committee examined the subject in detail and discussed some very important issues enumerated in the succeeding paragraphs.

III. FINANCIAL CONSIDERATIONS AND CONTRACT MANAGEMENT

(i) Cost Estimates and Revision in Costs

20. Ships require many years to plan, budget, design and build. The complexity of their weapons, equipment and systems implies that, in general, their construction period is longer than that for comparable equipment like fighter aircrafts or tanks. The long build periods introduces an element of uncertainty and difficulty in estimating cost of ship building projects. Apart from the long periods, modern, state-of-the-art weapons and sensors, some of which are

imported or under development, add to the ambiguity with regard to their costs. Despite such uncertainty, cost estimates need to be assigned to each project while seeking the sanction of the CFA, in this case Cabinet/Cabinet Committee on Security. This requirement puts an onus on the Ministry and Navy that the cost estimates are firmed up with due care and professionalism taking into account the exigencies that may arise in the future. The cost estimates would not only need to be current but also would need to provide for escalation during construction periods.

21. Audit examination revealed that estimation of costs in the case of the P15A, P17 and P28 ships has been done more as a formality for obtaining approvals to the ship building projects from the Cabinet/CCS rather than as a professional and meaningful exercise which would lead to effective controls and monitoring. Audit obtained no assurance from the documentation provided that the Ministry has in place a system which comprehensively verifies the costs/estimates received from the shipyards. In fact, audit noted that cost estimates projected were simplistic, based on the previous projects completed several years ago and did not provide for escalation cost of modern technology and equipment or for the exchange rate variations for the imported items. The simplistic and ad hoc approach towards costing these ship-building projects is illustrated below:

Project	**Date of Approval/Sanction**	**Approach for estimating costs/ Assumptions**	**Remarks**
15A	June 2001	Cost estimates based on last of P15 ships at 1999 price level	The CCS approval was based on a price level two years old and while preparing the estimated cost increase for these two years was not incorporated. The last P15 ship was still under construction and its costs were revised in 2006. The estimates were unrealistic as the

		Weapon/sensor package would be worked out in the contract.	construction period for the project was not taken into consideration and escalation was not provided till the anticipated date of completion. Combat capability which constitutes a significant part (48 per cent) of costs was not decided while presenting estimates. Costs of on-board spares was also not included.
17	January 1998	Based on a price level of 1994 Calculated taking escalation @ seven per cent on the indigenous components (including labour, labour heads, direct expense, subcontract etc) and 2.5 per cent on imported equipment Based on total construction period of 78 months, thus, escalation was calculated only till 2002-03.	The CCS approval was based on a price level four years old While preparing the estimates, no basis for selecting the particular escalation rate was ascribed. For instance, for imported items, generally, Ministry has been taking three per cent and subsequent to 2004-05 higher rates like six per cent with respect to Russian equipment. This has, in fact, been the major cause for cost growth as seen in the next section. Assumption of completion period as 78 months was not realistic as the previous frigate project took over 100 months for

			completion.
28	March 2003	Price level of 2001-02	Estimates unrealistic as the construction period for the project was not taken into consideration. No escalation provided till the anticipated date of completion.

Despite the fact that there are inherent uncertainties in the ship construction process, there was no recognition of this fact and Navy did not account for the probability of cost escalation when estimating costs. Although it would have been prudent to factor in the experience gained in the ship building activities and process over the past years, the same was not done.

22. Estimation of costs in the case of the P-15A, P-17 and P-28 ships has been done more as a formality for obtaining approvals to the ship building projects from the Cabinet/CCS rather than as a professional and meaningful exercise which would lead to effective controls and monitoring. The Ministry has in place a system which comprehensively verifies the costs/estimates received from the shipyards. In fact, Audit noted that cost estimates projected were simplistic, based on the previous projects completed several years ago and did not provide for escalation cost of modern technology and equipment or for the exchange rate variations for the imported items.

23. Explaining the escalation in costs and time overruns, the Ministry in their Background Note furnished to the Committee submitted as follows:

"Accurate estimation of '*cost*' and *'build-periods*' of warships is extremely difficult because of inherent complexities, need for modern state-of-the-art weapons fit onboard, limited number of ships, large gestation period from concept to delivery and the uncertainty associated with timely development and supply of various equipments and systems. Indigenous construction has ensured availability of potent platforms at costs comparable to international standards, besides conserving vital foreign exchange. However, in most indigenous shipbuilding programs revised sanction of the competent authority had to be sought with regards to increased cost and time. This may sometimes paint a picture of indigenous shipbuilding being *'overly expensive'* and sometimes uneconomical.

However, a large part of the increase in cost is invariably attributable to inability for accurate initial estimates due to lack of accurate inputs necessary to forecast the cost of warship at the time of delivery. A long gestation period from the time of the initial sanction to actual delivery, a phenomenon that is typical to warship construction, creates greater scope for inaccuracies in the estimates. While every effort is made to ensure that project schedules and cost estimates prepared are as realistic as possible and that these are thereafter adhered to, there are a number of factors, some anticipated and others unanticipated whose impact cannot be predicted at the time of seeking original sanction, but which significantly alter the final cost and schedules".

24. When the Committee desired to know the competitive cost and time taken for *vis-a-vis* other Countries, the Defence Secretary stated during evidence as under:

"I think, it is comparable and in certain cases it is less also because we are using indigenous weapon systems and sensors also now."

25. He also added that the Indian cost was approximately 38 million dollars and the one built by Tenix Defence, Australia was about 59 million dollars and that built by BAE Systems, UK was 86 million dollars.

26. The Ministry, in their written submissions to the Committee, have stated the reasons which have led to cost as well as time overruns with respect to the 3 ongoing naval warship production as:

(a) <u>P-15A</u> - The first stage sanction of P-15A was obtained on estimation basis due to non-finalization of the weapon and sensor package. As per NHQ, escalation for the build period was not taken into consideration and specific endorsement for accounting for the same during subsequent cost revision was indicated while seeking approval of Competent Financial Authority (CFA). It was also indicated that the cost finalization would be nearer the date of construction which in this case was 2004. The second stage CFA sanction was accordingly processed from 2004 and obtained in 2006. Thus, this is a case where the 2nd stage sanction was envisaged even in the 1st sanction of the CFA. It may be noted that the 1st stage CFA approval for P-15A ships was worked out based on cost estimates of P-15 ships, with 1999 as base year. At this stage, the cost of variables (primarily the cost of updated weapons and sensors package to cater for changes in technology, which was a major cost component) was not known and could not be considered in initial sanction. CFA permitted for 2nd stage sanction on finalisation of cost of these equipment, taking into account cost escalation due to inflation and exchange rate variation due to currency fluctuations. On confirming the cost of variable components in 2006, revised CFA (Competent Financial Authority) approval was accorded at an estimated

cost of ₹11662 crores, inclusive of variable component. It may be noted that initial cost for P-15A ships, ₹ 3580 crore, was worked out based on cost estimates of P-15 ships with 1999 as base year. At this stage the cost of variables (primarily cost of updated weapons and sensors package to cater for change in technology), which was a major cost component, was not known and could not be considered in initial sanction. However, on confirming the cost of variable component, revised CFA approval was accorded at an estimated cost of ₹ 11662 crore (inclusive of variable component). Therefore, one to one comparison indicating 226% increase in price may not be a valid comparison. As far as the build period is concerned, the initial build period was estimated on the work content in building the ships. However, there were delays in the project due to, *inter-alia*, delay by propulsion equipment suppliers, calling for cancellation of order and reordering, and developmental nature of main weapons and sensors. The delays due to above reasons could not be estimated at the beginning of the project.

(b) P-17 - The initial cost estimates of this project were based on the equipment fit of Project-15 class ships, which was the then latest available data on equipment cost. The yard effort cost and other yard material costs were given by the shipyard, based on the experience of building P-15 ships. The initial build period estimated for the project was 60 months, and the cost estimates considered escalation over the build period. An escalation of 2.5 per cent on imported equipment and 7.0 per cent on indigenous equipment was estimated. The price levels were based on the year 1994 as no other reference was available. The build period was estimated as 78 months based on the learning curve for previous projects. The uncertainty in the escalation rate and delay in completion was due to the turmoil in the erstwhile USSR and the subsequent uncertainty in Russia from where most of the sensors/weapons were being sourced. This could not be foreseen. The original sanction of ₹ 2250 crore included 10% as cost of B&D spares. The revised CFA sanction of ₹ 8101 crore included 15% cost of B&D spares and also included ₹ 217 crore as cost of modernization of MDL. The cost escalation was primarily attributable to the increase in cost of equipment sourced from Russia. These prices were far exceeding the estimated prices. This project is a complex warship project, and it was the first of its kind in many ways. Sourcing of equipment for this project was also diverse, with some equipment coming from Russia, some from Western Europe and the main propulsion Gas Turbines coming from USA. As a result of these technological and other factors, there were delays in the Project; and the build period and subsequently the cost of the project had gone up. It was also seen that the rise in equipment cost did not follow any standard escalation pattern. This has been the experience with Project 15A as well. However, when the case for revision of sanction of the project was taken up in 2006, the costs were verified by a technical sub-committee and a cost sub-committee constituted by the Ministry of Defence (MOD), and a ceiling was placed on cost of balance yard efforts.

(c) P-28 – Original CFA sanction of March 2003 for P-28 ships at price levels of 2001-02 was for an amount of ₹ 3051.27 crore. Weapons and sensors contributed to escalations which were not foreseen during initial sanction of CFA. The contract for P-28 has since been signed in June 2012 at a cost of ₹ 7852.39 crores subsequent to CCS approval. The initial sanction for the project was received in March 2003, at price levels of 2001-02 based on build period of 48 months. However, considerable time was consumed due to various reasons such as non-availability of warship-quality D-40S steel, time taken for developing the indigenous steel and weld consumables, and stabilising indigenous production. Subsequently, the production of the first ship could commence only in March 2006. The uniqueness of this project is that the Navy and MOD aimed at a very high level of indigenisation in the project. Except for a part of the propulsion system, almost all weapons and sensors and other ship equipment are totally indigenous, taking the indigenous content level to over 90 per cent. There were some delays in the project, since most equipments were developmental in nature. When the supply of steel and ordering & supply of equipment stabilised in 2008, the shipyard was asked to tender a firm cost and time-frame for building ships of the project. The shipyard projections were verified by a technical sub-committee and a cost sub-committee of the Acquisition Wing, and documents of the shipyard were verified by a team led by Adviser (Cost). Negotiations were carried out with the shipyard by a Contract Negotiations Committee (CNC), and a case for revised sanction of the project has been initiated.

27. During oral evidence, when the Committee sought to know the delays affecting the P-15A, P-17 and P-28 projects and were concerned about the late deliveries of these warships, the Defence Secretary, stated as under:

".... .... Earlier, the practice was to have cost plus contracts. Right from 1997-98, first the letter of intent was issued to the public sector shipyard and then they used to start the work. Money was also given to them without any contract, as per their requirement and subsequently, seven to eight years after, the contract was being signed which was a wrong practice. This has been totally stopped. With the DPP in place, as soon as the competent financial authority, CCS approves the contract, the contract has to be signed. The latest example is P15B in which we signed the contract within one month of the CCS approval. I can say with confidence that the earlier practice was there, it was wrong, it should not have been done and CAG's report has very correctly pointed out, but this practice, I can assure you, has been totally stopped. Now the contract will be signed as soon as the CFA approval is opted."

(ii) Cost Escalation

28. The cost of building a ship has four main components:

- Labour;

- Material;
- Equipment; and
- Other costs.

The shipbuilding contract also includes an element of profit at the rate of 7.5 per cent. As per the original cost estimates, in terms of total cost across three projects, equipment accounted for a major portion (almost 62 per cent) of costs, followed by labour (19 per cent), other cost (15 per cent) and material (3 per cent).

29. When the Committee enquired the reasons associated with the cost and time over runs, the Ministry, in their written submission to the Committee, stated as under:

- Delays in Delivery of Equipment - Delay in delivery of equipment by both indigenous and foreign vendors has been a major cause of project delays. Indigenization of certain weapons and sensors, and development by R&D organization takes time, resulting in time over runs. Cases in example are IFF, SRGM, AK630, ATAS, EON 51 and Kavach for Project 17.

- Indigenous development - Indigenization of equipment invariably involved development costs, technology induction/transfer costs and support costs. However, indigenization has its own spin offs and benefits for the nation as a whole and for the industry, which may not be quantifiable, but which is highly beneficial for development of an indigenous defence industrial base.

- Soviet Disintegration - The disintegration of former Soviet-Union from 1989 to 1994 adversely affected the delivery schedule as well as the cost of the weapons and sensors for various projects.

- Labor/Labour Overhead - The effect of periodic Wage Revisions & Labour Overheads cannot be overlooked. Influence of this factor has been on the rise with time and has sometimes been beyond the estimated escalation of 7% per annum. Even though this increase is anticipated, its actual magnitude can be unpredictable.

- Obsolescence - Considering the long gestation period of Warship projects and ship's life of approximately 25-30 years, despite concurrent design and construction, it becomes necessary at times to upgrade the weapons and sensors during execution of the project which is likely to result in time and cost overruns.

- Lack of Industrial Support Base - In spite of considerable efforts towards indigenization, the ancillary industry is unable to provide desired support to the shipyards in terms of quality and time.

