

**HUNDRED AND SIXTY-EIGHTH
REPORT**

**PUBLIC ACCOUNTS COMMITTEE
(1988-89)**

(EIGHTH LOK SABHA)

**DEVELOPMENT OF
WEAPON SYSTEM 'X'**

**MINISTRY OF DEFENCE
(DEPARTMENT OF DEFENCE RESEARCH &
DEVELOPMENT ORGANISATION)**



*Presented to Lok Sabha on 28-4-1989
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**LOK SABHA SECRETARIAT
NEW DELHI**

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PART II

*Minutes of the meetings of the Public Accounts Committee held on:
12.9.1988 (AN)
&
26.4.1989 (AN)

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(1988-89)

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*Appointed as Chairman w.e.f 5.9.1988 vice Shri C. Madhav Reddy who resigned from Chairmanship of the Committee.

**Appointed w.e.f. 7.12.1988 vice Shri Kalpanath Rai who ceased to be a member of the Committee on his appointment as a Minister of State.

INTRODUCTION

1. I, the Chairman of the Public Accounts Committee, as authorised by the Committee do present on their behalf, this Hundred and Sixty-Eighth Report on a Weapon System 'X'.

2. In this Report, the Committee have pointed out that there has been a steep increase in the estimated cost of the project for development of the weapon system from Rs. 15.50 crores to Rs. 280.80 crores. The bulk production which was scheduled to commence originally by April 1984 is yet to commence. As expenditure on the project in some of the establishments/laboratories had already exceeded their sanctioned estimates prior to the revision of estimates in 1987, and production would not commence by the scheduled date. They have doubted whether the project will be completed within the sanctioned estimate of Rs. 280.80 crores. The Committee, therefore, recommended that a very strict watch be kept by the Ministry to ensure that the expenditure is contained within the sanctioned estimate of Rs. 280.80 crores. The Report also points out that foreign exchange content of the project estimate has increased phenomenally from Rs. 2.32 crores in the estimate sanctioned in May 1974 to Rs. 102.32 crores in the latest estimate sanctioned in May 1987. The Committee have also observed that the project of developing the weapon system 'X' entirely by indigenous effort is not being achieved fully.

3. The inordinate delay in the completion of the project has been sought to be justified on the ground that the GSQR has been revised twice by the user since the project was sanctioned. The Committee are of the opinion that in the case of time taking developmental project involving a fast developing technology, updating of requirements by the user from time to time is unavoidable and should have been taken care of in planning the schedule of completion. The Committee have considered that the time so far taken for the development of the weapon system 'X' as excessive.

4. The Committee have observed that in view of the fast pace of advancement of technology there is inherent danger of obsolescence of the technology planned. The Committee have hence expressed the hope that the Ministry will take every care to ensure that the final outcome of the development incorporates the latest technological advances, in the field.

5. The Committee have urged the Government to keep unremitting vigil on the progress of the project, ensure speedy solution of the problems if any, and exert constant pressure on the concerned laboratories/establishments for expeditious completion of the project so that bulk production may commence at the earliest consistent with quality.

6. Considering the time already taken and expenditure incurred to develop the sub-system 'A' and the substantial expenditure necessary for import of it for bulk production of the weapon system 'X', the Committee have expressed hope that suitable measure would be taken to expedite the development of sub-system 'A' of the required capacity.

7. The Public Accounts Committee examined the development of the project at their sitting held on 12 September, 1988.

8. The Committee considered and finalised this Report at their sitting held on 26 April, 1989. The Minutes of the Sittings form Part II* of the Report.

9. For reference, facility and convenience, the observations and recommendations of the Committee have been printed in thick type in the body of the Report and have been reproduced in a consolidated form in Appendix to the Report.

10. The Committee place on record their appreciation of the commendable work done by the Public Accounts Committee (1987-88) in obtaining information for the Report.

11. The Committee express their thanks to the officers of the Ministry of Defence, Departments of Defence Research and Development Organisation and Defence Production for cooperation extended by them in giving information and tendering evidence before the Committee.

12. The Committee also 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;
April 26, 1989

Vaisakha 6, 1911(S)

AMAL DATTA
Chairman,
Public Accounts Committee.

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REPORT

1. *Introductory*

1.1 The progress made towards development of an indigenous Weapon System 'X' has been announced by the Government from time to time. In view of the importance of the Weapon System X and the urgency of its requirement for the defence preparedness, the Committee undertook an examination of the progress of the project, for the development of 'X'.

1.2 Based on the general staff qualitative requirement (GSQR) presented by the Army in August 1972, the project for development of 'X' was sanctioned in March 1974. The cost of the project was estimated at Rs. 15.50 crores and the project estimate was sanctioned in May 1974. According to the project schedule envisaged in the sanction, 4 prototypes of 'X' were to be offered for trial by April 1980 and another 8 during the next 2 years by April 1982. The time schedule and the cost estimates have since been revised from time to time. As per the latest revised estimates of the project sanctioned in May 1987, the cost of the project is likely to be Rs. 280.80 crores. The Weapon System X is still under development and has not so far been offered for full fledged army trials. According to the latest indications, manufacture of pre-production series is likely to be completed shortly and bulk production is likely to commence a year thereafter.

