

**HUNDRED AND FORTY-SECOND
REPORT**

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

(EIGHTH LOK SABHA)

METROPOLITAN TRANSPORT PROJECT CALCUTTA

**MINISTRY OF RAILWAYS
(RAILWAY BOARD)**



Presented in Lok Sabha on 8 March, 1989

Laid in Rajya Sabha on 8 March, 1989

**LOK SABHA SECRETARIAT
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PUBLIC ACCOUNTS COMMITTEE
(1988-89)

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*Appointed as Chairman w.e.f. 5-9-1988 Vice Shri C. Madav Reddy resigned from Chairmanship of the Committee.

**Appointed w.e.f. 7-12-1988 vice Shri Kalpnath Raj ceased to be member of the Committee on his appointment as a Minister of State.

INTRODUCTION

I, the Chairman of the Public Accounts Committee, as authorised by the Committee, do present on their behalf this 142nd Report on paragraph 10 of the Report of the C&AG of India for the year 1984-85 Union Government (Railways) on Metropolitan Transport Project, Calcutta.

2. In this Report the Committee have observed that the Calcutta's metro railway underground project comprising 16.43 kilometres from Dum Dum to Tollyganj, sanctioned in June 1972 at an estimated cost of Rs. 140 crores, is yet to be completed although it was targetted to be completed by 1978. Apart from the inordinate delay, there has been tremendous escalation in the project cost. From the expenditure incurred on the completed phase I work and the likely expenditure on the phase I work, the Committee have concluded that project cost will be more than that of the latest estimate of the Railways (Rs. 930 crores) and may touch around Rs. 1100 crores. Taking into account the projected requirement of funds by the Railways in the next 3-4 years and their annual capacity to utilise funds, the Committee feel that the completion of the project is likely to prolong till 1993-94. The Committee have desired the Government to draw realistic estimates of the time and cost required for completing the remaining portion of the project and make all out efforts to complete the balance portion of the project according to a time-bound programme.

3. It has come to the notice of the Committee that whereas the Railways have not utilised the funds fully upto the year 1975-76 and in 1981-82, 1984-85 and 1986-87, the Planning Commission have not made available sufficient funds for the Metro Railway during Sixth and Seventh Plans. The Committee have felt that in order to expedite the completion of the project the Railways should have projected higher demands for the Metro Railway, Calcutta for Sixth and Seventh Plan periods.

4. The Committee have expressed their surprise that though a separate metropolitan transport authority for Calcutta was recommended by the Cabinet in 1972, while sanctioning the project and again by Railway Convention Committee and the Administrative Reforms Commission, a final decision in the matter has not been

taken even though the project has been in progress for the last 16 years. Further, the administrative set up has been seriously handicapped due to failure to appoint General Managers as also senior officials at levels below the General Managers to the project for longer periods.

5. The Committee have been concerned to note that a review of major civil engineering tenders and contracts has revealed delays in finalisation of tenders/contracts ranging between 12 and 34 months. There has also been grant of liberal extensions ranging between 10 and 68 months to the contractors and the Railways have not been able to advance convincing reasons therefor.

6. The Committee have been constrained to observe that six precious years were taken by the project administration before realising in 1978-79 the disadvantages of sheet pile methodology and switching over to Diaphragm Wall Technique which by then had successfully been tried out in 2 sections. The Railways were already aware of the majority of the constraints in the working of sheet piling method which are being advanced as the reasons for the switch-over. The Committee have opined that the Railways do not have an adequate system for reception, scrutiny for application, absorption and implementation of new technology and have recommended that the present system be analysed for its defects and shortcomings and appropriate steps be taken for rectifying this serious situation.

7. With a view to increasing the passenger traffic on the metro line, the Committee have asked the Government to examine the feasibility of reaching the peripheral areas by surface lines after the metro lines come out of the underground. The Committee have desired that the experience gained by the Railways in construction and operation of the metro railway at Calcutta at considerable expense should not be allowed to go waste and therefore, such projects in other large cities should be taken up keeping in view their long term traffic needs.

8. The Public Accounts Committee examined this paragraph at their sittings held on 29 December 1987 and 27 January 1988. As a result of delay in receipt of vetted replies to post evidence questionnaire the report could not be finalised in 1987-88. The Public Accounts Committee considered and finalised this Report at their sitting held on 7 March 1989. The Minutes of the sittings from Part II* of the Report.

*Not printed. One cyclostyled copy laid on the Table of the House and five copies placed in Parliament Library.

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

10. The Committee would like to express their thanks to the officers of the Ministry of Railways (Railway Board) for the co-operation extended by them in giving information to the Committee.

11. 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;

March 7, 1989

Phalgunā 19, 1911 (Saka)

AMAL DATTA,

Chairman,

Public Accounts Committee.