- State-of-the-Art Technology - The need to have the latest technology in equipment and materials and the Industry to develop and deliver the same has added to increased delivery schedules.

30. When the Committee sought to know the delay in production and delivery and the cost escalation, the Vice Chief of Naval Staff, during oral evidence stated as under:

"At the very outset, I must state that it is a very conscious decision of the Indian Navy along with the Ministry of Defence to ensure that cost and time overruns are avoided in any project. As has been brought out, you asked about the monitoring process. There, we have ensured that there are Warship Overseeing Teams which are in position in each yard to monitor the project on an ongoing basis. That means they are there positioned in the yard itself. These are naval personnel who monitor the process. We also ensure that working level meetings are held. We use all means, including video conferencing to have these meetings so that construction activities can be monitored more closely and at all costs, avoid the time and cost overruns. The other aspect that you raised is with regard to the PACs. As you are aware, defence equipment is not available off the shelf and therefore, there are a few vendors who come forward to supply us the equipment that is required. It is in this regard that a PAC is issued and the main reason is that these are fundamental to design, therefore we need that particular item and the second aspect is for standardisation because we would not like too many types of the same equipment. We would like commonality and we would like standardisation. In this process, all the procedures that are laid down in the DPM as well as the procedures in the DPP are strictly followed. I can assure you that all efforts will be made hereinafter as well to see that all procedures laid down both in the DPM as well as in the DPP are adhered to."

(iii) Delay in Signing of Contract

31. The Defence Procurement Procedure, approved in July 2005, stipulates that the contract between the Ministry and the shipyard is to be signed within a period of 12 to 18 months from the date of approval of the competent financial authority (CFA) in case of construction of new design ships and within 9 to 12 months from the date of CFA approval for repeat orders.

32. Audit scrutiny pointed out that as the contracts had been signed much after construction had begun and in fact, had been signed after the originally expected dates of delivery. Although contracts were inordinately delayed, construction activities were commenced on the basis of the Letters of Intent/CFA sanctions issued. Thus, even before the contracts for P-15A and P-17 were signed in June 2008, the Navy had paid ₹2998.72 crore and ₹4942.9 crore to the shipyard in each case. These amounts were 84 and 219 *per cent* of the originally sanctioned costs. In the case of Project 28, as of September 2010, ₹1653.30 crore has been paid, i.e. 54.18 *per cent* of the sanctioned amount without conclusion of contract.

33. When the Committee wanted to know whether multi component contracts were being assigned accurately to the deals inked with the vendors, the Defence Secretary, during oral evidence, stated as under:

".... .... There will be a certain degree of variable components. A contract has two parts, namely, fixed contract in case of ship building and the other is variable one. What we have in the new system is, in cases where nomination is there, first approval will be in two parts, that is, variable and fixed component and the time limit will be given that within two years or 30 months they have to come back to the CCS and by that time, they have to firm up the variable component also. Then, they should sign the contract for variable components also on the former costs. Those practices were there which I do not deny. Rightly, these things have been pointed out in the performance report also. But we have put an end to that type of system."

34. When the Committee sought to know the processes that caused delay in finalizing and designing of contracts, during oral evidence, the Vice Chief of Naval Staff stated as under:

"Sir, the blue print for the future Indian Navy is based on self-reliance and indigenisation. As the hon. Chairman was told, this is true for the warship construction. But it is our endeavour that this true for even the weapons and equipment that go on it. Largely, if we see on board a ship, we have the floating component which is largely the hull, the move component which is the propulsion systems and there is the fight component which comprises of weapon systems and the sensors. In the hull component, we have no problem and no delays take place on that. We have overcome some issues with regard to propulsion as well though still in terms of gas turbines and sophisticated equipment still get imported. The problem of delays largely take place because of the weapon and sensors. Here again, because of the Navy's quest for self-reliance, we have realised that we need to involve the DRDO because these are all

highly research intensive. So, they do research and development and then our Defence Public Sector Undertakings or others make them. This is an area where there has been a delay and efforts have now been made and if the hon. Chairman will see the progress made on the kind of warships and the delays which took place 10 to 15 years ago and the delays taking place now, they have been reduced. It is a drawback and it is being corrected."

35. Further, he added:

"We have also had problems in the past because largely earlier we did not have many sources from which we could get cutting edge of technology and largely it would come only from the Soviet Union and then Russia. There have been many delays and particularly after the breakup of the Soviet Union there were large delays both in supply as well as cost changes. This is another reason which caused the delay. Now that we are getting technology, efforts have been made to ensure that our ships are equipped with the latest technology because the life of a ship, firstly it takes 5 to 7 or 8 years depending on the type of ship to construct and then the life of the ship is at least 25 to 30 years. As the hon. Chairman mentioned, we would not like obsolete technology. Therefore, at times, we have systems which are still under-development which can be nominated to be put on a ship, but because delay takes place in those developmental processes, there is delay in the weapon aspect also. All these aspects including the issues that have been raised by the CAG have been taken note of and serious efforts are being made at all levels. There are aspects in R&D, something that the Navy has to do, something which are procedural because – defence procurement procedure is a very good procedure – but it takes time to resolve various issues. All aspects have been taken into account with a view to cut short the time delay and yet, have the cutting edge technology."

36. To substantiate further query by the Committee in this regard, the Ministry, in their written reply, stated that a new warship design was an evolutionary process, which took some time for maturing of details. This was also the trend worldwide. As a result of this, it was not possible to estimate cost of the ship with complete certainty at the beginning of a new warship project. The nature of the acquisition planning process led to taking time in signing of the contract for all indigenous warship projects. However, with the promulgation of the streamlined procedure for defence shipbuilding as a part of DPP-2011, it was expected that contracts would be signed within the time limits provided under DPP-2011. It may be noted that the contract for P-15B was concluded within a month’s time of approval accorded by the CFA. The reasons for delays in shipbuilding projects were primarily a combination of unavoidable

dependency on foreign sources for procurement of major weapons and sensors, and MoD's aspirations for increased indigenous content in warships. Keeping in view the complexities of warship construction, the Defence Procurement Procedure envisages sanction of CCS for warships at two stages for nominated cases.

37. When the Committee enquired whether any policy was formulated or was being formulated to arrest the delay in the completion of contracts, the CMD of Goa Shipyard Limited (GSL), during oral evidence, stated as under:

"The basic thing is to ensure that the ship construction is not delayed. Modernisation has a key role to play in it. As we are modernising, many new facilities are coming in and they ensure that the ships will come out in quicker time as contracted. Secondly, improvements have been brought about as a consequence of better logistics within the country and also better sources of supply. One of the key things in ship construction is having vendors who supply you items and equipment in time. There has been a remarkable change which has occurred, with what used to happen in 1990s and what is now there after 2010. So, you would see in the coming years that there will be much lesser delays in the ship construction as a consequence of modernisation as well as better processes that have been put in place."

38. Further, the CMD, Mazagon Dock Limited (MDL) also stated as under:

"We are doing two things to make sure that ship construction projects are not delayed. One is the Government has invested heavily in our modernisation programmes. I think the hon. Member had mentioned that the modernisation programme itself got delayed. But there were reasons for that, which were beyond our control. In one case there was a suspicion that the contractor who was about to be awarded a contract, perhaps had some foreign ownership and our Ministry was not comfortable with that. So, we have lost about eight to ten months in finding out the correct ownership and then only we awarded the contract for the modernisation part. But modernisation programme is now going on very well. As we are discussing here, Phase I of MDL modernisation has been inaugurated today by our hon. Raksha Rajya Mantri at Mumbai. I am here to be part of the discussions of the Committee. This is the kind of importance that we give to this Committee. Second is that with the support of Navy, we are going to make new ships with something called integrated construction. All the modern warship building ship yards in the world are using this process. It is our commitment to the Government that when 17 Alpha class frigates are made by us, they will be made by MDL and the GRSE using this methodology of construction which will ensure that we make ships in the world class time frame."

(iv) Implications of Contractual Terms on Construction Activities

39. The Defence Procurement Procedure (DPP) which became effective from June 2005 also includes a Warship Building Procedure. The procedure stipulates that the contracts should be on '*Fixed Price*' basis indicating *inter-alia* permissible price escalation, exchange rate variations, labour wage variation, increase in statutory levies and also mobilisation advance for undertaking preparatory activities for commencement of production. Further, as per DPP-2006 contracts are to be signed within a period of 12 to 18 months from the date of approval of the CFA in case of construction of new ships and within nine to 12 months from the date of CFA approval for repeat orders. In cases, where subsequent CFA approvals are necessitated, supplementary contracts are to be signed within six months of such approval. In case of delay in signing of contract, approval of RM is to be sought with full justification for the delay.

40. Audit scrutiny revealed that the contracts signed for P-17 and P-15A ships have, by and large, followed DPP guidelines and were '*fixed price*' contracts. The contracts for ship-building projects had been signed years after obtaining CCS approvals, commencement of production and issue of Letters of Intent (LoI), the sanctity of the contractual conditions was vitiated. The contracts were more in the nature of formalizing events/costs which had already occurred. The contracts were eventually signed only much after obtaining approval of CCS to the revised cost estimates.

41. When the Committee enquired whether the MoD had taken steps to obviate the recurrence of delayed conclusion of contracts for ship building which resulted in financial implications, the Ministry in their written submission to the Committee stated that the time-frame for signing of the contracts, post-award of project sanction, had been stipulated in DPP-2011, which would obviate delayed conclusion of contracts for naval shipbuilding. In the case of Project 15-B, the contract was signed in January 2011, within one month of CCS sanction.

42. When the Committee sought to know the rationale behind sanctioning of large advances by the Ministry to the shipyards on ad-hoc basis without any linkage with immediate utilization, the Ministry, in their written submission, stated that no "*On Account*" payments to shipyards had been made since FY 08-09. Since then, all payments were being made only if the linked contractual milestone had been certified by the concerned customer. Chapter III of the DPP stipulates that all payments to shipyards are to be linked to achievement of related contractual milestone(s).

43. When the Committee desired to know the reasons for abnormal delay in signing of the ship building contracts with the shipyards, the Ministry in their written submission to the Committee stated that in case of P-17, the LoI was issued in January 1998. However, the consideration amount of the contract became clear only after receipt of Russian Draft Supplementary Assignments in 2003. Since the total amount had exceeded CFA sanction, already existing, revised sanction had to be taken before signing of contract. The revised CFA sanction was obtained in March 2006. For P-15A, LOI was issued in 2003 and second stage CFA sanction was taken after firming up the cost of weapons in January 2006. In both the cases, the contract was signed within 30 months of revised CFA sanction. In case of P-28, original CCS sanction for construction of four P-28 ships was accorded in 2003. However due to delay in availability of indigenous steel, finalisation of propulsion system (to ensure low underwater noise signature) and delay in development of number of weapons and sensors, the cost and timelines were required to be revised which precluded signing of the contract. The revised CFA sanction was obtained in March 2012 and contract signed in June 2012.

44. When the Committee enquired about the efforts being made to neutralize the impediments, the Ministry, in their written submission to the Committee, stated that the time-frame for signing of the contracts, post award of project sanction, had been stipulated in DPP-2011, which would obviate delayed

conclusion of naval shipbuilding contracts. As per DPP-2011, contracts should be on '*Fixed Price*' basis for Follow-on ships and on Fixed Plus Variable Price in case of new design or Follow-on ships with substantial design/equipment changes based upon the first stage CFA approval, indicating inter alia permissible price escalation, exchange rate variations, increase in statutory levies etc. However, variable price element would be indicated on not exceeding basis in the Supplementary Contract based on the 2nd stage CFA approval. This approach would ensure that delays due to non-availability of firm costs of equipments/sensors which are under development/not finalised at the time of initiation of the projects are curtailed. DPP-2011 clearly stipulates a period of 02 months post CFA sanction for signing of contract and the same was being strictly adhered to.

45. When the Committee desired to know the reasons for delay in internal decision making process in respect of ship building projects and also the efforts made by the Ministry's in this regard, the Ministry stated that there was no delay in internal decision making process in respect of shipbuilding projects. Further, force structures were projected in the MCPP upto 15 years in advance and AoN of such projects were pursued accordingly.

46. On being enquired whether any timeline had been fixed for signing contracts as per DPP-2011 as also of the procedure followed, and if it was comparable worldwide, the Ministry stated that as per stipulations of DPP-2011, contract was to be signed within a period of two months from the date of CFA approval. In cases, where subsequent CCS approvals were necessitated, Supplementary Contracts were to be signed within two months of such approval. As per DPP-2011, contracts should be on '*Fixed Price*' basis for Follow-on ships and on Fixed Plus Variable Price in case of new design or Follow-on ships with substantial design/equipment changes based upon the first stage CFA approval, indicating *inter-alia* permissible price escalation, exchange rate variations, increase in statutory levies etc. However, variable price element would be indicated on not exceeding basis in the

Supplementary Contract based on the 2nd stage CFA approval. The DPP defines the contract signing timelines. Further it was intimated that there was no authentic information available in respect of average time taken by the global shipyards in signing of shipbuilding contracts.