1.3 Being a multi-disciplinary project with several systems and sub-systems to be developed upto the qualitative requirements projected by the Army, the development has been entrusted to one principal establishment which is to function in close association with the various sister R&D establishments and laboratories. These establishments/laboratories have been entrusted with the development of specified systems/sub-systems. A Project Director is responsible for project coordination and design integration under the overall guidance and control of the Director of the principal establishment. Six design groups are engaged on the design and development of the various systems and sub-systems to be developed at the 10 establishments/laboratories. The design groups are also responsible for the evaluation of the systems and sub-systems. The assembly of the prototype is done at the principal establishment and the evaluation of the prototype is done by the Trials Division of the establishment in close association with the Design Groups. The targets for the various development activities are determined by the concerned designer. The principal establishment is the main project coordinator and the system integrating establishment.

2. Cost Estimates

2.1 The project for development of an indigenous Weapon System 'X' was sanctioned in March 1974. The project estimates were sanctioned in May 1974 and were revised twice thereafter. The details of the project estimates as sanctioned from time to time are as under:

	Total cost	Foreign exchange content of the total estimated cost	Date of sanction
	(Rupees in crores)		
Original Project Estimates	15.50	2.32(revised to 3.7 in 1/78)	2.5.1974
First Revision	56.55	12.96	22.10.1980
Second Revision	280.80	102.32	5.5.1987

2.2 The actual expenditure incurred on the project upto 30 June 1987 amounted to Rs. 103.35 crores. Asked whether the project would be completed within the latest sanctioned cost estimate, the representative of the Ministry of Defence (Department of Research & Development) stated that barring any unforeseen contingencies it was expected to complete the project within the sanctioned amount of Rs. 281 crores.

2.3 The Committee enquired the detailed reasons for escalation of the estimated project cost from Rs. 15.50 crores to Rs. 280.80 crores. The Ministry stated that at no time there has been any cost over run in this project and the expenditure was always within the sanctioned amount. The Ministry have, however, given the following reasons for increase in the project cost from Rs. 15.50 crores sanctioned in May 1974 to Rs. 280.80 crores sanctioned in May 1987:

(a) Revision of GSQR to include the latest fighting concepts and technologies so as to bring 'X' at par with the world class Weapon System of 'X'.

(b) Cost of development of an indigenous sub-system 'A'.

(c) Requirement of additional prototypes and preproduction series of 'X'.

(d) Import of 42 Nos. of sub-system 'A' envisaged in the revised sanction.

(e) Realistic assessment of the cost of technical and user trials.

(f) Creation of appropriate evaluation centres.

(g) Augmentation of infrastructural facilities in various R&D establishments connected with the project.

(h) Requirement of consultancy services in certain grey areas of technology.

(i) Escalation in cost of materials and stores.

(j) Additional requirement of manpower to cope with the increased workload.

2.4 Concerned over the substantial increase in the project estimates, the Committee enquired about the procedure followed in estimating requirements of funds by various establishments and laboratories engaged in the project and the mechanism in force for control over expenditure. The Director of Resources Management stated during evidence that at the time of accord of sanctions to the estimates, the estimates as projected by the concerned agencies are taken into account and funds are allocated on the basis of the requirements projected by them from the headquarters within the total amount earmarked for the project. He further stated that the overall coordination is done by the principal establishment. In reply to another query the Ministry stated that the main project holder and the different laboratories forming the other work centres have been getting funds for execution of the project task as part of their annual budget sanctions and no separate funds have been allotted to them exclusively for this project on year to year basis. The Ministry added that the expenditure in respect of project tasks incurred by the work centres as well as nodal agencies is consolidated yearly and reported to HQ so as to maintain the cost of the project within the estimated figures.

2.5 Asked to furnish the estimated cost of each system and sub-system and actual expenditure incurred there against, the Ministry furnished the following statement to indicate the estimated cost as projected in the latest sanction and the actual expenditure upto 1986-87:

(Rupees in lakhs)

Sub-systems	Estimated* cost	Actuals
A	436.00	154.04
B	262.00	224.80
C	211.22	795.15
D	111.09	123.70
E	131.70	244.73
F	202.00	216.60
G	15.00	151.13
H	1141.91	416.38
I	580.03	349.30
J	253.68	70.06
K	11.90	55.92

*Sanction accorded in 1980.

2.6 It may be seen from the foregoing table that actual expenditure on C, D, E and F had already exceeded the estimated cost prior to the fresh sanction in May 1987.

2.7 The Committee enquired whether any portion of the salaries paid to the manpower employed in the various establishments and laboratories engaged in the execution of the project is included in the cost of the project.