REPORT

METROPOLITAN TRANSPORT PROJECT, CALCUTTA

CHAPTER-I

BRIEF HISTORY

1.1 The inadequacy of the existing transport system to meet the increasing demands of the commuter traffic in Calcutta metropolis was examined by a number of Committees and Consultants appointed by the Government of West Bengal from 1947 onwards. These Committees and Consultants suggested either the construction of circular railway or Mass Rapid Transit System to solve the metropolitan transport problems of Calcutta. While the debate continued whether the circular railway or a metropolitan underground/overground railway system would be a better solution, a high level Metropolitan Transport Team was set up by the Planning Commission in 1965 to study the metropolitan transport requirements of Bombay, Calcutta, Delhi and Madras. In the case of Calcutta, the Metropolitan Team recommended the construction of a part of circular railway known as suburban Dispersal Line (Dum-Dum to Princep Ghat) to facilitate the dispersal of the commuters arriving at the railway terminus at Sealdah and Howrah and a provision of Mass Rapid Transit System (MRTS) for catering to the intra-city traffic.

1.2 As a result of discussions held in 1968 and 1969 between the Planning Commission and the concerned Ministries, it was decided that the Railways should take the responsibility for techno-economic feasibility studies, detailed surveys and investigations and ultimately, the construction of the Metropolitan Rail Transport Project in the cities.

1.3 In pursuance of the above decision, a Metropolitan Transport Project (Railways) Organisation was set up in Calcutta in 1969 with the following tasks:

- (1) To prepare a final location survey for the Suburban Dispersal Lines; and
- (2) To conduct a techno-economic feasibility study for the Mass Rapid Transit System.

1.4 After preliminary studies made by the MTP Organisation, it was found desirable to make a comparative study of the two pro-

jects, namely, the Suburban Dispersal Line and the Mass Rapid Transit System. For this purpose, the services of a team of senior consultants from the Soviet Union were obtained for a period of 2 months (November 1970 to January 1971).

1.5 After examination of the problems the Soviet Consultants came to the conclusion that the Suburban Dispersal Line would not provide an effective solution and strongly recommended the construction of an underground railway from Dum Dum to Tollygunj as the most effective means of providing relief to the transport problem of Calcutta.

1.6 The Government of West Bengal and the Railway Board agreed with these recommendations of the Soviet Team for the construction of the Dum-Dum Tollygunj Rapid Transit System and dropping the proposal for the Suburban Dispersal Line.

1.7 In pursuance of the above decisions, the Metropolitan Organisation (Railway) submitted the project report to the Railway Board in October 1971 for the construction of an electrified underground Rapid Transit System from Tollyganj to Dum Dum (16.43 kms.) at a cost of Rs. 140.30 crores at current prices. The Project Report and the comments of the Railway Board thereon were considered by the Planning Commission in its meeting held on 21 January, 1972 and attended by the representatives of Ministries of Finance, Transport and Shipping, Home Affairs and Railways, wherein the project was approved.

1.8 The Railway Board submitted a memorandum in this regard to Union Cabinet in March 1972 as a result of which the following proposals were sanctioned by the Government in June, 1972:

- (i) The Metro project be taken up for implementation at an estimated cost of Rs. 140 crores;
- (ii) A separate plan allocation be made till a separate authority was constituted;
- (iii) The Planning Commission to discuss with concerned authorities, including the Government of West Bengal and to advise on the method of financing the capital cost; and
- (iv) The Planning Commission to discuss with State Government and concerned Ministries of Government of India on the composition, organisation, functions, responsibility

etc. of a metropolitan transport authority to be set up for the purpose.

1.9 It was envisaged in the memorandum placed before the Cabinet that the actual construction work would commence within a year from the date of sanction the project and another six years would be taken for commissioning the project. The foundation stone for the project was laid by the Prime Minister of India on 29 December, 1972.

1.10 The Public Accounts Committee examined certain aspects of the execution of the Project and highlighted in their 55th Report of 1981-82 (Seventh Lok Sabha), the inordinate delay in completion of the Metro Railway Project for want of adequate funds and recommended *inter alia*, that the matter should be reviewed at highest level and a time bound schedule laid down for completion of the project at the earliest.

1.11 Taking note of the Committee's scepticism about the completion of the entire project by even March 1987, the Ministry intimated the Committee in reply to their recommendations in the 55th Report that Government had laid down a time bound schedule, and that every effort was being made to ensure that there was no further slippage and that monitoring cells both at General Manager's level and at Railway Board's level had been strengthened.

1.12 In the context of the above observations as also of audit in paragraph 10 of the Report of the C&AG of India (Appendix I) for the year 1984-85 on Union Government (Railways), the Committee have, in the subsequent chapters of this Report, examined the various aspects of the progress made in execution of the Metropolitan Transport Project, Calcutta.