(v) Release of Funds

47. A mobilization advance is allowed by DPP for ship-building contracts to undertake preparatory activities for commencement of production activities. Before conclusion of contracts funds were to be released as per LoI placed on the shipyard which contained the following provisions:

1. P-15A: The funds were to be released based on completion of specific milestones. An interest bearing advance of ₹ 312 crore paid to MDL in March 2002 remained unspent till the end of the financial year 2004-05 and was finally adjusted in December 2005 against the pending bills of P-15A. In the mean time, MDL received a further advance of ₹ 216 crore in March 2003 despite the fact that MDL was unable to spend the advance of ₹ 312 crore.

2. P-17: No milestones were specified and MDL was to indicate funds requirement. However, means of release of funds was not specified. MDL was paid ₹75 crore and ₹37.50 crore in 1997-98 and 1998-99 on account of advances which remained unspent for two years.

3. P-28: Similar to P-17 LoI provisions.

48. The Ministry in their written submission to the Committee, explained the processes involved in the release of funds as under:

(a) Stage/Milestone payments- Stage/Milestone payments released in a financial year in respect of each shipbuilding project were governed by contracts of each project. Moreover, each and every payment was specifically scrutinized at IHQ/MoD(N)/WOTs for each project before submission of the documents/invoices/bills to CDA. In addition, every payment was also pre-audited at CDA prior to release of expenditure.

(b) Payment norms for P-15A- In case of P-15A, as per the payment norms, an interest bearing mobilization advance was admissible to the shipyard on issue of LoI. Accordingly, the interest on unutilised advance was adjusted while obtaining 2nd stage CFA sanction. All payments post signing of contract was as per stipulated payment terms.

(c) Interest on advances paid to the yards- Practice of paying advances to DPSU shipyards had been discontinued except for 1st stage payment as per contract. Now, payments were made on contractual milestones. It may be noted that interest earned on the un-utilized portion of the mobilization advance had been paid to the Government from time to time. The total of such interest, after getting the same vetted both by the statutory and internal Auditor, paid for the two years by GRSE was ₹19.36 crore.

49. When the Committee enquired to know about the monitoring mechanism, the Defence Secretary, during oral evidence, stated as under:

"We have an internal financial system. Of course, C&AG audit is also there. .... Whenever there is an observation, we have to reply. We are held responsible for that."

50. The Ministry, in their written submission to the Committee, stated that it had concurred to the Audit recommendation which stipulated that PCDA should maintain a statement of accounts for each shipbuilding project at the end of each financial year.

51. Audit scrutiny further revealed that large amounts were sanctioned to the shipyards as advance, even on the last working day of the financial year. In 2004-05, 2005-06 and 2006-07 advances totaling to more than ₹ 1000 crore were sanctioned in March with respect to Projects P-15A and P-17.

52. Observations of the Audit point out that release of large funds in March without any linkages with immediate utilization were clear instances of parking of public funds outside Consolidated Fund of India and were aimed at avoiding the lapse of funds. As per extant financial rules MoD was required to surrender the excess funds to the exchequer rather than parking them with shipyards.

53. When the Committee sought to know the mechanism adopted by the Ministry to monitor the advances paid to the shipyards for purchase of equipments, etc. for ship building projects and whether the Ministry had any system in place to monitor and control excess release of funds, the Ministry in their

written submission to the Committee stated that funds for various shipbuilding projects were released strictly on the basis of contractual terms and conditions, which were monitored by IHQ/MoD (Navy). While advances (on-account payments) were released to DPSU shipyards till FY 2007-08, this practice had now been discontinued and "*Nil*" advances had been paid to DPSU shipyards during FY 09-10 and FY 10-11. The allocation of funds for the FY to each of the shipbuilding projects was made on the basis of shipyard projection and IN's assessments. However, payments were released to the shipyards by Controller of Defence Accounts (CDA) only on the basis of bills referred by the yard with supporting documents duly vetted by customer representative.

(vi) Monitoring of Advances

54. Audit scrutiny revealed that bulk advances were released to the shipyards against procurement of equipments but the accounting authority had not kept a track of their adjustments or credit verifications. No mechanism exists to reconcile the expenditure booked against the projects in the books of PCDA and respective DPSUs. Demand register is a record maintained by Principal Controller of Defence Accounts for monitoring and liquidation of advance payments. It was noticed that PCDA (Navy) had not been maintaining Demand Register to regulate the payments made to GRSE against P28 and subsequent adjustments made against bills raised.

55. The Ministry in their written submission to the Committee stated that the practice of paying advances to DPSU shipyards had been discontinued except for 1st stage payment as per contract. Subsequent stage payments were made on contractual milestones and the advance paid was liquidated on such subsequent payment stages.

56. When the Committee sought to know whether the Ministry had taken steps to ensure reconciliation of the expenditure booked against the project by the accounting authority and the shipyards, the Ministry submitted that from time

to time, on an *"as required"* basis, the Principal Controller of Defence Accounts (PCDA) sought reconciliation from the shipyards on various aspects of the expenditure incurred on the project.

57. When the Committee questioned the rationale behind sanctioning large advances by the Ministry to the shipyards till financial year 2007-08 on adhoc basis without any linkage with immediate utilization of the sanctioned funds and whether the mechanism adopted by the Ministry to monitor the advances paid to the shipyards for purchase of equipment, etc. for ship building projects were being followed properly, the Ministry in the written submission to the Committee stated that prior to 2008-09, "*on account*" payments were being made to the shipyards to meet requirements projected by the shipyards. These advances were paid after due process of approval within the MoD. The advanced paid were adjusted against the cost incurred and interest was paid to the Government wherever indicated in sanction letters. However from 2009, these payments had been stopped and only payments as mandated by DPP-2011 were being paid. No advances other than those mandated by DPP would be paid to the shipyards in future.

IV. DELIVERY MANAGEMENT

(i) Nomination and Readiness of Shipyards

58. In order to augment the force levels of the Indian Navy, the Defence Acquisition Council (DAC), headed by the Raksha Mantri, in March 2003 considered the Navy's 15-Year Shipbuilding Plan envisaging a certain number of ships with the Indian Navy by 2017. The ambitious ship construction plans led to Indian Navy sanctioning three major projects for warship constructions within a span of six years.

59. The selection of shipyard was done by the Navy in consultation with the Department of Defence Production. As mentioned at earlier the nomination of shipyards for construction of Frigates, Destroyers and other larger ships was limited to MDL and GRSE.

60. MDL was nominated to construct the P-17 class of ships in 1998. The construction of P-17 ships started late by 17 months in December 2000 as two ships of P-15 were in advanced construction stage at MDL. Such parallel production of major warships was unprecedented.

61. GRSE was nominated for the production of P-28 warships. At GRSE, construction of the P-28 ships commenced after a three year delay from the sanctioning date.

62. Recognizing that modern infrastructure was critical to reducing build periods, the Navy, sanctioned over ₹ 600 crore from 2003 onwards to MDL and GRSE with the aim to arrest time and cost overruns.

63. In their Background Note, furnished to the Committee, the Ministry reiterated their stance on modernizing of shipyards by providing information as under:

(a) Investment in modernization: Modernization of DPSUs shipyards such as MDL & GRSE was being undertaken as part of ongoing projects of the Navy. Adequate funds were made available to shipyards as stipulated in the CFA sanction.

(b) Infrastructure up-gradation: Modernisation of infrastructures and facilities at MDL and GRSE were being progressed and likely to be completed by end of 2011/early 2012. MDL was being modernized at a total estimated outlay of ₹ 1495 crore out of which ₹ 604 crore were through internal accruals. After completion of modernization, MDL will have Goliath Crane of 300 Tons, wet basin, hull fabrication and outfitting shop, module shop, cradle assembly shop etc. GRSE was being modernized at a total outlay of ₹ 606 crore out of which ₹ 275 crore was being funded through internal accrual. Post modernization GRSE will have a modern hull shop, drydock of 10,000 tons capacity, inclined berth (4500 tons), Goliath Crane (250Tons) and module Hall, Paint Cell and associated equipment. Post completion of modernization, MDL and GRSE will have state of the art modular construction capabilities.

(c) The Project P-28 is Anti Submarine Warfare (ASW) Corvette which is made by special steel hull. The special steel DMR-249A was developed by SAIL which started supplying it only by July 2005. Freezing of structural design was another issue which contributed to the delay in this project. It may be noted that detailed designing of this project was being undertaken by GRSE.

64. When the Committee desired to know what was the position of monitoring teams of the Indian Navy and the Ministry of Defence and whether due diligence was being practiced regarding technologies involved, the Controller (Warship Production and Acquisition) of the Indian Navy, stated during oral evidence as under:

"When we go for the review meetings in the ship yards we not only monitor the progress of the work there, we also look at what is the level of modernisation. Also, in case of technical issues, the vendors they have gone to and the equipment coming into the ship is closely monitored by the review which is held in the ship yard. We have a warship overseeing team. Anything which goes on the ship has to be qualified by the overseeing team that it meets the naval standards."

65. Further, he added:

"When we procure any equipment, there is a technical negotiation done first. Then only, a price negotiation is done. The Central Monitoring is done by the Controller (Warship Production & Acquisition)."

66. Further, when the Committee sought information regarding the system of reviewing and monitoring and whether anybody was answerable in respect of implementation of contracts or cost escalation, the Vice Chief of Naval Staff, during oral evidence, stated as under:

"What the Navy has is that we have a Controller (Warship Production and Acquisition). He is a three-star officer. Under him, there is a full organisation. We have the Director-General (Naval Designs). We have the Directorate of Ship Production. We have the Warships Overseeing Team. It is his job. You have asked about a single point as to where all the inputs come. Indeed, coming to every shipyard, the Warships Overseeing Teams monitor on a daily basis. If something, as you said, is amiss or something needs to be reported, it is reported directly to the CWP&A's office. In addition, there is a multi-tier mechanism like the Shipyard; the Directorate and the DND in various aspects of contract management and to monitor the progress, the acquisition process and all the activities related to ship design as well as ship construction. So, he is the single point authority that we have put in place."

67. When the Committee sought to know the lessons that the Indian Navy learnt from its past experiences so that the shipyard modernization program placed a well defined naval ship delivery schedule, the Ministry in their written

submission to the Committee stated that experience had shown that freezing of design was critical to curtail time overruns in shipbuilding projects. The major impediment in this regard was finalization of weapon and sensor fit. Towards this end, dedicated efforts were also being made to ensure freezing of equipment at a relatively early stages of the project and firm dates for provision of binding data of all major equipment were included in the contract in consultation with the shipyard. Further, a focused attempt was also being made to contain delays associated with weapons and sensors. While most weapons and sensors had traditionally been imported, attempts were being made to indigenize the same. The private Indian industry had also been encouraged to develop weapons/sensors. Collaborative efforts to build missile systems by DRDO had also been taken up, which were eventually expected to fructify into pure indigenous systems. While all these efforts were being vigorously pursued, results of the same would only be seen in the next 5-6 years. A due assessment of shipyard's capacity is undertaken prior placement of order to ensure, the capacity constraints at the yard did not result in project delays. Further, infrastructure upgradation through modernization projects were being undertaken in all major DPSU shipyards to leverage the advantages offered by modern ship building techniques. Further, strict and regular monitoring procedures at various levels had been put in place and were being strictly adhered to. Corrective actions identified by these monitoring processes were formally promulgated and implementation ensured. Promulgation of DPP-2011, which gave a streamlined procedure for undertaking shipbuilding projects, was also expected to help curtail delays and ensure quality ships and delivery on time and within budget.

(ii) Modernization of Shipyards - MDL and GRSE

68. Presently, facilities at MDL include three drydocks, three slipways and one wet basin. The need for modernisation was felt as early as 1995 by the shipyard and accordingly, a modernisation programme was also developed by MDL. However, no action was taken on this plan. Later, when the LOIs

were issued for P17 and P15A shipbuilding projects (1998-2001), MDL emphasized that these facilities needed to be available progressively between 2003 and 2006 to attain the required shipbuilding capacity.

69. In terms of financial effects, the cost of construction of P-15A would increase approximately by ₹ 175 crore for a delay of 24 months. Audit also noted that due to the delay, the cost of modernisation also increased as the cost estimates were made based on the assumption that the modernisation would be completed by January 2007. As on date, the modernisation cost of MDL was proposed to be escalated from ₹ 423 crore to ₹ 826.11crore, an increase of 96 *per cent.*

70. GRSE has one dry dock, one wet basin, one building berth and two slipways. With the modernisation expected to cost approximately ₹270 crore in 2001-02, it was felt that Navy and GRSE would share the modernisation expenses at ₹180 crore and ₹90 crore respectively. Against Navy's share of ₹180 crore sanctioned in March 2003, ₹141.69 crore was paid to GRSE (₹34 crore in March 2003 and another ₹107.69 crore in March 2007). The shipyard utilised ₹137 crore against a total payment of ₹141.69 crore made by Navy as of November 2010.

71. In December 2008, GRSE had computed the modernisation cost to be ₹605.81 crore with the revised distribution as ₹331.73 crore and ₹274.08 crore in respect of Navy and GRSE. Thus, despite sanctioning ₹180 crore for infrastructure development, the yard was unable to put in place the infrastructure required even after seven years of sanction of funds.

72. When the Committee sought to know the modernization activities taking place in GRSE, the Secretary (Defence Production), during oral evidence, stated as under:

"The total amount involved in modernisation would be about ₹ 671 crore and this is moving on schedule. I think some time during this year, April of this year, they are hoping to complete the modernisation process. Insofar as the apex Committee meetings are concerned, I would admit that there have been some times when they have not been absolutely regular. But I would like to assure the hon. Committee that they are being held very regularly now. For the current period the last meetings were held in October and they would be held at six monthly intervals at the apex level. In addition, at the Navy level where again all concerned are involved, the CWP&A holds the meeting at a quarterly level and these meetings are being held on a very regular basis."