The representative of the Ministry stated during evidence that "wherever any specific manpower has been sanctioned for this project, the pay and allowances of those people are accounted for against the project expenditure". In this regard the Ministry in a note submitted after the evidence stated as follows:

".....the wages in respect of manpower exclusively sanctioned and positioned for the project work are reflected in the cost of the project and expenditure. However, for different project works, different work centres would have utilised the services of personnel from PE particularly in respect of central services such as workshop, lab. etc. As the services of such people have been used in a number of other projects also, such expenditure on manpower are not accounted for in project but are provided in the budgetary allocations of concerned estt/lab."

2.8 The Ministry further stated that the expenditure incurred on the office of the Programme Coordinator exclusively for the project at the HQ in Delhi is also not booked against the project.

2.9 Pointing out that only the cost of extra manpower employed specifically for the project is included in the project cost, the Committee enquired whether it is possible to work out the cost of the existing manpower in these establishments which is not booked against the project, the representative of the Ministry stated that "we can calculate that."

2.10 As per the initial project sanction, development of the Weapon System 'X' was to be undertaken based on imported subsystem A but with all other subsystems of indigenous design. However, during the course of development, use of some components of imported origin has been resorted to and some systems/sub-systems had also to be imported for study/evaluation purposes. In certain areas, imported technology is also being incorporated in the project. The import of 42 Nos. of sub-system A has cost Rs. 22 crores in foreign exchange.

2.11 The Committee note with dismay the steep increase in the estimated cost of the project for development of the Weapon System 'X'. The project which was originally estimated to cost Rs. 15.50 crores in May 1974 is likely to cost Rs. 280.80 crores as per latest estimates sanctioned in May

1987, the increase being more than 17 times of the originally estimated cost. While escalation in cost may partly be due to revisions in the GSQR and addition of certain new items, the Committee are of the opinion that since most of the expenditure is on salaries and wages the phenomenal increase in cost is also to a great extent due to inordinate delay in the completion of the project. Lamentably, bulk production which was scheduled to commence originally by April 1984 is still to commence. What is more disquieting is that expenditure on the project in some of the establishments/laboratories had already exceeded their sanctioned estimates prior to the revision of estimates in 1987. The Committee are not convinced of the claim of the Ministry that at no time expenditure had exceeded the sanctioned limits. The expenditure incurred upto 30.6.87 was Rs. 103.35 crores which was Rs. 46.80 crores more than the expenditure sanctioned till 4.5.87. Such huge expenditure could not possibly be incurred within the short period between 5.5.87 and 30.6.87. The Committee strongly deprecate such unauthorized expenditure.

2.12 For reasons stated later, the Committee apprehend that commercial production may not start at an early date. The Committee recommend that a very strict watch should be kept by the Ministry to ensure that the expenditure is contained within the sanctioned estimate of Rs. 280.80 crores.

2.13 One of the reasons given for the cost escalation is inclusion of new items in the revised estimate, which were not included in the original sanction. The Committee fail to understand why items such as (i) requirement of adequate number of prototypes and pre-production series before commencement of production (ii) cost of import of sub-system 'A' for the prototypes and pre-production series, (iii) creation of an evaluation centre etc. could not be visualised while framing cost estimate sanctioned in May 1974. Similarly provision for a realistic assessment of the cost of technical and user trials augmentation of infrastructural facilities etc. in the revised estimate is indicative of the casual manner in which the original estimate was finalised and got approved. The Committee deprecate the tendency of getting projects sanctioned by under-estimation of costs generally and also by omission of several essential requirements which can be later incorporated without much trouble because of their essentiality.

2.14 Another disquieting aspect is that the foreign exchange content of the project estimate has increased phenomenally from Rs. 2.32 crores in the estimate sanctioned in May 1974 to Rs. 102.32 crores in the latest estimate sanctioned in May 1987. The increase has been more than 44 times of the provision for foreign exchange in the original estimate. The sanction of March 1974 envisaged development of all systems and sub-systems indigenously except sub-system 'A' for which capability did not exist in the country. Apart from import of 42 Nos. of sub-system 'A' of Rs. 22 crores, some components, systems and subsystems too have been imported for use or study/evaluation purposes. Consultancy services for certain areas of the technology have also been obtained from abroad. Disappointingly, the object of developing the Weapon System 'X' entirely by indigenous effort is not going to be achieved fully.

2.15 The Committee are astonished to note that only the wages and salaries in respect of the manpower exclusively sanctioned and positioned for the project are included in the cost of the project but the cost of the facilities including existing manpower at the concerned Establishments/Laboratories which are availed of in the execution of the project is not accounted for and reflected in the cost of the project. Even the expenditure incurred at the headquarters in Delhi for coordination of the project is not booked against the cost of the project. The Committee are distressed to note that by excluding the appropriate portion of the expenditure on the facilities including existing manpower availed for the execution of the project, the actual cost of the project is grossly understated. It was conceded during evidence that the expenditure reasonably allocable to the project can be calculated. There is, therefore, no valid reason why such expenditure as can appropriately be charged to the project is not worked out and charged to the project in order to ascertain the true cost of the project. The Committee are constrained to observe that the reason may lie in showing expenditure at a much lower figure than what is actually expected to be incurred which is contrary to the principle of accountability to Parliament.