CHAPTER-II

COST ESCALATION AND DELAY IN COMPLETION OF THE PROJECT

2.1. For execution of civil construction works of the Project, the alignment of 16.43 kms. was divided into 17 main geographical sections from Dum Dum to Tollyganj. According to the Ministry, tenders were called and the first contract for elevated structure in Section I (930 m long) at Dum Dum end was awarded on 21 May, 1973. The second contract was for underground structures to be done with the use of Larsen Sheet Piles (much stronger than the indigenous sheet piles) which were to be procured by import. As early materialisation of import supplies was not insight, the project Authorities had to negotiate the tender with the contractors, stipulation alternative use of Indian sheet piles and the contract for section-2 (922 m long) was awarded on 5 March 1974. According to Railways, these two sections were important for conducting prototype trials of Metro Railway coaches. As against the scheduled dates of completion of 15 May 1975 and 4 September 1975 for these two contracts, they were completed only in December, 1976 and October, 1982 respectively, while the entire period of 6 years needed for commissioning the whole project had already expired in 1978.

2.2. In the meantime, due to global oil price hike, the prices had started soaring and the Ministry felt that the June, 1972 sanctioned cost of Rs. 140 crores for the project would go up considerably. A revised abstract estimate amounting to Rs. 249.54 crores was, therefore, prepared by the project authorities and submitted to the Railway Ministry in September 1974. On the ground that prior cabinet approval was essential to go ahead with the work in view of the revised cost, a ban was imposed by the Ministry (Railway Board) on the Project authorities on 8 October 1974 on entering into any further commitments. The ban was relaxed on 25 April, 1975 stipulating that commitments could be made only on certain agreed works, which were in the northern reach from Dum Dum to Maidan. The revised abstract estimate for Rs. 249.54 crores was sanctioned on 22 December 1975, after a delay of 16 months.

2.3 In the meantime, it became clear to the Ministry that availability of funds during the remaining years of 5th Plan would be

limited. After discussions with the Planning Commission and Ministry of Finance, it was decided by Ministry of Railway in January, 1976 that in view of limited availability of funds, major emphasis would be given to rolling stock, signalling, tract and ventilation development and testing requirement for completion during the three years 1976-79 and that a phased construction of the lines should be planned.

2.4. Till October, 1976 the sectors in which the funds were to be utilised first, whether in the North or in the South, were not identified. In November, 1976, the following decisions were taken on the advice of the State Government that work on Chittaranjan Avenue should not be taken up for some time:

- (i) That the Project would be divided into two phases:

Phase I—Covering the Dum Dum-Shyambazar (Inclusive) section and Tollyganj—Esplanade Section.

Phase II—The rest, namely Shyambazar (exclusive)-Esplanade (exclusive) Section.

- (ii) Phase II would commence only when Phase I had been completed.

2.5. The Ministry of Railways have explained that for progressing works in Phase II, along Chittaranjan Avenue, a special scheme had to be evolved by MTP(R) Calcutta which envisaged maintaining 4 lanes of traffic on Chittaranjan Avenue during all phases of construction, as the State Government felt that traffic diversion would be difficult on the parallel roads in North. In response to the suggestion of the State Government (December 1978) that the work along Chittaranjan Avenue should be taken up as per the above scheme with immediate effect as any deferment of work along the Northern Section would lead to greater Public inconvenience, the matter was discussed in depth at a meeting in the Planning Commission in April, 1979. It was decided thereafter that the Phase II works should be taken up without waiting for the completion of Phase-I works.

2.6. According to the Ministry of Railways, the works on portico dismantlement, widening of road by cutting away foot-paths were then taken up on the Chittaranjan Avenue. Contracts were also awarded for diaphragm wall works together with decking. However, the Commissioner of Police, after experiencing traffic problems due to these works, stipulated in 1981 that MTP works on the Chittaranjan Avenue should be kept in abeyance from Beadon Street

crossing upto Lenin Sarani till the work of Sealdah Fly-over was completed by Calcutta Metropolitan Development Authority (CMDA) in order to mitigate public inconvenience and in the interest of traffic circulation. Sealdah Fly-over as completed around 1983 Contracts for BOX construction works for Chittaranjan Avenue were however finalised only in October 1984 and the construction works could commence only around late 1985. The further period of one year was stated to have been utilised for import of sophisticated machinery from a foreign country after observing the formalities.

2.7. The broad position of the works completed so far is as follows:

<i>Works already completed</i>	<i>Opening date</i>
Esplanade—Bhowanipur (3.40 Kms)	24-10-1984
Dum-Dum—Belgachia (2.20 Kms)	12-11-1984
Bhowanipur—Tollyganj (4.20 Kms)	28-4-1986

The works on Belgachia-Esplanade (6.63 Kms.) are still under execution.