73. The Ministry, in their Background Note, furnished to the Committee, stated that there was no linkage of modernization of MDL to Project P-15A. Hence delay in modernization project would have no impact on the time and cost of Project P-15A. The time overruns in the indigenous shipbuilding projects were due to combination of factors like telescopic design, number of equipment/systems which were under development, delayed delivery of equipment/system by the manufacturer etc. The international standards of build period for frigates given by Audit were based on a frozen design and timely availability of proven equipment/system for installation during construction period of series construction of ships. MDL had concluded contract for P-15B with build period of the first of class being 90 months though certain weapon and sensors were yet to be finalized. GRSE would be building two ships under P-28 project in the building berth and the balance two in the dry dock. The modern hull shop had been enhanced to make blocks upto 65 tons in phase-1. Also, capacity of the building berth were enhanced to take care of launching of P-28 ships. Hence delay in completion of modernization of Phase-2 had no major effect on construction schedule of P-28 ships.

(iii) Slippages in Delivery

74. Audit scrutiny revealed that at the time of original sanction of these three projects, delivery period of 78, 86 and 66 months was envisaged in respect of P15A, P17 and P28 respectively. Against 108 months taken for P15 class of

ships, MDL was likely to take 129 and 144 months for the P15A and P17 ships respectively. Also, these figures were almost double the originally envisaged Build Periods. However, as the shipyards were not able to deliver in the specified period, the CFA approved a revised schedule, shown as under:

Project/Date of Original/Revised Sanction	**Ship**	**Original date of delivery of Ships**	**Revised date of delivery**	**Status as of September 2010 in percentage terms**	**Expected Date of Delivery**
P 17 January 1998 March 2006	Ship 1	December 2005	September 2008	100	Delivered in March 2010
	Ship 2	December 2006	May 2009	95.53	January 2011
	Ship 3	December 2007	December 2009	89.18	May 2011
P 15A June 2001 February 2006	Ship 1	2008	May 2010	71.08	March 2012
	Ship 2	2009	May 2011	57.52	March 2013
	Ship 3	2010	May 2012	46.77	March 2014
P 28 March 2003	Ship 1	August 2008	June 2012	47.67*	June 2012
	Ship 2	August 2009	March 2013	27.86*	March 2013
	Ship 3	August 2010	March 2014	11.79*	March 2014
	Ship 4	August 2011	January 2015	5.36*	January 2015

* As of October 2010

75. Shipyard efficiency in terms of the Build Period had not improved. Even in the present shipbuilding projects being reviewed by Audit, the situation has remained by and large unchanged, if not worsened.

76. During oral evidence, when the Committee wanted to know whether agencies, internal or external, caused delays, the Secretary (Defence Production), stated as under:

"Sir, so far as the industry and the learning process are concerned, it has been projected before you that the Indian industry is still coming to the grips with the requirements of this industry. I would only submit that the platforms which the Navy

develops and manufactures through the industrial DPSU, our shipyards are so diverse that the requirements are of a few parts to be produced over a period. And, therefore, many a time the Indian industry does not find it very remunerative to specialise in that particular part and do it. Therefore, what happens is that while we develop some general purpose vendors and they try to help, this process of development is always very difficult. To address this problem our Navy follows a very defined path, which is very regular interactions with the vendors where the requirements of the shipyards of the Navy are projected to the vendors. They are helped in developing these parts which are required for the ships."

77. He further added:

"It is a very elaborate process which is followed on a very continuing basis and that is how it has been possible to reach the indigenisation levels which have been reflected before you in the presentation made earlier. But it is a very cumbersome and difficult process because very frequently even the best of our private sector companies, we find, do struggle to produce the specialised parts that are required. Therefore, it is a very continuing battle to get it in order. Many a times, the delays have taken place because something which we had targeted to be developed within the country, even the very good vendors are not able to develop it in time and it results in certain delays. So, there are several reasons for the delays. One reason is indigenous vendors and then so far as the foreign vendors are concerned, there are certain countries where we find that their internal processes are so slow that to get to the ordering stage, it takes us sometimes almost two years and thereafter the delivery period starts. While these are factored into our calculations, these orders are processed well in advance. But still it is an uncertain process and it takes time. Other contingencies also arise that while we have placed orders with a particular vendor in a country, he may renege on the contract and then it again takes time to go through the entire process of finding the lowest tender etc."

78. Supplementing to the Committee's concern, he further added:

"The third part of delays which you have mentioned relates to our own internal decision making processes. I would admit that there have been instances of delay because of our internal decision-making process. But I would like to assure the hon. Committee is that we are continuously looking and refining those processes. These monitoring meetings which have been brought to your kind attention are one of the major means wherein all the Directorates, for example, the Navy or within the Defence Ministry there are other Wings which are associated with it. Wherever the delay is taking place, the concerned representative is called and he is made to expedite things. So, these processes have been refining and over a period I think we are slightly better than what we were earlier in that. But we still have a way to go in refining our own internal processes. I would say that these two-three things are definitely are a factor and the Ministry has to continuously struggle to get it right to expedite the entire process."

79. The Ministry in their written submission to the Committee, stated that the issues of material delays increased with the dependency on overseas vendors for technology, weapons, sensors, equipment and a developing indigenous industry, controlling the delays on this account was very difficult for Indian Navy as well as the shipyard.

80. When the Committee sought to know whether any time limit was being framed by the Ministry/NHQ for accepting the modifications so that the design of the Navy ship could be finalised timely. Approval of modifications in a shipbuilding project was governed by DPP-2011. Modification proposals were assessed on the basis of time and cost for executing the same, as offered by the shipyard; and the modifications were approved at at the level of the Vice Chief of the Indian Navy, while taking care not to jeopardise the overall cost and time frames for the project. Further, for all future shipbuilding projects, there was a 4% cap on the modification cost that could be incurred on the project, as per DPP-2011.

81. The design of Navy ships was telescopic in nature, i.e. the process of detailed designing ran concurrently with the ship construction i.e. changes to the preliminary design became inevitable. Modifications also became necessary to keep pace with the technology changes during the build period, leading to delays both at the start of production and during construction, as shipyards were unfamiliar with the new technology.

82. The design of a ship was also dependent upon the parameters of on-board equipment. Delays were also noticed in finalizing weapon package which resulted in late receipt of binding data essential for design. Delays in indigenization resulted in impact on design.

83. Addressing to the Committee's concern regarding design and technology issues, the Ministry, in their written submission to the Committee, stated that nomination of fully proven systems for new construction ships was not always advisable as the systems/technology may become obsolete by the time the

ship was commissioned. This resulted in outdated equipment fit on new ships. Therefore, equipment under development which was likely to fructify in the time-schedule of the ship build was nominated. There was always a progressive attempt at indigenization and equipment which were under indigenous development were nominated. IHQ MoD (N)/DSR regularly monitored the development of new equipment nominated for new construction ships and nominated alternatives, wherever possible, if the developmental process did not fructify in time. Design of certain mission critical systems such as Combat Management Systems (CMS) and Ship Data Network (SDN) were significantly dependent on the equipment fit nominated and need to be designed/developed concurrently with the shipbuilding activity. In such cases prototype system could not be developed and proven prior nomination. Design details of certain mission critical systems, like CAIO, which implements the warfare tactics of any country, were not readily available through open literature nor could be asked from any foreign OEM. With nascent capability for development of such intricate systems in the Indian industry, the developmental time frames were bound to be extended.

84. Further, the Ministry, while explaining the delays caused in selection of weapons and sensors, in their written submission to the Committee, stated that selection of weapons and sensors and vendors, took considerable time. A case in point was PDMS selection for P-17. In spite of the decision for change in PDMS being conveyed to the shipyard in June 2004, it took considerable time to conduct price negotiations because clearance to go for BARAK PDMS for P-17 was given in October 2005 only after which order was placed in March 2006. Even the propulsion system for a warship was not a COTS (Commercially Off-the-Shelf) item. It was required to be tailor made to a particular design of a ship after undergoing iterations of analysis, which was time consuming.

85. When the Committee sought to know as to what steps were being taken by the Naval HQ to address the issue of revision in cutoff date for freezing the

design of ships so that the delay in construction could be minimized, the Ministry, in their written submission to the Committee, replied that, in shipbuilding contracts, designs were finalised on finalising equipment. In new ship-building contracts, the dates for finalising the known equipment was agreed with the shipyard. Navy took necessary administrative actions, internally, to monitor progress in meeting the contractual obligations of equipment finalisation.

86. While the Committee sought to know the factors which were considered during modernization programme, the Defence Secretary, during oral evidence stated as under:

"We have a continuous process also in that respect through the mechanism of consultations within the Integrated Defence Staff as well as through the institution of Defence Acquisition Council. We have a long term perspective plan which is for 15 years. This perspective plan is divided into a Five Year Plan. This is a continuous process. For every two year we have this exercise and the changing pattern of threat perception is taken into consideration. There is no doubt about it. When we go for the perspective planning the three Services first make their own plans and thereafter this plan is integrated in one perspective plan in light of the Raksha Mantri's Op Directives which are also shared with the three Services. These Op Directives are the unified directives integrated approach. So, I would say that *inter se* financial priorities are also a part of the planning process."

87. In response to a query of the Committee to know whether Ministry had devised any methodology for knowing the futuristic development in the field of weapons and sensors on the basis of which design/modifications could be decided in advance, the Ministry in their written submission to the Committee, stated that given the rapid strides in technology and long gestation period for developing system details of future weapons and sensors, the Indian industry was being encouraged to adopt the principle of modularity for future systems. This would help decouple system design and development of individual weapons and sensors from ship design and construction. For its planning purposes, the Indian Navy also had a 15-year Technology Perspective Capability Roadmap for the period 2012-2027.

88. Material issues were concentrated basically in the timely availability or not of specially fabricated material like fire-proof cabling, high tensile steel etc. However, there was an absence of backward linkages of the shipyards with strong and reliable vendors in India. Not only was availability a problem but dependency upon a few international suppliers resulted in protracted negotiations and consequent delays.

(iv) On-Board Equipment

89. The reason for a new warship was often a new weapon or a new sensor. However, there was a great risk to design and construct a ship, which was to carry a major system that had not been proven. Audit noticed that in the three projects presently under construction at MDL and GRSE, seven equipments/systems *viz;* ATAS, AISDN, EON51, CAIO, ATDS, LR SAM and Revathi; were still under development at the time of nomination. The performance of these equipments onboard the dedicated ships as well as their successful integration can be evaluated only post commissioning of the ships. Naval Staff Qualitative Requirements (NSQRs) expressed the user's requirements in terms of functional characteristics of a system, equipment etc., while the Statement of Technical Requirements (SOTR) enabled standardisation, inter-changeability, inter-operability, system integration etc. Audit noticed that certain equipments/systems were approved for use in the ships under Project 15A, Project 17 and Project 28 despite their non-compliance with NSQR/SOTR formulated. Details are tabulated below:

Sl. No.	Project	Name of System/Equipment	Remarks
1.	P15A	Asynchronous Transfer Switches	ATM Switches with lesser capacity
2.	P15A/P28	Ship Weapon Interlock System	The system will not transfer data at the rate prescribed in SOTR
3.	P28	Diesel Alternator	The noise and vibration levels are higher than those stipulated in SOTR
4.	P28	Main Propulsion Change	Navy accepted engines beyond the specified

			N&V levels

90. The Ministry, while replying to the Committee's concern about equipments/systems not complying with NSQR/SOTR standards, in their written submission to the Committee, stated that the Audit had observed acceptance of P-28 DAs and MEs with noise and vibration levels higher than those specified in the SOTRs. The Indian industry was gradually getting used to the stringent specifications of noise and vibration demanded by the Indian Navy. There had been instances where the first trials of equipment in the factory did not meet the requirements. However, though permissions of the Navy and repeated rectification/trials, the DAs and MEs were brought up close to the required levels with some deviations which could be accepted. The ATM switches of P-15A were a development system and were based on the P-17 switches with similar capabilities. However, the referred technical specification had to be adapted to the specific fit on P-15A ships. As regards SWISS, the transfer rate was as per end node equipment capabilities.

91. When the Committee sought to know that while nominating systems/equipments under development for the new projects, how did the Naval HQ ensure the capability of the same and what were the reasons which prevented the Naval HQ not to assume a cutoff date for providing these systems/equipments so that the delay in completion of project could be minimized, the Ministry, in their written submission to the Committee, replied as under:

(a) Equipment Nomination: The Naval Headquarters promulgates NSQRs of all weapons/systems/equipment that are to be procured or developed. NSQRs are the mandatory qualitative requirement to be met by the production/ development agencies. This ensured that capability of the equipment met the Navy's requirements. During the development process, the Navy monitored all developmental projects through Preliminary Design Reviews/Critical Design Reviews and regular progress review meetings to ensure that the project was progressing as per the NSQRs and within the given timelines.

(b) Delays in Developmental Projects: Almost all development processes were complicated, requiring the realisation of science, technology, engineering, ToT and

production of all the components of an equipment/weapon. Components that involved critical technology, especially those under denial regimes, took the maximum time for development and caused delays in completion of projects. All development projects also had to necessarily pass through User Evaluation Trials before being accepted and inducted in service.