2.16 The Committee have been informed that separate funds are not allotted exclusively for the project on year to year basis and that the various units engaged on the project have been getting funds for execution of the project as part of their annual budget sanctions only. The actual expenditure on the project is not booked separately but the expenditure incurred on the project by the work centres and nodal agencies is consolidated yearly and reported to the headquarters. The actual cost of the project is, therefore, arrived at by consolidating the figures in various reports and not by having a proper accounting system for the purpose of booking expenditure on the project. The Committee are of the view that in the absence of a proper system for keeping account of the expenditure incurred on the project it is not possible to ensure that the figures in the reports of the various laboratories / establishments which are consolidated for ascertaining the cost of the project are accurate and accordingly there is no way in which the Ministry can exercise control on the expenditure. The Committee urge the Government to devise a proper accounting system for projects of this nature so that accountability can be ensured.

3. *Time schedule*

3.1 The sanction of March 1974 envisaged development of all sub systems indigenously except sub system A for which capability did not exist in the country. It was proposed in the programme that though import of the sub system A would be resorted to, steps would be taken to develop and provide the sub system of required capacity over a period of 3-5 years after bulk production of the weapon system commenced.

3.2 The sanction of March 1974 envisaged for following time frame for development of the weapon system 'X'.

- | | | |
|--|---|----------|
| (i) Presentation of outline design-considered as first break point | : | 2 years |
| (ii) Offer of 4 mild steel prototypes for trial considered as second break point | : | 6 years |
| (iii) Offer of 8 armoured prototypes for trial-considered as third and final break point | : | 8 years |
| (iv) Commencement of trickle production | : | 9 years |
| (v) Commencement of bulk production | : | 10 years |

3.3 The projected time schedule for the development of the weapon system X had, however, to be revised due to the following reasons:—

- (i) Before the first four prototypes could be offered for trials, the Army Headquarters had recommended in 1980 major changes in the qualitative requirement of the weapon system.
- (ii) The sub-system A which the sanction provided for import was not then available from the foreign source and the Defence Research Wing had to undertake the task of developing the sub system with indigenous expertise and without adequate infrastructure.

3.4 The revised programme approved in October 1980 envisaged that the first mild steel prototype would be delivered only in December 1983 and subsequent prototypes (since revised to 7 mild steel and 5 armoured) were planned to be offered at the rate of two at successive intervals of six months each. The revised programme for commencement of trickle production as also bulk production consequent on delays that had so far taken place was, however, not indicated in the programme approved in October 1980. The cost of the project was also revised in October 1980 upwards to Rs. 56.55 crores with the foreign exchange component of Rs. 12.96 crores.

3.5 In regard to sub-system A as a result of negotiations held with a foreign government and the manufacturer, there were indications in February 1977 to the effect that the sub-system A of a specified capacity could be made available in 30 months' time but this could not materialise, because deliberations at government level were not concluded for supply of the equipment till December 1981. As a result of further negotiations held in August 1982, quotations for the sub-system A were received, orders placed and the first consignment arrived in November 1983 and thereafter additional quantities have been procured/are under procurement for use in prototypes, pre-production series, etc.

3.6 In respect of certain systems and sub-systems, the qualitative requirements were revised by the Army in 1985. These modifications were also taken into account for incorporation in the systems and sub-systems. In the meantime, the following progress in the manufacture of prototypes was achieved till May 1987:

First prototype (MS)	..	October 1983
Second prototype (MS)	..	July 1984
Third prototype (MS)	..	January 1985
Fourth prototype (MS)	..	June 1985
Fifth prototype (MS)	..	March 1986
Sixth prototype (Armoured)	..	September 1986
Seventh prototype (Armoured)	..	January 1987

3.7 In May 1987, the concept of manufacture of a pre-production series consisting of 23 units was introduced with a view to reducing the lead time for productionisation. The number of prototypes was also raised to 19 from 12 in May 1987, of which 12 were to be with imported sub-system A and 7 with indigenous sub-system A. The following revised time schedule was approved in May 1987:

- (a) Completion of performance trials on prototypes by users : July 1987
- (b) Freezing the design for pre-production series : August 1987
- (c) Placement of orders for 23 pre-production series. : June 1987
- (d) Manufacture of pre-production series by the nominated two agencies : September 1987 to December 1988
- (e) Completion of reliability trials on prototypes by users : December 1989
- (f) Finalisation of drawings / specifications incorporating modifications / improvements found necessary during user trials : March 1990

3.8 The estimated cost of the project was also raised to Rs. 280.80 crores with foreign exchange component of Rs. 102.32 crores. These proposals were approved by Government in May 1987.