2.8. Explaining the considerable time being taken for the completion of the project, the representative of Railway Board stated during evidence that Calcutta Metro has been an extremely difficult project from the construction point of view and that even the foreign experts have conceded this. According to the Railway Board, there was practically no open space in Calcutta and the project was taken up after the population of the city had reached 7 millions. The Railway Board representative further stated during evidence that the time frame of six years given at the project Report stage, on the available information, had appeared to be quite possible, but the delays and difficulties were far more than those that were anticipated. On an enquiry whether any effort had been made to study the Metro-Railways constructed in other countries and the time taken for their completion, the witness could only state: "we are doing this work in most difficult conditions than those in other countries."

2.9. According to the Railway Board, the physical progress of this Project suffered due to the following factors:

- (i) Shortage of funds (till about 1980);
- (ii) Delays by the State Govt. in land acquisition;
- (iii) Frequent power shortages in Calcutta;
- (iv) Delay in diversion of roads and trams;
- (v) Encountering of uncharted utilities during construction;

- (vi) Law and order problems around work sites;
- (vii) Shortage of vital materials like cement and steel, during certain periods in the past; and
- (viii) Lack of experience on the part of contractors for metro works in initial stages.

2.10 As per the Ministry of Railways (October 1987) a target date for completion of the project by December, 1990 has been projected on the assumption that all the 22 critical plots of land required for construction of station premises, sub-stations etc. would be handed over to the Metro Project Administration by the middle of 1986 but the State Government has not yet (April 1988) given possession of 12 of these sites although the matter has been taken up at the highest level. The representative of the Ministry stated during evidence that in these circumstances, the target date of 31 December, 1990 could be exceeded by about 6 to 12 months. In a subsequent communication to the Committee (13-4-1988) the Ministry have stated that it is expected that the remaining portion of the Metro Railway would be completed by June 1991.

2.11. Apart from the inordinate delay in completion of the project there has been tremendous escalation in the project cost. The estimated cost of the project was revised from Rs. 249.54 crores, as estimated in 1974, to Rs. 559.14 crores in December 1981 (based on 1980-81 price level). The latest Revised Abstract estimate approved by the Railway Board in January 1987 amounted to Rs. 863.37 crores (at 1984-85 prices) although it was originally estimated in 1971 to cost Rs. 140.30 crores only. Taking into account the aspect of inflation, the Railway have now estimated the project cost as Rs. 930 crores provided the project is completed by December 1990. According to Railways this cost may still escalate if there is further delay in completion of the project due to inflation etc. in the extended period.

2.12 According to Railway Board, the total expected cost (Rs. 930) crores included Rs. 434.34 crores on South Section (7.6 Kms.) and Rs. 495.57 crores on North Section (8.8 Kms). While of the South Section and 2.2 Kms. (Dum-Dum-Belgachia) of the North-Section comprising Phase I work have already been completed although some expenditure is further anticipated by Railways on South Section. Most of the contracts for Phase I work are stated to have been awarded in 1978-79 and thereafter and only in few cases the contracts were awarded prior to that. Thus, the Phase I

work actually picked up from 1978 only and it was completed partly in November 1984 and partly in April 1986. On the basis of the expenditure incurred, the cost of work per km works out to be Rs. 57.1 crores for Phase I.

2.13. The Committee are informed that in Sections A and B (5, 6A, 6B, 7, 8 and 9) comprising Phase II work, works for diaphragm wall and road decking in sub-section 5, 6A, 6B and 9 were awarded in the early eighties. Later, contracts for box construction works and other civil works for sub-way structures in Sections A&B as also diaphragm wall and road decking in sub-section 7&8 were awarded in 1984. Due to general price rise the likely cost per km for the Phase II work i.e. 6.6 Km on Belgachia-Esplanade section (being executed mainly in the period 1984—1992), the Ministry stated, may be more as compared to that for the Phase I work (executed mainly in the period 1978—1984).

2.14. The wholesale price index* in 1981 (Arithmetic Mean of the years 1978—84) was 278.4 and the figure thereof for the week ending December 1988 is 433.4.** Thus, the increase with reference to the price index for Phase II work over that of Phase I work is likely to be of the order of 56 per cent; this percentage is likely to be more if completion of the project is further prolonged. Assuming this increase as only 40 percent (taking into consideration the survey and preliminary expenses etc. and the common infrastructure cost, if any, for both the sections which might have been included in the aforesaid expenditure figures on the South Section and neutralising to some extent the fact that some expenditure still is anticipated on South Section under increased price index conditions), the likely cost per km on Phase II work would be nearly Rs. 80 crores as compared to Rs. 57 crores for the Phase I work. Expected cost in that case, for Phase II work will be 6.6 km. Rs. 89 crores/km=528.00 crores. The total expenditure on the project may then be approximately as under:

Expenditure on South Section	(7.6 km)	=434.53 crores
Expenditure on Dum-Dum—Belgachia Section	(2.2 km)	=126.00 crores
Likely expenditure on Esplanade Tollyganj Section	(6.6 km)	=528.00 crores
Total expenditure on 16.4		1088.53 crores

*SOURCE : Statistical Abstract published by Central Statistic Organisation, Department of Statistic

** : *Economic Times* dated 23 January, 1989

2.15 According to Railways, Rs. 465 crores had been spent on the project upto 1986-87. The allocation for 1987-88 was Rs. 84.0 crores and the Railways have projected Rs. 80 crores as their requirement for 1988-89. Keeping in view the likely cost of the project (Rs. 1100 crores), the remaining expenditure to the tune of Rs. 470 crores may have to be spent on the project in the years 1989-90 and 1990-91 (being the currently stipulised year of completion).