(c) Assumption of Cut-Off Date: In case the equipment deliveries were expected to go beyond acceptable cut-off dates, the particular developmental item was delinked from the delivery of the ship, and the ship was delivered *"fitted"* for the equipment by the shipyard.

(v) Monitoring Mechanism

92. Warship building being a complex task, involved a number of agencies. Such interaction required close co-ordination and constant monitoring. Audit was unable to identify a single agency responsible for ensuring timely completion of the projects.

93. A large number of conflicting issues were resolved in these review meetings chaired by CWP&A to ensure smooth progress of projects.

94. Shipbuilding projects were monitored at different levels, a Naval Warship Overseeing Team was stationed for technical scrutiny of bills, resolving technical issues, etc. Naval Headquarters also monitored shipbuilding progress through CWP&A (Controller of Warship Production and Acquisition) Progress Review Meetings (CPRM) on a quarterly basis chaired by the CWP&A with representation from officers of Director General, Naval Design (DGND), representatives from WOT, and concerned shipyards. At the Ministry level, an Apex Steering Committee under the chairmanship of Secretary (Defence Production) with Joint Secretary rank officers (MoD), Financial Adviser, and representative from IHQ MoD (Navy) and respective shipyards was held every six months to review ongoing projects.

95. When the Committee desired to know as to what steps were being taken by the Ministry to ensure close co-ordination and constant monitoring by the

agencies involved, the reply of the Ministry in their written submission to the Committee stated that close coordination and monitoring was an essential part of warship building. This coordination was required between many agencies such as MoD, Indian Navy, Shipyards, the DPSUs supplying major equipments and material, and many Indian and foreign firms which supplied important equipments. The project teams at IHQ MoD (Navy) maintained constant interaction with the shipyards through frequent Working Level Meetings to address all issues of the project. There were other higher levels of monitoring through Pre-CPRM, CPRM and Apex Committee meetings. The professional directorates of the Navy maintained constant supervision over the equipment suppliers to ensure that all technical issues were resolved and equipment delivery timelines were realised within minimal delays. Further, the procurement of indigenous equipment from OFB and PSUs/DPSUs like BEL and BHEL were also monitored by Steering Committee meetings chaired by the Indian Navy's Chief of Material (COM).

96. When the Committee sought to know that inspite of having various levels of monitoring, why did the Ministry fail to learn lessons from the past mistakes and continuously failed to ensure adherence to timelines leading to time and cost overruns in ship building project, the Ministry in their written submission to the Committee, stated that while there was continuous monitoring of projects at various levels, the complexities and uncertainties involved in the warship building process inevitably resulted in some cost and time overruns. Although, efforts were being made to deliver ships on time and within budget, there were a number of factors, some anticipated and other unanticipated whose impact could not be predicted at the time of seeking sanction. Delays due to the requirement of importing weapons and sensor system , which were invariably associated with issues of export licenses, delays due to developmental projects (to ensure availability of State-of-the-Art Technology at time ship's delivery) and dependence on foreign suppliers for propulsion systems had made estimating the timelines and cost, very difficult.

97. On being enquired whether any time limit has been prescribed for each stage of project from approval till commissioning, the Ministry, in their written reply to the Committee, stated that warship building was an extremely complex activity with long gestation period requiring integration of multiple components and involving multiple agencies. The genuine inability to forecast realistic time frames arose from some endemic factors such as:-

(a) The need to have state of the art weapons and sensors at the time of induction of warships;

(b) Dependence on developmental items to induct the latest technology etc.;

(c) Problems associated with export license for imported weapons and sensors; and

(d) Delays in indigenisation efforts.

Such delays were not unique to India but was prevalent all over the world. Notwithstanding the same, all efforts were made to bring economy, efficacy and efficiency through proper planning, scheduling, monitoring and course correction at different levels. Timelines for major milestones such as production start, keel laying, launching, delivery etc were defined in the master control network, start and finish dates of other activities were also defined on a PERT.

98. When the Committee desired to know whether the contracts signed with foreign vendors/suppliers contained provisions pertaining to Liquidated Damages (LD), the Ministry in their written submission to the Committee, stated that the LD clause was included as a Standard Clause in accordance with provisions of DPP-11 with all OEMs. Further, the Committee sought to know that in case of late supply of weapons and sensors by the foreign vendors/suppliers, whether the Ministry could invoke the suitable clause of Liquidated Damages, the Ministry stated that LD was invoked in all cases of late delivery unless it satisfied the '*force Majeure*' Clause as agreed in the Contract in accordance with the DPP.

99. When the Committee enquired to know that while nominating systems/equipment under development for the new projects, what were the

reasons which prevented the Ministry/Indian Navy from assuming a timely cutoff date for providing these systems/equipment for shipbuilding, the Ministry in their written submission to the Committee, stated that the cutoffs for provisioning of various equipment being developed by DRDO were decided well in time by the Ministry/Indian Navy. However, during the process of identification/progressing the cases for AoN for induction of alternate equipment (due to delays in development by DRDO), continued insistence of DRDO to provide equipment lead to shifting/amendment of cutoffs.

100. When the Committee sought to know that despite maintaining constant supervision over the equipment suppliers by the professional directorates of the Navy, why there had been inordinate delays in realizing equipment delivery timelines leading to huge time overrun in ship building, the Ministry, stated that, the delay in delivery of equipment was generally observed in equipment that were developed specifically for the Navy using technologies that had not completely matured. Most of the delays had happened in the case where the nominated systems had been "*developmental*" in nature, *viz*., LRSAM for P-15A, SRSAM for P-28, IRL for P-15A & P-28, CMS-17, SDN-17, VCS Mk II, etc. This developmental nature projects were in keeping with MoD directives for greater thrust towards indigenization of weapon and systems onboard IN Warships. The SQRs of these systems had been drawn up by IHQ (N)/DSR based on futuristic requirements of the IN and to be current with the available technology at the time of commissioning of the ship. The mechanism of supervision of the equipment supplier, had resulted in modification to design during review meetings, and consequently delayed the timely delivery of these systems. In the case of CMS-17, there had been inordinate delay of over 27 months by Russian OEM for delivery of few subsystems, which precluded timely delivery of the complete CMS system.

101. When the Committee intended to seek information regarding the Ministry's proposal to strength the existing monitoring system which was ineffective in ensuring coordination amongst the Ministry of Defence, Indian Navy,

Shipyards, PSUs and Indian and foreign firms which supplied important equipment, the Ministry, in their written submission to the Committee, stated that the delays in delivery of complex state of the art developmental systems through indigenous firms were opined to be reasonable for greater self-reliance and long term product supportability through indigenous industry, especially considering that the order quantities were limited *vis-à-vis* the developmental efforts required for these systems. For developmental systems, project monitoring terms at various levels from working level to Apex level were incorporated. Regular interaction with all stake holders were implemented to prevent major delays. Apart from this, periodic reviews by Professional Directorates and APSOs had also been institutionalized with the concerned OEMs/development agency to minimize delays. Equipment OEMs were also invited to participate in CPRMs where in equipment delivery schedules were reviewed.

102. The Committee sought the details of quarterly review meetings held with shipyards for P-15A, P-17 and P-28, to which the Ministry furnished as below:

P17	**P15A**	**P-28**
28 Apr 06	28 Apr 06	30 Mar 05
24 Aug 06	24 Aug 06	05 Aug 05
28 Dec 06	28 Dec 06	30 Nov 05
17 Apr 07	17 Apr 07	09 Mar 06
17 Aug 07	17 Aug 07	05 Jul 06
24 Nov 07	24 Nov 07	24 Nov 06
14 Mar 08	14 Mar 08	07 Mar 07
13 Jun 08	13 Jun 08	29 Jun 07
12 Nov 08	12 Nov 08	09 Oct 07
15 Apr 09	15 Apr 09	26 Feb 08
29 Aug 09	29 Aug 09	04 Sep 08
20 Jan 10	20 Jan 10	15 Jan 09
08 Jul 10	08 Jul 10	12 Aug 09
11 Feb 11	11 Feb 11	29 Jan 10
		09 Dec 10
		29 Jul 11

In addition to the above, regular visits were made by the respective project officers & DGND to the shipyards. The projects were also reviewed by video conferencing on a regular basis.

103. Further, the Committee sought details of the Apex level Committee meetings held with shipyards for P-15A, P-17 and P-28, to which the Ministry furnished as below:

P17	**P15A**	**P-28**
09 Dec 05	09 Dec 05	23 Jun 05
03 Jul 06	03 Jul 06	07 Dec 05
19 Dec 06	19 Dec 06	13 Jul 06
09 Jul 07	09 Jul 07	17 Jan 07
19 Dec 07	19 Dec 07	03 Jul 07
09 Sep 08	09 Sep 08	05 Mar 08
27 Dec 08	27 Dec 08	03 Oct 08
23 Jun 09	23 Jun 09	23 Jan 09
28 Feb 11	28 Feb 11	28 Feb 11

Follow-up action by various wings/departments/agencies was continuously taken on the actionable points emerging from these meetings.

104. When the Committee sought to know as to when was the Apex Level committee set-up and what were the major issues/agenda discussed in the Apex Level Committee meeting held with the shipyards for P-15A, P-17 and P-28 ships and whether there had been any short fall in the number of such meetings held, replying to the Committee's query, the Ministry, in their written submission to the Committee stated that the Apex Steering Committee to review ongoing projects on Defence Shipyards had been constituted under the Chairmanship of Secretary (Defence Production) with the approval of Raksha Mantri vide GOI OM 21/38/2003/MDL(SY) dated 24 Sep 2003.. The first Apex Steering Committee meeting was held on 19th December 2003. Delays in delivery schedule of various equipment, physical progress being achieved by the shipyards, upcoming milestone activities, contractual issues and likely delays in delivery schedule of the ships were in general discussed

during the Apex Steering Committee meetings. The details of the Apex level committee meetings held with shipyards for P-15A, P-17 and P-28 are as follows:-

P17	**P15A**	**P28**
19 Dec 03	19 Dec 03	-
05 Oct 04	05 Oct 04	-
21 Jul 05	21 Jul 05	23 Jun 05
09 Dec 05	09 Dec 05	07 Dec 05
03 Jul 06	03 Jul 06	13 Jul 06
19 Dec 06	19 Dec 06	17 Jan 07
09 Jul 07	09 Jul 07	03 Jul 07
19 Dec 07	19 Dec 07	05 Mar 08
09 Sep 08	09 Sep 08	03 Oct 08
27 Dec 08	27 Dec 08	23 Jun 09
23 Jun 09	23 Jun 09	11 Mar 11
28 Feb 11	28 Feb 11	28 Nov 11
30 Oct 11	30 Oct 11	02 Nov 12

In addition to the Apex Steering Committee meetings, shipbuilding projects were being closely monitored through a strong monitoring mechanism which includes the following:-

(a) WOTs, which had been positioned in all the shipyards, reported the progress of projects on a continuous basis to IHQ;

(b) Shipyards had been networked with production directorates at IHQ and working level meetings were held through Video Conference on a regular basis;

(c) Regular working level meetings were conducted at the shipyards; and

(d) High level review meetings in the form of CPRMs (at the yards) were held at appropriate intervals.

The above mechanism which was followed to monitor the progress of projects was considered adequate. Notwithstanding the same, it was also proposed to increase the frequency of CPRMs by holding these high level reviews alternately at the shipyard and IHQ.

105. When the Committee pointed out certain discrepancies in the Apex level Committee meetings, the Secretary (Defence Production), stated during oral evidence as under:

"Insofar as the apex Committee meetings are concerned, I would admit that there have been some times when they have not been absolutely regular. But I would like to assure the hon. Committee that they are being held very regularly now. For the current period the last meetings were held in October and they would be held at six monthly intervals at the apex level. In addition, at the Navy level where again all concerned are involved, the CWP&A holds the meeting at a quarterly level and these meetings are being held on a very regular basis."

106. When the Committee enquired as to why no Apex Level Committee Meeting was held in the year 2010, the Ministry, in their written submission to the Committee, stated that concerns of PAC had already been noted by Ministry and it was informed during the oral evidence held on 31st January 2013, that in future Apex Steering committee meetings would be held periodically as stipulated in DPP-2011.

107. When the Committee sought to know that what were the actionable points that emerged from the Apex Level Committee meetings and what follow-up actions had been taken by the various wings/departments/agencies, the Ministry in their written submission to the Committee, stated that delays in delivery schedule of various equipment, physical progress were being achieved by the shipyards, upcoming milestone activities, contractual issues and likely delays in delivery schedule of the ships were in general discussed during the Apex Steering Committee meetings. Further, action required by all stake holders including the shipyard, the design/production directorate, DPSU equipment suppliers etc. were listed indicating clear timelines for completion. Directives for augmentation of resources at shipyards to meet required progress of shipbuilding projects and infrastructure upgradation requirements were also discussed and plan for implementation of the same were laid down.