3.9 The Ministry informed the Committee in October 1987 that two public sector undertakings (PSUs) had been designated as the prime agencies for manufacture of pre-production series and according to the time estimates given by the two agencies it would take about three years to commence bulk production from the time clearance was given. The Ministry also stated that by associating these agencies in preproduction series, the Ministry intended to compress the time gap in order to commence the bulk production at an early date as per schedule.

3.10 In a subsequent note, the Committee were informed in January 1989 that a revised time schedule has since been drawn up, which would be got approved after the summer trials of the prototypes. According to the revised time schedule so drawn up, manufacture of 23 preproduction series by the PSUs is now anticipated to be completed by December 1990 and bulk production is likely to commence thereafter.

3.11 Concerned over the inordinately long time taken for completion of the development of the Weapon System, the Committee enquired how much time has been taken in other countries in developing the Weapon System. The representative of the Ministry during evidence stated as follows:

“It is normally around 15 years for a company which has large data-based ----- development programme, like ----- . The work was started somewhere around 1963 and it came around in 1978. This more or less represents the timeframe for the development of the ----- or any other sophisticated -----.”

3.12 The witness added:

“----- though the process for developing suitable ----- started somewhere around the 60s; and they went and developed jointly ----- . Finally, the ----- came about in the 80s.... We have no infrastructure for the development of ----- in the country not even ----- . We have no design data-base in the country for that purpose.”

3.13 The Committee enquired that technical expertise and infrastructure was available for development of various sub-systems of the Weapon System 'X' when it was planned to be developed indigenously. The Ministry stated as follows:

“A certain amount of expertise in each of the imported component systems of ----- was available at the commencement of the project. This expertise was largely related to the indigenous development of ----- , experience on product improvement activities and the development of variants relating to ----- . The infrastructural facilities available at ----- and Ordnance Factories as visualised in 1974 were also taken into account for the development phase of ----- . However, it may be mentioned that no technology base was available for indigenous development of “two sub-systems.”

3.14 According to the sanction for development of an indigenous Weapon System 'X' accorded in March 1974, bulk production was scheduled to commence from 1984. The latest indications, however, are that bulk production will not commence at an early date. The inordinate delay in the completion of the project has been sought to be justified on the ground that the GSQR has been revised twice by the user since the project was sanctioned. The Committee are of the opinion that in the case of a time taking developmental project involving a fast developing technology, updating of requirements by the user from time to time is unavoidable and should have been taken care of in planning the schedule of completion. It has also been contended that certain developed countries have also taken almost the same amount of time in developing their weapon system 'X'. While confirmed information about the time taken in development of the Weapon System 'X' in other countries is not available from the information available in Jane's Yearbook, the Committee have come to the conclusion that the time taken is excessive, considering that India has a well developed industrial base for manufacture of weapons of allied character.

3.15 Another effect of the long time taken in completion of development of the indigenous Weapon System has been that requirements during the intervening period have had to be met either by import or licensed production involving outgo of considerable amount of foreign exchange. But what is more disquieting is that in view of the fast pace of advancement of technology there is inherent danger of obsolescence of the technology planned if the time taken in the development of the Weapon System 'X' runs to such a long period. The Committee hope that the Ministry will take every care to ensure that the final outcome of the development incorporates the latest technological advances in the field.

3.16 As per the latest project estimates, approved in May 1987, bulk production was scheduled to commence in the near future. The Committee were informed in 1987 that two Public Sector Undertakings (PSUs) had already been designated as the prime agencies for production of the Weapon System and as per the time estimates given by these agencies it would take about three years to commence bulk production from the time clearance is given but efforts were being made to compress this time gap by associating these agencies in manufacture of pre-production series. In a subsequent note the Committee were informed in January 1989 that a revised time schedule has been drawn up, which would be got approved after the summer trials of the prototypes and that according to the revised time schedule so drawn, bulk production will now commence an year after the present prescribed schedule. It is, however, not known whether clearance for undertaking bulk production has been given to the two PSUs or not and whether the two undertakings have agreed to the schedule of commencing bulk production in the near future. In the opinion of the Committee the question of giving clearance to the two agencies for undertaking bulk production will arise only after trials of prototypes have been conducted. The revised schedule of commencing bulk production in the near future is, therefore, at the most

tentative and dependent on the results of the trials yet to be carried out and the agreement of the two Public Sector Undertakings to commence bulk production in accordance with this revised schedule. The Committee have strong doubts for the aforesaid reasons whether it will at all be possible to commence bulk production even from the near future. The Committee can hardly over-emphasise the need for speedy completion of the project in the interest of defence preparedness of the country. They would, therefore, like the Government to keep unremitting vigil on the progress of the project, ensure speedy solution of the problems if any, and exert constant pressure on the concerned laboratories/establishments for expeditious completion of the project so that bulk production may commence at the earliest consistent with quality.