2.16 The Railways have projected nearly Rs. 100 crores as their yearly demand for the project from the year 1989-90 onwards till the completion of the project and they have hitherto been spending nearly Rs. 80-85 crores annually on the project in recent years; the limitation, according to the Chairman, Railway Board, in not spending more than that in a year, has been the capacity of the contractors to do the work in the area. With due regard to the reported capacity of contractors and funds demanded by the Railways annually, it appears that completion of the project may have to prolong till 1993-94 and the work in the further delayed period beyond 1991 is likely to be completed under still higher prices which in all probability would further push up the project cost.

2.17 Further, the present cost estimate of the Railways (Rs. 930 crores) includes provision for 230 coaches only. The Project Report had predicted a traffic of 1.73 million passengers/ day for 1990, for which 336 coaches are required. At the Second Revised Abstract Estimate stage (1985), the Metro Railway Administration had proposed 336 coaches instead of 230, expecting that the level of traffic for the same would get generated immediately on the opening of full length of the line. However, considering the level of traffic after the opening of Esplanade-Tollyganj Section in April 1986, the Railways considered it prudent to retain the provision for only 230 coaches and decided that the additional coaches, if required, could be procured later. With 336 coaches, the estimated cost of the project would have been higher by Rs. 99.45 crores (at 1984-85 price level). Thus, if and when, the projected traffic of 1.73 million passengers per day materialises additional 106 coaches will have to be procured, the total cost of which will depend upon the rate of increase of price index in that year over that in 1984-85, the total cost of the project in that case will be pushed up further.

The latest declared estimate of completing the project by June 1991 at the cost of Rs. 930 crores are, therefore, not likely to materialise.

2.18 In the wake of a number of studies and surveys undertaken by various teams including the one by Soviet Experts suggesting various measures to meet the ever growing inter-city traffic of Calcutta, due to spurt in the industrial and other developmental activities in and around the city and the large scale urbanisation, Calcutta's Metro Railway underground project comprising 16.43 kms. from Dum Dum to Tollyganj in the North-South direction was considered most appropriate for the purpose and was sanctioned in June 1972 at an estimated cost of Rs. 140 crores. The project formally inaugurated by the Prime Minister in December 1972 and targetted to be completed by 1978 as per the project Report, is yet to be completed. The casual manner in which this project has been handled is evident from the fact that till October 1976, the sections in which the funds were to be utilised first were not identified. Para the first phase covering Dum-Dum-Shyambazar and Tollyganj—Esplanade Section was completed partly in October/November 1984 and partly in April 1986. The work on second phase covering Shyambazar (exclusive)—Esplanade (exclusive) Section comprising 6.6 kms. is in progress and according to Railways is targetted to be completed by June 1991. Apart from the inordinate delay, there has been tremendous escalation in the project cost which, according to Railways, may now be Rs. 930 crores. However, from the expenditure incurred on the completed phase-I work and the likely expenditure on the phase II work, the Committee are inclined to conclude that the project cost will be more than that of the latest estimate of the Railways and may touch around Rs. 1100 crores notwithstanding the fact that this estimate includes provision for only 230 coaches against 336 coaches included in the original estimate as the number needed to meet the anticipated traffic of 1.73 million passenger/day of 1990. Taking into account the projected requirement of funds by the Railways in the next 3-4 years and their capacity to utilise funds in a year, the Committee are led to the inescapable conclusion that completion of the project is likely to prolong till 1993-94. The Committee consider this is a distressing state of affairs.

2.19 The Railways' main contention in explaining the delay that the underground project was unique in the sense that such a project was taken up for first time in India and under most difficult conditions due to densely populated areas of Calcutta having a population of 7 million is far from convincing. There have been several instances in the world where such projects have been completed in a very short span of time e.g. in Mexico City with similar soil condition as that of Calcutta the underground Railway pro-

ject comprising 42.2 kms. was completed* in 1970 in 2½ years and the population of Mexico in 1970 stood at 8.6 million.** Various other grounds advanced by the Railways for the inordinate delay in completion of this vital project and the run away escalation in cost are, therefore, not convincing.