V. PROCUREMENT

(i) Procurement Procedure

108. The shipyard initially prepares an equipment ordering schedule as part of the build strategy and indicates a requirement of Ordering Instructions (OI) for equipment from the Production Directorate (DND). The actual equipment procurement process started with the NSQR (Naval Staff Qualitative Requirements) and based on the same the concerned professional directorate (DME/DEE/DWE/DNA) prepared the SOTR (Statement of Technical Requirements). The professional directorates issued SOTR along with the short listed vendors to the Production Directorate who in turn issues the OIs to the shipyard to take the procurement action for the equipment. The guiding factors for short listing of vendors and procurement of equipment are:

- Standardisation of proven equipment;
- Reliability of proven equipments performance; and
- Self-reliance/indigenization

109. The Navy nominated vendors for various equipment, weapons and sensors and the shipyard, in turn, procured them from the vendors. This process effectively restricted competition and lowered transparency.

110. The Indian Navy sought to maintain commonality in its on-board equipment among ships. As such, financial prudence would demand that Navy co-ordinate with shipyards in the procurements of these equipment.

111. The Ministry, in their written submission to the Committee, trying to justify the economies of scale in warship building stated that each of the warship building projects underway in each shipyard was governed by a separate contract. Depending on shipbuilding schedule, the required delivery dates of equipment for various projects underway in different shipyards was different. Further, the actual scope of supply and structural terms and conditions of the different shipyards were different. However, shipyards exchanged necessary information on pricing in order to get the best deals. As recommended by Audit, a greater co-ordination, to the extent feasible, in procurement of common equipment was certainly recommended.

112. When the Committee desired to know the reason behind adopting a separate procedure of nomination of vendors by the Navy for procurement of equipments for the ships being constructed at Indian shipyards while it followed open tendering for its own procurement, the Ministry, in their written submission to the Committee, stated that similar procedures were adopted for selection of vendors within the Navy for its own procurement, and for procurement of equipment for the ships being constructed at Indian shipyards. Standard multiple vendor lists for each Engineering/Hull equipment were available and were provided to the shipyard, and were also used by the Navy for its own procurement. In some cases, nomination of equipment became important from considerations of equipment standardisation, maintenance etc., which was governed by Para 41, Section A, Chapter III of the DPP-2011.

113. When the Committee sought to know the rationale behind issuing Proprietary Article Certificate (PAC) status to Indian PSUs for the equipments/system when there was considerable amount of foreign exchange involved in these procurements, the Ministry replied that no PAC status had been accorded to any Indian PSU for procurement of any Engineering/Hull equipment/system. Article 2.4.8(b) of the Defence Procurement Manual (DPM) states that *"Any item developed / manufactured by a Defence PSU specifically for the Defence Services, with transfer of technology or through design and development, should be procured from the concerned Defence PSU only. Similar, Defence PSUs shall be approached for providing any service, such* as *repairs and overhauling, if facility for providing such services has been set up by a Defence PSU exclusively for the Defence Services".* Para (c) of the same article further states *"that such cases will not be treated as STE/PAC procurements".* This provision of the DPM was used for procurements through Defence PSUs.

114. During oral evidence, when the Committee sought more information on PAC and whether it was being denied to Indian firms, the Defence Secretary stated as under:

"Sir, you have referred to this issue of PAC. Navy which has been referred in the audit report, we have addressed in our replies to the audit also this particular aspect. Essentially the observation of C&AG relates that in some cases probably it did not look like that the tender may have been given to one vendor who would be treated as the Proprietor Article Supplier. This was the basic nature of the objection and the observation of the C&AG. We have tried to answer that by stating broadly that with regard to issue of PAC there is a very elaborate and a very deliberate process is followed. While there are instances where there may have been more than one vendor, it is true and the observation of the C&AG is correct that in some cases there may have been more than one vendor and for technological reasons and the design philosophy, the threat perception which Navy has assessed, they have chosen a particular configuration of the ship and in that particular configuration that particular supplier happens to be the best possible supplier. Therefore, in our procurement procedure there is a provision that certain items would have to be selected by Navy because it is a question of perception and not just the question of a L-1 situation, but it is on the country's security that I must choose a weapon, I must choose capabilities which would best serve the security of the country. Therefore, this sort of decisions has been taken and they are part of the mandated provisions in the defence procurement procedure. I think broadly, CAG has agreed to such assertions. I do not know whether you have anything to add to that but broadly, we have been able to satisfy this argument and CAG has found it to be all right."

115. When the Committee enquired whether the Ministry of Defence/Navy had made any attempt to find out vendors globally for equipments/systems before according PAC status to firms, the Ministry stated that the PAC status was not accorded to any firm for initial procurement of any equipment. All new inductions were done through Limited Tender Enquiry (LTE) involving multiple vendors. PAC status was accorded to a firm for procurement of spares once the equipment had been inducted into service. Identification of new vendors and technology was a continuous process, and the Navy was also actively involved in identifying new vendors globally.

116. When the Committee sought to know the mechanism adopted in the evaluation of the performance of a firm and what internal controls are in place in ministry/Naval HQ to ensure that supply orders for purchase of

equipments/stores are not placed on firm(s) whose performance in the past had been erratic and not up to the mark, the Ministry in their written submission to the Committee, stated that the performance of the equipment in service and the performance of the vendor in providing product support/services was monitored/periodically reviewed by various agencies in field, Command Headquarters, Repair Organisations and Naval Headquarters. In case the performance of a firm was not up to the mark, the firm was given a tender holiday or black-listed for future acquisitions.

117. In the absence of open tendering procedure, the Committee wanted to know whether the absence of open tendering procedure, the placement of huge number of orders to one or two vendors indicated the lack of transparency and accountability and what measures were being taken by Navy for expanding their vendor base so as to increase competition, accountability and transparency, the Ministry in their written submission to the Committee, stated that the Engineering/Hull equipment used for warships were peculiar and had to meet stringent requirements like shock, vibration, operations in roll/pitch environment etc. There were only limited vendors who manufactured marine-grade equipment. A new vendor/equipment could be considered only after it had been evaluated. The Indian Navy continuously kept in touch with world-wide developments and made efforts to identify additional vendors who could meet its requirements. Expansion of vendor base was an ongoing process, and in the last few years the vendor base for all major engineering/hull equipment had been expanded to increase competition and transparency. Additional vendors had been identified for Gear Boxes, Pumps, Reverse Osmosis plants, Oily Water Separators, Water Jets, Modular Accommodation, HVAC (Heating, Ventilation and Air-Conditioning) systems etc. in the recent past.

118. When the Committee desired to know as to why the Indian Navy followed a policy of nominating vendors for various equipment, weapons and sensors which restricted competition and lowered transparency, the Ministry in their

written submission to the Committee, stated that the standard and quality of equipment required for the naval warships were extremely stringent in terms of the specifications. At most times these specifications could not be met by the commercially available equipment. A detailed assessment of the equipment offered by the OEM *vis-à-vis* the requirements of the Indian Navy was undertaken by the Professional Directorates before the vendor was shortlisted for supply of the equipment. These specifications include the ability to withstand shock, stealth requirements like Structure Borne Noise and Air Borne Noise, reliability, maintainability, adherence to defence/military standards during manufacture etc. Further, limiting the vendor base also resulted in standardization of the equipment and avoids equipment proliferation leading to lesser inventory holding cost and improving availability of the spares in the Material Organizations. New vendors who wished to offer their equipment were encouraged and given an opportunity and the vendor list was constantly updated based on availability of equipment that were able to meet the naval/military standards.

119. When the Committee sought to know the meaning and the purpose of the Proprietary Article Certificate (PAC) issued by the Navy to the vendors, the Ministry in their written submission to the Committee, explained that certain items, particularly equipments, were the propriety product of a manufacturing firm. Such items were only available with that firm or their dealers, stockists or distributors as the detailed specifications were not available for others to manufacture the item. Situations may also risen when, for standardization of machinery or ensuring compatibility of spare parts with the existing sets of equipment, as per the advice of the competent technical expert, goods and services had to be obtained from a particular source. In such situations, a Propriety Article Certificate (PAC) may be issued to the original equipment manufacturer (OEM) and items procured on PAC basis from that particular firm or its authorized dealers, stockists or distributors in accordance with serial 4 of annexure 1 to NI 1/S/2006 and para 4.5.1 of DPM - 2009.

Contracts for equipment and spares could be awarded directly to a firm holding a PAC for the particular equipment. This had a twofold benefit of ensuring genuine spares/equipment which were directly procured from the Original Equipment Manufacturer and the middlemen were obviated from the process.

120. Further, when the Committee desired whether the importance of PAC in awarding defence contracts was a pre-requisite, the Ministry in their written submission to the Committee, stated that as far as possible, items of general nature were procured through competitive bidding. However, manufacturer specific items of equipment, machinery and spares required for specific use in the Navy were required to be procured on PAC basis for reasons of fitness, availability, quality and standardization. The PAC in case of Weapons and Sensors were not used for procurement of main equipment. All units/sub-systems/components used in the main equipment manufactured by the particular OEM were proprietary of the firm or his authorized sub-vendor. Accordingly, PACs were issue to facilitate product support in procurements of the spares/requisite support services. Certain items, particularly equipments, were the propriety product of a manufacturing firm. Such items were only available with that firm or their dealers, stockist or distributors as the detailed specifications were not available for others to manufacture the time. Situations may also have risen when, for standardization of machinery or ensuring compatibility of spares parts with the existing sets of equipment, as per the advice of the competent technical expert, goods service had to be obtained from a particular source. In such situations, a Propriety Article Certificate (PAC) could be issued to the original equipment manufacturer (OEM) and items procured on PAC basis from that particular firm or its authorized dealers, stockists or distributors in accordance with serial 4 of annexure 1 to NI 1/S/2006 and para 4.5.1 of DPM 2009. Contracts for equipment and spares could be awarded directly to a firm holding a PAC for the particular equipment. This had a twofold benefit of ensuring genuine

spares/equipment, were directly procured from the Original Equipment Manufacturer and the middlemen were obviated from the process.

121. The Committee have also been informed that no separate PAC was required to be issued to Defence PSUs. PAC status was accorded to other Indian PSUs as and when required and merited based upon the necessity with respect to quality, availability and standardization and ensuring compatibility of spare parts with the existing sets of equipment, as per the advice of the competent technical authority. The criteria for consideration for award of PAC status to foreign vendors also remained the same as that for Indian vendors as per para 4.5.1 of DPM - 2009. 14 International Firms and 03 Domestic Firms have been accorded PAC status for various equipment.

122. When the Committee sought the details of the initiatives being taken by the Indian Navy/Ministry to identify new vendors globally, the Ministry, in their written submission to the Committee, stated that identification of new vendors was undertaken as part of induction of new systems through the process of RFI, as stipulated in DPP-11. The refining of vendor base was continuous process. The refining was done through RFIs, capability demonstration during seminars, exhibitions and literature study from the open source/various domains including through Defence attaches posted at different countries abroad. Perspective vendors were requested to submit their products for evaluation of Indian Navy authorities on NC-NC basis. Induction of LED based lights, Automated Fire and Flood Alarm/Warning systems, Indigenous Rocket launchers, Indigenous Torpedo Tube launchers etc. had been progressed through such efforts in increasing the vendor base.

123. Further, continuing the measures that had been taken by the Indian Navy/Ministry to ensure timely delivery of weapons/sensors/parts/equipment by the vendors, in their written submission to the Committee, the Ministry have stated as under:

(a) Periodic monitoring of the deliver/project schedules by the Professional Directorates, the APSO and subsequently at the PSO level was undertaken. Further, the Navy had been strict in imposing of LD clause to ensure minimal delays in deliveries. Further, inordinate delays were taken up even at the highest level of Inter Governmental Cooperation meetings.

(b) 02 firms were observed to be erratic in their performance. Out of this, one firm (M/s Indocem, Mumbai) was debarred/ deregistered for tender issue. In the case of the other firm M/s ROS(I), the PACs had not been renewed. However, these were related to repairs and support issues and not to main equipment induction. Further, the Navy had been strict in imposing of LD clause (to serve as a deterrent) to:-

(a) Indigenous Rocket launchers;

(b) Indigenous Torpedo Tube launchers; and

(c) Wind Speed and Direction System.

124. The Committee have also been informed that the Indian Navy/Ministry had identified any firm whose performance was not up to the mark and was found erratic, the Ministry in their written submission to the Committee, stated that M/s KPCL had been given a tender holiday up to 31 Dec 2013 for the supply of gear boxes due to sub optimal performance of gearboxes supplied by the firm for the WJFACs. However, the firm was being encouraged to collaborate with established gear box OEMs to improve upon the design and technology.

125. When the Committee sought to know whether any vendor had been blacklisted or given tender holiday, the Ministry in their written submission to the Committee, stated that M/s KPCL had been given a tender holiday for the supply of gear boxes. However, shortlisted OEMs including indigenous vendors like M/s Walchandnagar Industries Limited and M/s Elecon had been identified and shortlisted for supply of gear boxes for the ongoing projects.

126. The Committee have also been informed that the process of evaluation of vendors was done according to laid down procedures. The new OEMs were encouraged to present equipment on offer and were selected based on the OEM's ability to meet the stringent IN requirements. The vendor assessment

was carried out by checking the technical compliance to the various military/defence standards, shock specifications etc. Periodic site visits by Professional Directorate reps were conducted to evaluate the technical capability of the firm. New OEMs were inducted after a thorough assessment of the technical capabilities of the vendor.