3.17 The then Defence Minister announced on 7 January 1984 that India had made two prototypes of the Weapon System 'X' which would be the "most modern" in the world. Earlier in a Press Release issued by Government on 20 April 1985 it was stated that all the attributes of the design were fully contemporary in the Weapon system being developed and it was going to be one of the best in the world. Government have also announced from time to time that the Weapon System under development would incorporate the latest technological advances.

3.18 Asked to furnish the trial reports of the prototype, the Ministry stated in October 1987 that the Weapon System "is still under development and has not so far been offered for full fledged army trials". The Ministry added further that "...prototype have yet to be subjected to Army trials and therefore improvements suggested by user cannot be identified separately at present".

3.19 The Ministry stated in January 1989 that changes needed, if any, to accommodate the deficiencies that may be noted during the trials will be incorporated on completion of trials.

3.20 The Committee note with concern that the development of the indigenous Weapon System commenced in 1974 is still far from complete and commencement of bulk production is not expected in the near future. The Committee, are, however, of the view that it will be much later for bulk production to commence, for reasons already stated. Although the Government have claimed from time to time that Weapon System under development will be the most modern in the world, the committee are of the view that because of long gestation period the possibility of obsolescence creeping in cannot be ruled out. The Committee, therefore, recommend that a committee independent of the DRDO should be appointed by the Ministry with the following objectives:

- (i) To review the progress of development to ensure that there has been no undue delay;**

- (ii) To evaluate the design of the Weapon System under development to ensure that it incorporates the latest technological advances; and
- (iii) To evaluate the pre-production series to ensure that they fully meet the qualitative requirements of the user.

4. Development of Sub-System A

4.1 The original sanction for development of the weapon system accorded in March 1974 envisaged that since capability to design and develop the sub-system A of the required capacity within the time frame of the project did not exist in the country, sub-system A would be imported for use in production for 3 to 5 years and a sub-system A developing project would be simultaneously undertaken to create indigenous capacity. The sub-system A of the required capacity was not available from foreign sources and steps for development of an indigenous one were initiated in 1974. The assembly of the first prototype of sub-system A could commence only in the first week of January 1979. Import of the sub-system of the required capacity became possible in 1981-82 for use in the vehicle.

4.2 As regards development of the sub-system of the required capacity indigenously, the Committee were informed that being an *ab-initio* design the project of developing the sub-system of the required capacity was beset with many problems.

4.3 In regard to the present time schedule for production of the sub-system of required capacity, the Ministry stated during evidence that the confidence level of the design agency is that it will be able to design the sub-system by 1990-91 and if the equipment is supplied for trial in 1991-92, it would be available for trial for 3 years, whereafter indigenous production can replace imported ones. In the meantime, the Committee have been informed that import of the sub-system has been resorted to and supply thereof has been progressing according to schedule.

4.4 Considering the time already taken and expenditure incurred to develop the sub-system and the substantial expenditure necessary for import of the sub-system for bulk production of the weapon system, the Committee hope that suitable measures would be taken to expedite the development of the sub-system of the required capacity.

5. Monitoring arrangement

5.1 By an order dated 27 April 1973, the Ministry constituted a high level working group, consisting of a Chairman and 12 Members, 4 from the Army, 6 from Ministry of Defence and 2 from Ministry of Finance "to progress the design, development and production" of the Weapon System and "to draw up a time bound programme for the expeditious completion

of the task". The terms of reference of the working group were:

- (i) to progress the development of the Weapon System in a coordinated manner;
- (ii) to meet once a quarter or earlier, if necessary; and
- (iii) to submit a progress report once in 6 months to a Steering Committee so as to bring such matter to its notice where the help and guidance was considered necessary.

5.2 Under the same order dated 27 April 1973, a Steering Committee was also constituted, consisting of Secretary (Defence Production) as Chairman and 10 Members with Director (R&D Vehicles) as Secretary. The task of the Steering Committee was to supervise the work of the working group with a view to ensuring speedy development of the Weapon System. It was required to meet once in six months or earlier, if necessary.

5.3 From the papers made available to the Committee after the evidence held on 12 September 1988, it is, however, noticed that the steering group, scheduled to meet once in six months, held only 17 meetings in 15 years and the working group, scheduled to meet once in every 3 months and be answerable to steering committee held even less number of meetings, i.e., only 14 in 15 years.

5.4 The Committee regret to note that the high level working group and the Steering Committee constituted to watch and expedite the progress of development of the weapon system held only 17 and 14 meetings against 30 and 60 meetings respectively scheduled to be held during the period of 15 years. The Committee are inclined to conclude that the matter has not been given the importance it deserves. They hope that atleast now these bodies will intensify their watch on the progress of the project so that there is no further slippage in completion of the project and commencement of bulk production of the weapon system.