2.20 The Committee do not consider that the inordinate delay and the huge cost over-run in completion of this prestigious project so vital for the life in the city of Calcutta were totally unavoidable. Besides run away escalation in cost resulting from the delay, the prolonged construction of the project has already caused considerable disruption of life and inconvenience to the people of Calcutta. The Committee can hardly over emphasise the need for expeditious completion of the remaining portion of the project. The Committee recommend the Government to draw realistic estimates of the time and cost required for completing the remaining portion of the project and to make all out efforts to complete the balance portion of the project according to a time bound programme. The Committee would like to be apprised of the steps Government propose to take in this direction.

*Source : Jane's World Railways and Rapid Transit Systems (1974-75)—page 569

**Source : Encyclopaedia Britannica, Vol. 12—Page 65

CHAPTER III

CAUSES FOR DELAY

(i) Time Taken in preparation and sanction of detailed estimates.

3.1 The Railway Board had desired the project Authorities to submit detailed estimate for 'General Charges' 'Land' and 'Preliminary Expenses' by 31 December, 1972 and for other capital heads in due course. The First revised abstract estimate (Rs. 249.54 crores) involving an increase of 78 per cent over the original estimated cost of Rs. 140 crores was submitted by the Administration only in 1974 and was sanctioned by the Railway Board in December 1975.

3.2 A second revised abstract estimate for Rs. 559.14 crores submitted for sanction in December 1981 was returned (October 1982) by the Railway Board with instructions to frame and submit detailed estimate by November 1982 based on the actual cost of completed works, the likely expenditure to be incurred on the works in progress at the accepted tendered rates, and the evaluation of the balance works at the prevailing price level.

3.3 The required estimate was submitted by the Project Administration as late as in July 1985 and the same was sanctioned by the Railway Board for Rs. 863.37 crores (at 1984-85 price level) still later in January 1987. The Project, according to the Railways, is now expected to cost Rs. 930 crores. This cost when discounted to the year 1971-72, taking into account the anticipated inflation has been assessed by the Railways at Rs. 401.56 crores although the project when sanctioned in 1972 was estimated to cost only Rs. 140.80 crores (at 1971 price level). The major factors accounting for the increase in the cost from the original estimate to the Second Revised Estimates are stated to be cost escalation between 1971 and 1984, new items and material modifications such as Diaphragm wall construction, vertical Restraint, Tram Track diversion special ceiling at station, Terminal facilities at Tollyganj, provision for escalators, emergency lighting at stations, electrification of station buildings etc.

3.4 In reply to a query, the Ministry have stated that only abstract estimate was prepared at the time of project Report stage,

because sufficient data necessary for preparation of a detailed estimate was not available and that only when the contracts were settled and the rates were fully known and after a portion of the Metro was completed, the estimate could be revised. According to the Railways, even by 1974 and by 1981, contracts were awarded only for the Central and South Sections and rates were still to be known for the works in the North to be done by a modified technology. For this reason, according to the Railways, detailed estimates could not be prepared even in 1974 or in 1981.

3.5 When pointed out during evidence that there must be some sort of quantities worked out in the Project Report, on the basis of which the detailed estimates could have been prepared, the representative of the Railway Board deposed that quantities were always worked out in the surveys and in the instant case also the details were certainly there but perhaps those were not as accurate as in any other project, because most of the work had to be done underground. Explaining further in this regard he stated that a substantial part of the cost related to diversion of utilities like roads, tram lines and restoration of roads. On an enquiry whether there did not exist any proper machinery for estimating all these costs, the Ministry of Railways have stated that there was a full-fledged set up for preparing cost estimates including engineering estimates when the Project was prepared in 1971 on the basis of technoeconomic feasibility studies undertaken between 1969 and 1971. There were 35 officers, including some in Administrative ranks, in all the relevant disciplines. A professional economist was also attached. All these officers were assisted by a full complement of technical and ministerial staff consisting of Designers, Draftsmen, Inspectors of work, Estimators, Traffic Surveyors etc. totalling about 300.

3.6 In reply to a query the Ministry have stated that right from 1972 till date an Engineering organisation has been existing for detailed designs, drawings and estimation of tenders progressively floated sector-wise and for different types of works at appropriate stages of progress of the earlier works. The strength of this organisation headed by a Chief Engineer has been mostly uniform in the various categories between 1972 and 1987. The approximate annual expenditure on the design and drawing office, according to present scales of pay, is stated to be Rs. 40 lakhs.

3.7 When asked what was the basis adopted for preparation of the latest estimate amounting to Rs. 863 crores, the Ministry of Railways explained that in order to adopt realistic cost for items of civil engineering works which had been in progress from the year 1972-73 or for which contracts had been awarded by 1983-84,

a weighted factor (1.22) was devised which when multiplied with the price level prevalent in 1980-81 took into account the impact of the variation in the price level over the period. In the revised abstract estimate of Rs. 363.37 crores, the quantities were mostly as per the Rs. 560 crores estimate, but the rates have been suitably modified by the factor as explained above for civil engineering works. Further, for electrical works, signalling works and Rolling stock the costs as per the latest orders are stated to have been adopted. For continuous Automatic train control system and automatic Fare collection system the costs adopted, according to Railways, were based on general enquires.