127. Moreover, the vendor base for all engineering equipment had constantly been expanded based on the availability of OEMs who were capable of supplying the equipment according to the Indian Navy requirements and also provided assurance of support in terms of spares and services during the life time of the equipment/ship. In the case of Weapons and Sensors, the vendor base was limited. There were very limited firms who had the capability world over to cater for the technology of Weapon and Sensors. However, prior every induction of a new equipment or capability an elaborate RFI procedure was followed to maximize the vendor base. A few examples where the vendor base had been increased in the recent years are as follows:-

(a) Submarine EKM Batteries;
(b) EBXL Electrical Cables;
(c) Automatic Fire Alarm system;
(d) Automatic Flood Warning system;
(e) LED Lights;
(f) Indigenous Rocket Launchers;
(g) Indigenous Torpedo Tube Launchers; and
(h) Wind Speed and Direction System.

128. When the Committee enquired whether the Indian Navy would now be able to increase competition, accountability and transparency in defence procurement with the increasing expansion of its vendor base, the Ministry, in their written submission to the Committee, stated that the increase in vendor base would definitely aid in increasing competition in defence procurement owing to a larger number of OEMs for supply of the same equipment. Expanding vendor base had resulted in greater competition in Reverse

Osmosis Plants, AC and Ref Plants, pumps, centrifuges and other auxiliary equipment to name a few.

129. On being enquired about R&D expenditure in warship building, the Vice Chief of Naval Staff, during oral evidence, stated as under:

"I fully agree with the suggestion given by Mr. Chairman (PAC) that there should be more expenses and attention towards research and development. You talked about technology. If we have to develop technology in our own country, it will be very essential to have research and development. DRDO has a great contribution therein and it will have to get involved more. There is need to give more time and efforts towards research and development."

130. Further, the Committee sought to know the Country's position in research and development on the construction of naval warships, the Ministry, while informing the Committee, stated that, as far as R&D activities of defence shipyards were concerned, following may be taken note of:-

MDL. In case of MDL built Naval ships, Navy was the principal designer and undertook all basic design concepts, simulation tests and selection of major systems and equipment. Ship building process was not R&D intensive, however, MDL upgraded the practices and undertook the detailed design of the ships being built in the yard. MDL has earmarked ₹ 30 crore towards R&D for the current year and as on date already spent ₹ 32.2 crore.

GRSE. For the year 2012-13, GRSE had earmarked an amount of ₹ 49 Lakh for the R&D which was 0.5% of PAT as per the DPE guidelines. Till 31st December 2012, GRSE had spent ₹ 46 Lakh and company was likely to spend around ₹ 50 Lakh by 31st March 2013.

GSL. GSL had its own R&D team and built ships to its own design for the Indian Navy and the Indian Coast Guard. GSL was annually investing in R&D and developing newer platforms with better endurance fuel efficiency and higher speeds. Also R&D was being done on ships with varied operational roles. The shipyard spent about 0.5% of their PAT per R&D activities.

131. Further, the Committee wanted to know the number of skilled manpower deployed for Research and Development on the construction of naval warships in India, the Ministry in their written submission to the Committee, stated as under:

MDL. In both shipbuilding and submarine Research and Design centres, in excess of 150 Design Executives and 300 highly skilled Design staff were deployed.

GRSE. For the activities related to R&D of construction of ships, an approximate 25 number people were working in various aspects of shipbuilding.

GSL. GSL had deployed approximately 60 skilled manpower for Research & Development on the construction of Naval warships.

132. The Committee sought to know the measures taken by the Ministry/Indian Navy to prevent delays in indigenous construction of Indian naval warships, to which the Ministry replied that a focused attempt was being made to delays associated with weapons and sensors. While most weapons and sensors had traditionally been imported, attempts were being made to indigenize the same. The private Indian industry had also been encouraged to develop weapons/sensors and IRL, ITTL were examples of success on this front. Collaborative efforts to build missile systems by DRDO had also been taken up, which were eventually expected to fructify into pure indigenous systems. While all these efforts were being vigorously pursued, results of the same would only be seen in the following 5-6 years. Dedicated efforts were also being made to ensure freezing of equipment at relatively early stages of the project and firm dates for provision of binding data of all major equipment were included in the contract in consultation with the shipyard. A due assessment of shipyard's capacity was undertaken prior placement of order to ensure, the capacity constraints at the yard did not result in project delays. Further, infrastructure upgradation through modernization projects were being undertaken in all major DPSU shipyards to leverage the advantages offered by modern ship building techniques. Strict and regular monitoring procedures at various levels had been put in place and were being strictly adhered to. Corrective actions identified by these monitoring processes were formally promulgated and implementation ensured. While the above measures would help in reducing delays in shipbuilding projects, the same couldn't be totally eliminated. Such delays were not unique to Indian warship building industry as time over runs were prevalent even in shipbuilding projects being

undertaken in advanced countries. In addition to the above, the defence shipyards had taken following measures to reduce delay in construction of ships:-

(a) Creation of infrastructure to meet the challenges of modern warship building;

(b) Adoption of modular construction techniques;

(c) Imbibing modern technology such as CNS pipe bending machines, plate cutting machines etc;

(d) Implementation ERP solutions to speed up the processes;

(e) Delegation of financial and administrative powers to project teams to speed up the decision making processes; and

(f) Regular monitoring of project activities at various levels within shipyard.

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PART – II
OBSERVATIONS & RECOMMENDATIONS

1. Introduction: India is a major maritime nation with vital economic and security interest linked to the sea. As a result, Indian Navy's pivotal role revolves around deterrence to security threats. However, India's emergence as a strong economic power in the region as also its geographical positioning has added a significant peacetime role to the Indian Navy as well. It has become imperative for the Indian Navy to be equipped with requisite number of ships in a timely manner to meet these multifarious challenges. The Navy has, in its Maritime Capability Perspective Plan (MCCP), formulated in 2005 not only projected strong navy with combat warships, but has based its vision of ship acquisition on construction of its ships at Indian Shipyards viz. the three Defence Public Sector Units (DPSU) shipyards engaged in the construction and production of naval warships namely, Mazagaon Dockyard Limited (MDL), in Mumbai, Goa Shipyard Limited (GSL) in Goa and Garden Reach Ship Builders and Engineering Limited (GRSE) in Kolkata. As such, the performance of the indigenous ship building capability is critical to Navy achieving operational efficiency and preparedness. Although, India has attained a credible capacity in warship-building over the years, the three Defence PSU shipyards entrusted with their responsibility differ widely in their role, areas of strength and outputs. Although the Competent Financial Authority (CFA) approved the indigenous constructions of 16 frigates, destroyers and corvette class ships to be built in these DPSUs, under project 15A, 16A, 17 and 28, performance audit has reviewed three projects - P15A (Destroyer), P 17(Frigate) and P28 (ASW Corvettes) respectively. Warship building, on its own, is a complex and time consuming activity. Nonetheless, the extent to which Indian Navy ship building projects are delayed and the scale of under-estimation reveals a deeper malaise. The findings of audit has brought several issues in the ship building practices and procedures such as delay in ship building, poor cost estimation, undue delay in the conclusion of the contracts for Project 15A and Project 17, lack of adequate infrastructural facility, non-finalization of structural designs,

slippage in delivery and several issues related to procurement and slackness in financial management, which have been dealt with in the succeeding paragraphs.

2. <u>Warship Building:</u> The Committee find that Naval Ship-building, being a complex multi disciplinary engineering activity, requires significantly higher shipyard effort and dependence on a large number of agencies. A ship construction programme has a number of agencies which interact with each other, including feasibility studies, design issues, system interaction, construction, test and trials. The Committee also find that besides being a multi disciplinary engineering activity, construction and monitoring of ship-building involves various Directorates. What is more important to note is that at Naval Headquarters itself, the activities of construction and monitoring are separated in two wings. The Committee find that there are multiple responsibility centres in the Integrated Headquarters, depending upon their role and responsibility towards ship building but without a single control point which would enforce co-ordination and overall control. The Committee feel that although India has credibly demonstrated the capability in indigenous construction of naval warships and is one of the few Navies in the world capable of designing and building warships, yet, performance in this area needs to be improved as the operational preparedness of Indian Navy depends on an efficient and effectively managed warships construction projects. The Committee, therefore, recommend that single point accountability for ship building project should be fixed after taking due care of all the aspects related to ship building. They feel that such an unity of command would ensure better span of control and would result in effective management of ship building processes and procedures. They recommend that enquiry be ordered against officials responsible for all the irregularities pointed out by Audit in naval warship building.

3. <u>Cost Estimates and Revision in Costs:</u> The Committee are dismayed to note that estimation of costs in the case of P-15A, P-17 and P-28 ships had been done as a formality for obtaining approvals to ship building projects from the Government rather than as a professional and meaningful exercise. The

Committee note that in case of P-15A ships, the cost was calculated with 1999 as the base year leading to an increase of 226% in the initial estimate. In the case of P-17 ships, the Committee noted that cost estimate was based on the year 1994. The steep rise in the rate was due to erratic supplies from Russia, modernization of Mazagaon Docks and cost of B&D spares. Due to this the build period escalated from 60 months to 78 months. For P-28 ships, the cost escalated from ₹ 3051.27 crore to ₹ 7852.39 crore. The production was to start in March 2003 but it commenced only in March 2006. The Committee also note that non-availability of warship quality steel and other supplies also affected the time schedule. From the above, the Committee are of the considered view that since warship production directly affects the security preparedness of any country, the Committee find that accurate initial estimate is affected due to lack of accurate inputs necessary for forecasting cost and delivery of a warship. They, therefore, desire the Ministry to take punitive action against officials responsible for preparing inaccurate estimates. The Committee, also, exhort the Ministry to make all out efforts to ensure calculation of accurate cost of a warship which would also determine the delivery time. To supplement this, there should be an institutionalized mechanism in NHQ and the Ministry to verify the correctness of budgetary costs submitted by DPSU shipyards. Besides, the Committee expect the NHQ and the Ministry to conduct independent cost estimation by using internationally accepted best practices so that cost becomes competitive and the warships get completed within the approved budget and get delivered within the stipulated time.

4. <u>Cost Escalation:</u> The Committee note that cost of building a ship includes labour, material, equipment, other miscellaneous costs and a profit margin. The Committee also note that the manufacturing of naval combat ships is quite complex and time consuming. During the course of examination of this subject, the Committee noted that various factors apart from the above lead to cost escalation in warships production. The Committee have been given to understand that delays in delivery of equipments, indigenous development, Soviet disintegration, labour overhead, obsolescence, lack of industrial support base

and state of the art technologies were some of the factors causing cost escalation. The Committee are also of the view that weapons technology is not available *"off the shelf"* and takes time for manufacturing the desired end product. The Committee also note that some escalation in cost happen due to the complexities involved in warship production and manufacturing. Yet, the Committee feel that while sanctioning funds for warship production project, certain factors should be thoroughly examined which could act as a safeguard against cost escalation midway during the warship manufacturing process. The Committee desire that the Ministry should identify and select only those vendors who have a proven track record of supplying materials on the scheduled delivery date thereby arresting time and cost escalation. They also desire that sanctions for the warship constructions should be more realistic, based on appropriate variable criterion and should contain provisions for escalation of the anticipated build period so as to avoid significant cost revisions at a later date. The Committee feel that Defence PSUs and Shipyards be augmented with production capacities to ensure timely production of naval warships. The Committee feel that to achieve this, joint ventures and MoUs be explored with those nations who have traditionally and historically been building naval warships. The Committee note that majority of the military hardware in use in our Country is of Soviet origin and make. Since the disintegration of the Soviet Union, many ongoing and planned projects were put in limbo affecting the military capabilities of our Country. The Committee, therefore, desire that the Government should focus on further promoting indigenous production of naval warships and the military hardware to give boost to the Government's "Make In India" campaign. The Committee are of the considered view that wage revision factor cannot be overlooked and ignored as monetary benefits are certainly intended for the work force to work more efficiently and as a reward for their hard work. The Committee urge upon the Ministry that while calculating the cost of a certain project, wage revision and labour cost should also be kept in mind so that the final project cost totals close to the final sanctioned amount and does not lead to cost escalation midway through the project. The Committee note that there is a long gestation period in

warship design and life of the ship is between 20 to 30 years and so up-gradation of weapons and sensors becomes all the more necessary to keep the warship relevant in combat role. The Committee feel that the Ministry in consultation with experts, engineers and others should focus on reaching to an accurate assessment of the warships' relevance, keeping in mind the gestation period and the operational life. The Committee observe that a lot needs to be done to develop ancillary units and an industrial base which is the backbone of any major industrial production unit. The Committee desire the Ministry to take up this matter with other Ministries/Departments/Organisations for creating and developing an industrial base across the country and setting up of ancillary units so that manufacturing capability, not only in Defence, but in other sectors as well is enhanced by such an infrastructure. Lastly, the Committee feel that the Ministry should take measures to develop scientific temperament in the prestigious institutions engaged in R&D so that state of the art technologies are developed, which would be useful not only in Defence sector but in other sectors as well helping in the overall development of the Country.