NEW DELHI;
April 26, 1989

Vaisakha 6, 1911(S)

AMAL DATTA
Chairman,
Public Accounts Committee

APPENDIX

Statement of Conclusions and Recommendations

Sl.No.	Para No.	Ministry / Department concerned	Recommendations and Observations
1	2	3	4
1	2.11	Defence / DRDO	<p>The Committee note with dismay the steep increase in the estimated cost of the project for development of the Weapon System 'X'. The project which was originally estimated to cost Rs. 15.50 crores in May 1974 is likely to cost Rs. 280.80 crores as per latest estimates sanctioned in May 1987, the increase being more than 17 times of the originally estimated cost. While escalation in cost may partly be due to revisions in the GSQR and addition of certain new items, the Committee are of the opinion that since most of the expenditure is on salaries and wages the phenomenal increase in cost is also to a great extent due to inordinate delay in the completion of the project. Lamentably, bulk production which was scheduled to commence originally by April 1984 is still to commence. What is more disquieting is that expenditure on the project in some of the establishments/laboratories had already exceeded their sanctioned estimates prior to the revision of estimates in 1987. The Committee are not convinced of the claim of the Ministry that at no time expenditure had exceeded the sanctioned limits. The expenditure incurred up to 30.6.87 was Rs. 103.35 crores which was Rs.46.80 crores more than the expenditure sanctioned till 4.5.87. Such huge expenditure could not possibly be incurred within the short period between 5.5.87 and 30.6.87. The Committee strongly deprecate such unauthorized expenditure.</p>

- 2 2.12 -do- For reasons stated later, the Committee apprehend that commercial production may not start at an early date. The Committee recommend that a very strict watch should be kept by the Ministry to ensure that the expenditure is contained within the sanctioned estimate of Rs. 280.80 crores.
- 3 2.13 -do- One of the reasons given for the cost escalation is inclusion of new items in the revised estimate, which were not included in the original sanction. The Committee fail to understand why items such as (i) requirement of adequate number of prototypes and pre-production series before commencement of production, (ii) cost of import of sub-system 'A' for the prototypes and pre-production series, (iii) creation of an evaluation centre etc. could not be visualised while framing cost estimate sanctioned in May 1974. Similarly provision for a realistic assessment of the cost of technical and user trials augmentation of infrastructural facilities etc. in the revised estimate is indicative of the casual manner in which the original estimate was finalised and got approved. The Committee deprecate the tendency of getting projects sanctioned by under-estimation of costs generally and also by omission of several essential requirements which can be later incorporated without much trouble because of their essentiality.
- 4 2.14 -do- Another disquieting aspect is that the foreign exchange content of the project estimate has increased phenomenally from Rs.2.32 crores in the estimate sanctioned in May 1974 to Rs. 102.32 crores in the latest estimate sanctioned in May 1987. The increase has been more than 44 times of the provision for foreign exchange in the original estimate. The sanction of March 1974 envisaged development of all systems and sub-systems indigenously except sub-system A for which capability did not exist in the country. Apart from import of 42 Nos. of sub-system A of Rs. 22 crores, some components, systems and sub-systems too have been imported for use or study/evaluation purposes. Consultancy services for certain areas of the technology have also been obtained from abroad. Disappointingly, the object of developing the Weapon System 'X' entirely by indigenous effort is not going to be achieved fully.
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1	2	3	4
5	2.15	Defence DRDO	<p>The Committee are astonished to note that only the wages and salaries in respect of the manpower exclusively sanctioned and positioned for the project are included in the cost of the project but the cost of the facilities including existing manpower at the concerned Establishments / Laboratories which are availed of in the execution of the project is not accounted for and reflected in the cost of the project. Even the expenditure incurred at the headquarters in Delhi for coordination of the project is not booked against the cost of the project. The Committee are distressed to note that by excluding the appropriate portion of the expenditure on the facilities including existing manpower availed for the execution of the project, the actual cost of the project is grossly understated. It was conceded during evidence that the expenditure reasonably allocable to the project can be calculated. There is, therefore, no valid reason why such expenditure as can appropriately be charged to the project is not worked out and charged to the project in order to ascertain the true cost of the project. The Committee are constrained to observe that the reason may lie in showing expenditure at a much lower figure than what is actually expected to be incurred which is contrary to the principle of accountability to Parliament.</p>
6	2.16	-do-	<p>The Committee have been informed that separate funds are not allotted exclusively for the project on year to year basis and that the various units engaged on the project have been getting funds for execution of the project as part of their annual budget sanctions only. The actual expenditure on the project is not booked separately but the expenditure incurred on the project by the work centres and nodal agencies is consolidated yearly and reported to the headquarters. The actual cost of the project is, therefore, arrived at by consolidating the figures in various reports and not by having a proper accounting system for the purpose of</p>

booking expenditure on the project. The Committee are of the view that in the absence of a proper system for keeping account of the expenditure incurred on the project it is not possible to ensure that the figures in the reports of the various laboratories/establishments which are consolidated for ascertaining the cost of the project are accurate and accordingly there is no way in which the Ministry can exercise control on the expenditure. The Committee urge the Government to devise a proper accounting system for projects of this nature so that accountability can be ensured.