3.8 Audit Para has brought out that in the absence of sanctioned detailed estimates showing quantities, rates and costs based on realistic basis, the correctness of the quantities included in the tender documents and evaluation of the tendered rates could not be ensured. Moreover, it is seen that the global tenders were not floated while embarking upon Civil Engineering works in the first instance in 1972-73. In this regard the Committee in their earlier Report had, *inter alia* observed* as under:

"It is relevant to recall that while dealing with the tenders for contract Section 2 in 1973, the Tender Committee had, *inter alia*, observed. 'As no Indian firm with experience of MRTS construction in a city is available and it has not been considered necessary to invite any global tender, the choice had necessarily to be made from amongst firms who have tendered for this work inspite of the scepticism inherent in having to entrust the very first work of its kind to a firm which does not have any direct experience of MRTS subway work'..... The Committee are of the view that by inviting global tenders the Administration could have at least a better idea of the reasonableness and competitiveness of rate quoted by various tenderers, particularly when there was no precedent for rates as the work was being done for the first time".

In as many as 28 major contracts each costing over Rs. 50 lakhs awarded upto May 1983, the value of the accepted tenders was higher by 26 to 219 per cent than the estimated value shown in the tender documents. The Ministry have attributed this increase to the general price rise between the period of preparation of abstract estimate and the award of contracts.

*Paras 1-177 A and 1-178 of 55th Report of PAC (7th Lok Sabha).

3.9 Further, there are stated to be wide variations between the contracted quantities and quantities actually executed. A review of 13 completed contracts in audit showed that such variations were as high as 240 to 1840 per cent over the contracted quantities. The Ministry have explained that the financial effect of these variations on the overall contract value was of a marginal nature varying from 0.31 per cent to 7.23 per cent only. In this connection the Ministry of Railways have contended further that control over the quantities is difficult to be exercised merely through the instrument of detailed estimates, in an underground Metro Project of vast nature, magnitude and complication, which had no parallel in the Railways, the project being undertaken for the first time in India. On the other hand, according to Ministry, control on quantities through detailed estimates is possible in case of works like quarters, station buildings, standard bridges, new lines etc. but not for underground Metro works with many imponderables and unknown factors.

3.10 The Committee are constrained to observe that for 13 years i.e. upto July 1985, the Project Administration could not prepare detailed project estimate. The three estimates prepared prior to that i.e. at the Project Report stage, in 1974 and in 1981 were all abstract in nature. The Railways' plea that sufficient data was not available at project Report stage is hardly convincing as the detailed quantities of works together with the method of construction must have been decided at that stage without which it would have hardly been feasible to award item rate contracts by inviting tenders therefor. Further on the basis of the prices prevailing internationally and particularly in the developing countries, it would not have been difficult to frame the detailed estimates. The Committee fail to understand why the full fledged set-up comprising of a big contingent of technical, administrative and ministerial staff existing for preparation of cost estimates including estimates of quantities of work could not prepare the detailed estimate initially itself and even thereafter for another thirteen years. The contention of the Railways that the detailed estimates could have been prepared only when the rates for contracts in the North Section were also known is not acceptable because the Railway Board themselves, while returning the second revised abstract estimate prepared by Project Authorities in October 1982, had asked them to submit detailed estimate by November 1982 knowing fully at that time that the contracts for North Section were unlikely to be awarded before November 1982. Further, the Committee cannot believe that the

rates for the contracts in the North Section were actually needed because the Railways have admitted that for civil engineering works, rates and quantities were readily available in the second revised abstract estimate for Rs. 560 crores prepared at 1980-81 price level and while calculating detailed estimates in 1985 rates have been suitably modified by a factor revised mainly to take into account the inflation upto 1984-85. Thus, it can be safely concluded that there has been inordinate and unaccounted delay in preparation of detailed estimates in the absence of which the correctness of the quantities included in the tender documents and evaluation of the tendered rates could not be ensured.

3.11 The extent of the adhocism with which the estimate was prepared at the project Report stage is gauged from the fact that the present estimated cost of Rs. 930 crores (which may be actually much more as discussed earlier) when discounted to the year 1971-72, by the price inflation, amounts to Rs. 401.56 crores, whereas the project was estimated to cost only Rs. 140.30 crores when it was sanctioned in 1972. Such unrealistic estimate was bound to run into difficulties as the Planning Commission and the Government had to make available larger funds for the project eventually and the allocation had to be spread over a number of years, the non-availability of adequate funds thus proving to be major cause for the delay in completion of the project and being the hope of the people that the project would be completed in six years.