5. <u>Delay in Signing of Contract:</u> The Committee find that the Defence Procurement Procedure (DPP), as approved in July 2005, stipulates that contract between the Ministry and the shipyard is to be signed within a period of 12 to 18 months from the date of approval in case of new ships and within 9 to 12 months for repeat orders. The Committee note that in case of P-15A and P-17 ships, money had been paid to the shipyards much before the contracts had been signed. Also, for P-28 project, 54.18 percent of the sanctioned amount had been paid without the conclusion of contract. The Committee wonder as to what was the reason for the Ministry to make such a move. It has also come to the notice of the Committee that delays largely take place because of weapon and sensors. While observing that many of the projects of the Navy are delayed due to delay on the part of the DRDO to provide timely R&D support, the Committee are of considered view that the Ministry should impress upon DRDO to provide R&D support within a strict time bound manner to DPSUs to encourage Navy's quest

for self-reliance. The Ministry has assured that all future projects would be regulated as per DPP 2011 and instances of advance sanctions of Money prior to a formal contract would be avoided. The Committee are happy to note that the Ministry and the Navy are committed to make new ships with something called 'integrated construction', which is being used by all the modern warship building shipyards in the world. However, the Committee desire that conclusion of contract with the shipyards should be within the prescribed period in order to facilitate proper execution and monitoring of the project and to avoid time overrun. They also desire that efforts should the made to clarify intermediate milestones and responsibilities of both shipyard and the Navy to be fulfilled within the stipulated timeframes.

6. <u>Implications of Contractual Terms on Construction Activities:</u> The Committee note that P-17 and P-15A ships were "fixed price" contracts but these were signed years after getting the necessary approvals thereby flouting the terms of the contract. The Committee further note that since warship building is a technology intensive process and some delay regarding the procurement of sensitive gadgets and equipments could not be prevented, the Committee desire that concerted efforts should be made to reduce the procurement time by the Ministry as well as the Indian Navy and the concerned shipyards. The Committee note with concern that cost escalation midway through the project exceeding the original sanction is the result of increase in prices of the imported equipments being procured through foreign vendors. The Committee also note that since development of indigenous technologies is given due importance by the present Government, much needs to be done in this regard. Therefore, the Committee exhort the Ministry to show foresight and to do proper due diligence while drafting contracts and selecting a foreign vendor so that contractual terms shouldn't become a strangehold in the production of warships and would also lessen the dependence on foreign vendors. The Committee feel that taking a small step in this direction could help in the production of frontline combat naval platforms which is the need of hour for the Country's security.

7. <u>Release of funds and monitoring of Advances:</u> The Committee are surprised to note that large amounts were sanctioned to shipyards as advance even on the last working day of the financial year. They find that between 2004-05 and 2006-07, advances totaling to more than ₹ 1000 crore were sanctioned in March with respect to Projects P-15A and P-17. The Committee feel that such an act on the part of the Ministry in releasing funds in March without any linkages with immediate utilization are clear testimony of instances of 'parking of public funds' outside the Consolidated Fund of India, which amounts to be a grave financial irregularity and the Committee desire that responsibility be fixed against the erring officials. They presume that the only intention, perhaps, was to avoid lapse of funds. Moreover, the Committee are dismayed to note that no mechanism exists to reconcile the expenditure booked against the projects in the books of Principal Controller of Defence Accounts (PCDA) and the respective DPSUs. The Committee, therefore, recommend that PDPA (Navy) should maintain a statement of accounts for each ship building project at the end of each financial year. They also desire that the liquidation of advances paid to the former agencies for procurement of equipment, etc. should also be tracked by PDPA (Navy) through an effective and reliable mechanism. The Committee would also like to be apprised of the action taken in this regard.

8. <u>Nomination and Readiness of Shipyards:</u> The Committee have been informed about the India Navy's 15 year ship building plan to augment force levels by 2017. The Committee are dismayed to note that the different class of ships were in parallel production at Mazagaon Dock Limited, Mumbai *viz.* P-17 and P-15. As a result, construction of P-17 commenced late by 17 months. Similarly, construction of P-28 warships commenced after a delay of three years from the date of sanctioning. What is more disturbing for the Committee to note is that while the project costs are now estimated at more than double of the original estimate, progress of ship building itself is very slow. The Committee, therefore, desire that Ministry may revisit its policy of getting its warships built only through DPSUs and should think of including capable shipyards either in

public or private sector also. They also urge upon the Ministry to be more judicious in selecting shipyards that possess adequate capacity and infrastructure, keeping in view the features of the ships to be built and ensure adhere to timelines and costs. The Committee feel that had the selection of shipyard been done by taking into it's preparedness, the delay and the increase in cost would not have been that high. The Committee, therefore, urge upon the Ministry to fix responsibility for such lapses of the officials under intimation to the Committee.

9. <u>Modernization of MDL and GRSE:</u> The Committee are deeply concerned to note that the modernization cost of MDL escalated from ₹ 423 crore to ₹ 826.11 crore, an increase of 96%, which increased the cost of construction of P-15A warships by ₹ 175 crore for a delay of 24 months. The Ministry also note that despite ₹ 180 crore being sanctioned for infrastructure development at GRSE, the yard was unable to upgrade infrastructure even after 7 years of sanction. The Committee wish to impress upon the Ministry and the shipyards not to undermine the importance of infrastructural upgrade and modernization of the shipyards but to initiate timely measures for their adequate expansion and modernization. They desire that the Ministry should revisit the existing practice of shipyard modernization plans during the construction or even at the time of selecting of shipyard. The Committee are of the considered view that all shipyards should be modernized and necessary resources be made available to them so as to bring them at par with the best shipyards of the world. The Committee, therefore, recommend that modernization programmes be restructured and implemented expeditiously so that the production of warships is in sync with the demands of the Indian Navy.

10. <u>Slippages in Delivery:</u> Slippages in delivery is yet another issue of concern for the Committee. The Committee have been given to understand that delivery period of the warships as envisaged were extended *viz.* for P-15A target was of 78 months but was extended to 129 months. The Committee note that the extended time was almost double of the originally envisaged timeline. The

Committee find this unacceptable as the shipyards' efficiency has not improved though the claims of the Ministry in this regard state otherwise. The Committee also note with displeasure the Ministry's repeated claims regarding the causes for delays. The Committee are of the view that shipyards engaged in production of naval warships haven't been upgraded to the desired level as they seem to be unfamiliar with new technologies and processes being acquired and implemented across the world. Therefore, the Committee desire that the Ministry try to expand their domestic vendor base so that dependency on international suppliers would gradually reduce thereby automatically arresting delays and protracted negotiations. The Committee feel that in keeping with modern notion that a warship is built around weapons and sensors, emphasis should be given to timely selection and finalization of weapons and sensors. Moreover, a ship building project should be seen with definite timelines and milestones with deadlines for all stakeholders for fulfilling their respective obligations. The Committee, therefore, urge upon the Ministry to fix responsibility in case of non-performance/delay under intimation to this Committee.

11. <u>Monitoring Mechanism:</u> The Committee note that construction of warship is a complex task involving multiple agencies which require close coordination and constant monitoring. The Committee have been informed that review meetings are held every six months to review on-going projects. The Committee are also happy to note that Naval Warship Overseeing Team of the Indian Navy is stationed at the shipyards for close scrutiny of the projects. The Committee observe that taking cognizance of anticipated and unanticipated factors affecting cost and time overruns in the warship building industry, a more realistic assessment for the production of warships needs to be done. For this, the Committee desire that special experts in the field be roped in so that the delivery schedules may be more accurately assessed and used effectively for monitoring parameters. The Committee note with concern that Apex level Committee Meetings were not held in the year 2010. The Ministry in this regard submitted that henceforth, the meetings would be held periodically as stipulated in DPP-

2011. The Committee desire that since Apex level Committee Meetings were crucial for reviewing and monitoring warship production, they be held regularly so that any anomalies as noticed could be immediately brought to notice and be rectified as early as possible.

12. <u>Procurement Procedure:</u> The Committee note that the Indian Navy nominated vendors for various equipment, weapons and sensors and the designated shipyards, in turn, procured directly from the vendors. The Committee are of the considered view that financial prudence demands that the Indian Navy co-ordinate with shipyards in the procurement of various equipment. The Committee feel that since globalization, the market for Defence related equipments has also been opened up and new suppliers are entering into the market. The Committee desire that the Ministry should expand their vendor-base by incorporating both domestic as well as international, so that a comprehensive vendor base is developed which will not only curtail dependence on a single vendor but also will ensure supply of equipments in a timely manner. The Committee feel that this could help in increasing healthy competition and create an open transparent tendering system. The Committee view this as mutually beneficial to the Indian Navy, the vendors/suppliers and the Nation as whole.

NEW DELHI;
<u>21st December, 2015</u>
1 Pausha, 1937 (*Saka*)

PROF. K.V. THOMAS,
Chairperson,
Public Accounts Committee.

CONFIDENTIAL

MINUTES OF THE TWENTY-SECOND SITTING OF THE PUBLIC ACCOUNTS COMMITTEE (2012-13) HELD ON 31ST JANUARY, 2013

The Public Accounts Committee sat on Thursday, the 31st January, 2013 from 1530 hrs. to 1715 hrs. in Room No. '53', Parliament House, New Delhi.

PRESENT

Dr. Murli Manohar Joshi - Chairman

LOK SABHA

2. Shri Sanjay Nirupam
3. Shri Shripad Yesso Naik
4. Shri Abhijit Mukherjee
5. Shri Ashok Tanwar

RAJYA SABHA

8. Shri Prasanta Chatterjee
9. Shri Sukhendu Sekhar Roy
10. Shri J.D. Seelam
11. Shri N.K. Singh
12. Prof. Saif-ud-Din Soz

LOK SABHA SECRETARIAT

1.	Shri Devender Singh	- Joint Secretary
2.	Shri Abhijit Kumar	- Director
3.	Shri M.L.K. Raja	- Deputy Secretary
4.	Shri S.L. Singh	- Under Secretary

REPRESENTATIVES OF THE OFFICE OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

1.	Ms. Vijaya Moorty	Dy. C&AG (Defence, Communication & Railway)
2.	Ms R. Rajalakshmi	Director General
3.	Shri C.M. Sane	Principal Director (Navy)

REPRESENTATIVES OF THE MINISTRY OF DEFENCE

1.	Shri Shashi Kant Sharma	-	Defence Secretary
2.	Shri R.K. Mathur	-	Secretary (Defence Production)
3.	Smt. Priti Mohanty	-	FA(DS)
4.	Dr. S.B. Agnihotri	-	DG (Acquisition)
5.	Shri Ashok Kumar Gupta	-	Additional Secretary (Defence Production)
6.	Shri Ashok Meena	-	Joint Secretary (Naval Systems)
7.	Mrs. Preeti Sudan	-	JS &AM (MS)
8.	Shri Prem Kumar Kataria	-	Additional FA (K) and JS
9.	Shri Rajnish Kumar	-	Additional FA (RK) and JS
10.	Smt. Arti Bhatnagar	-	FM (MS)

REPRESENTATIVES OF INDIAN NAVY

1.	Vice Admiral R.K. Dhowan	-	VCNS
2.	Vice Admiral K.R. Nair	-	CWP & A
3.	Rear Admiral A.K. Saxena	-	DGND

REPRESENTATIVES OF DEFENCE SHIPYARDS

1.	Rear Admiral (Retd.) R.K. Shrawat	-	CMD, MDL
2.	Rear Admiral (Retd.) A.K. Verma	-	CMD, GRSE
3.	Rear Admiral (Retd.) Vineet Bakshi	-	CMD, GSL
4.	Rear Admiral (Retd.) N. K. Mishra	-	CMD, HSL

2. At the outset, the Chairman welcomed the Members, the representatives of the Office of the C&AG of India, the Ministry of Defence, the Indian Navy and the Defence Shipyards to the sitting of the Committee. Apprising that the meeting had been

convened to take oral evidence of the representatives of the Ministry of Defence on the subject 'Indigenous Construction of Indian Naval Warships' based on C&AG Report No. 32 of 2010-11 (Performance Audit), the Chairman impressed upon the witnesses not to disclose the contents of the deliberations of the Committee to any outsider, especially to the members of the Print and Electronic media.

3. The Chairman then asked the Defence Secretary to give a brief account of the indigenous construction of Indian Naval Warships and the Ministry's stance on Audit findings. Upon a request made by the Defence Secretary, the Chairman gave permission for a Power Point presentation on the subject.

4. In their Power Point presentation, the representatives of the Ministry highlighted the historical evolution of the indigenous production of naval warships and the current status of the various naval warships being constructed at various defence shipyards across the country. The representatives of the Ministry, the Indian Navy and the Defence Shipyards also attended to various queries raised by the Committee on the deficiencies, short comings and lapses in the indigenous construction of Naval warships which, *inter-alia,* included delays in shipbuilding, poor cost estimation, undue delay in conclusion of the contracts; inadequate infrastructure at the Defence PSU shipyards, delays in finalizing design and technology, price inefficiencies, lack of competition and transparency in procurement and improper financial management. The representatives of the Defence Shipyards then explained about the infrastructure at their respective shipyards.

5. As some queries required detailed and statistical reply/information, the Chairman observed that a consolidated questionnaire incorporating all those points in addition to some other points would be sent to the Ministry seeking written reply. He asked the Defence Secretary to furnish the requisite reply urgently. The Defence Secretary assured that he would comply.

6. The Chairman thanked the representatives of the Ministry of Defence, Indian Navy and Defence Shipyards for appearing before the Committee and furnishing the available information on several issues on the subject.

The witnesses then withdrew.

A copy of the verbatim proceedings of the sitting was kept on record.

The Committee, then, adjourned.