- 7 3.14 -do- According to the sanction for development of an indigenous Weapon System 'X' accorded in March 1974, bulk production was scheduled to commence from 1984. The latest indications, however, are that bulk production will not commence at an early date. The inordinate delay in the completion of the project has been sought to be justified on the ground that the GSQR has been revised twice by the user since the project was sanctioned. The Committee are of the opinion that in the case of a time taking developmental project involving a fast developing technology, updating of requirements by the user from time to time is unavoidable and should have been taken care of in planning the schedule of completion. It has also been contained that certain developed countries have also taken almost the same amount of time in developing their weapon system 'X'. While confirmed information about the time taken in development of the Weapon System 'X' in other countries is not available. From the information available in Jane's Yearbook, the Committee have come to the conclusion that the time taken is excessive, considering that India has a well developed industrial base for manufacture of weapons of allied character.
- 8 3.15 -do- Another effect of the long time taken in completion of development of the indigenous Weapon System has been that requirements during the intervening period have had to be met
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either by import or licensed production involving outgo of considerable amount of foreign exchange. But what is more disquieting is that in view of the fast pace of advancement of technology there is inherent danger of obsolescence of the technology planned if the time taken in the development of the Weapon System 'X' runs to such a long period. The Committee hope that the Ministry will take every care to ensure that the final outcome of the development incorporates the latest technological advances in the field.

9 3.16 Defence/
 DRDO

As per the latest project estimates, approved in May 1987, bulk production was scheduled to commence in the near future. The Committee were informed in 1987 that two Public Sector Undertakings (PSUs) had already been designated as the prime agencies for production of the Weapon System and as per the time estimates given by these agencies it would take about three years to commence bulk production from the time clearance is given but efforts were being made to compress this time gap by associating these agencies in manufacture of pre-production series. In a subsequent note the Committee were informed in January 1989 that a revised time schedule has been drawn up, which would be got approved after the summer trials of the prototypes and that according to the revised time schedule so drawn, bulk production will now commence an year after the present prescribed schedule. It is, however, not known whether clearance for undertaking bulk production has been given to the two PSUs or not and whether the two undertakings have agreed to the schedule of commencing bulk production in the near future. In the opinion of the Committee the question of giving clearance to the two agencies for undertaking bulk production will arise only after trials of prototypes have been conducted. The revised schedule of commencing bulk production in the near future is, therefore, at the most tentative and dependent on the results

of the trials yet to be carried out and the agreement of the two **Public Sector Undertakings** to commence bulk production in accordance with this revised schedule. The Committee have strong doubts for the aforesaid reasons whether it will at all be possible to commence bulk production even from the near future. The Committee can hardly over-emphasise the need for speedy completion of the project in the interest of defence preparedness of the country. They would, therefore, like the Government to keep unremitting vigil on the progress of the project, ensure speedy solution of the problems if any, and exert constant pressure on the concerned laboratories/establishments for expeditious completion of the project so that bulk production may commence at the earliest consistent with quality.

10 3.20 -do-

The Committee note with concern that the development of the indigenous Weapon System commenced in 1974 is still far from complete and commencement of bulk production is not expected in the near future. The Committee, are, however, of the view that it will be much later for bulk production to commence, for reasons already stated. Although the Government have claimed from time to time that Weapon System under development will be the most modern in the world, the Committee are of the view that because of long gestation period the possibility of obsolescence creeping in cannot be ruled out. The Committee, therefore, recommend that a committee independent of the DRDO should be appointed by the Ministry with the following objectives:

- (i) To review the progress of development to ensure that there has been no undue delay;
 - (ii) To evaluate the design of the Weapon System under development to ensure that it incorporates the latest technological advances; and
 - (iii) To evaluate the pre-production series to ensure that they fully meet the qualitative requirements of the user.
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1	2	3	4
11	4.4	Defence / DRDO	Considering the time already taken and expenditure incurred to develop the sub-system and the substantial expenditure necessary for import of the sub-system for bulk production of the weapon system, the Committee hope that suitable measures would be taken to expedite the development of the sub-system of the required capacity.
12	5.4	-do-	The Committee regret to note that the high level working group and the Steering Committee constituted to watch and expedite the progress of development of the weapon system held only 17 and 14 meetings against 30 and 60 meetings respectively scheduled to be held during the period of 15 years. The Committee are inclined to conclude that the matter has not been given the importance it deserves. They hope that atleast now these bodies will intensify their watch on the progress of the project so that there is no further slippage in completion of the project and commencement of bulk production of the weapon system.

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