(ii) *Availability of Funds*

3.12 Two main reasons for the slow progress of construction of Calcutta Metro during the first 8 years, according to the representative of Railway Board, were the inadequate allotment of funds by the Planning Commission under the Plan Head 'Metropolitan Transport Projects' and inability to enter upon certain areas in the North. On being pointed out that the Railways had taken 12 years to construct the South section which was under the Maiden or under the road and there was no question of land not being available, the witness stated that what he meant was the availability of land for diversion of roads, utilities etc. for which sufficient funds for the project, this work was also affected.

3.13 In reply to a query whether Planning Commission was any time advised of the consequences of the delay in the targetted completion of the project due to non-availability of funds, the Ministry

have informed the Committee that no specific written advice was sent to them in this regard but it had been pointed out to them in this regard during the discussions held at the time of consideration of the Railways Five Year Plans that inadequate allotment of funds would result in cost and time over-runs.

3.14 As regards the availability of funds for this project, the representative of Planning Commission brought out during evidence that it has been the concern of the Planning Commission to make as much provision as possible for this project and that within the constraint of resources, the funds availability for this particular project had been taken care of.

3.15 It is noticed in this regard that in the memorandum submitted to the Cabinet in March 1972, approval sought by Railways for a separate plan allocation of funds for the Calcutta Metro Project till a separate authority was constituted, was granted by Cabinet. However, for the various 5 year Plans, the Railway demanded consolidated funds for all metro projects and indicated the funds included therein for the Calcutta Metro Project. The Planning Commission approved a consolidated outlay for all Metro Projects, leaving the allocation to projects, *inter se*, to be determined by the Railways. The table below indicates the outlay asked for by Railways for all metro projects and provision for Calcutta Project included therein and outlay approved by Planning Commission for the various 5 year Plans.

Five Year Plan	Outlay as asked for by Railways		Outlays as approved by Planning Commission		
	For all M T Projects	For Calcutta Metro Project Rs. in crores	For all M T Projects Rs. in crores	For Calcutta Metro Project	
				Amount allocated	Amount spent
4th Plan (1969-74)	50.00	4.50	20.00*	5.33	5.39
5th Plan (1974-78)	410.00	125.00	50.20	229.84	29.72
Inter Plan Period i.e. Rolling Plan (1978-83)	348.00**	146.00**	125.00**	33.25**	33.30**
6th Plan (1980-85)	515.00	259.00	255.00	236.84	237.20
7th Plan	710.00	414.00	400.00	158.70@	159.24@

Note *The original allotment was Rs. 50 crores, but it was reduced to Rs. 20 crores at the time of mid-term appraisal of the 4th Plan, because the Calcutta Suburban Dispersal line Project, costing Rs. 30 crores, was dropped from the 4th Plan.

**These funds were for the five year period (1978-83), but the Rolling Plan concept was given up after only two years i.e. after the years 1978-79 and 1979-80.

@For the years 1985-86 and 1986-87.

3.16 The failure of the Planning Commission to allocate sufficient funds for the project during the 4th and 5th plan periods was taken note by the Committee, who recommended in this connection in their 55th Report as under:—

“Where project of such national importance are once sanctioned, adequate funds should be provided in time and it must be ensured that the progress of such projects do not suffer for want of funds”.

3.17 The table below indicates the annual allocation of funds in original estimates and revised estimates, as also the actuals there against upto 1986-87 in respect of Calcutta Metro Project:

Year	Original Estimate	Revised Estimate	Actuals
(Rs . in crores)			
1972-73	2.97	1.73	1.68
1973-74	6.93	3.60	3.71
1974-75	12.50	6.11	6.02
1975-76	8.41	5.96	5.89
1976-77	8.48	8.78	8.79
1977-78	8.62	8.99	9.02
1978-79	11.80	14.00	14.06
1979-80	16.00	19.25	19.24
1980-81	28.00	27.00	27.25
1981-82	25.65	31.60	31.53
1982-83	39.90	43.93	43.94
1983-84	62.52	63.81	64.04
1984-85	35.70	70.50	70.44
1985-86	81.75	80.50	81.04
1986-87	34.00	78.20	78.20
Total	488.28	463.96	464.85
1987-88	79.00	84.00	N.A.

The table above shows that whereas the Railways could not utilise the available funds in the first few years, the Planning Commission also did not allot sufficient funds for the projects during Fifth & Rolling Plans.

3.18 To the end of 1986-87, allocation to the extent of Rs. 23.48 crores had not been utilised and upto the year 1975-76 non utilisation of funds ranged between 30 and 52 per cent of the original allotments. Again, the actual expenditure in 1981-82, 1984-85 and 1986-87 was less than the initial allotment resulting in nonutilisation of funds to the tune of Rs. 4.12 crores, Rs. 15.26 crores and Rs. 5.80 crores respectively.

3.19 These surrenders of funds had been attributed by Railways to a combination of factors such as less supply of plant & machinery, non-finalisation of import deal for stores & equipments, delay in finalisation of tenders and import of stores from abroad, less allotment of steel, C. L. linings etc.

3.20 One of the reasons put forth by the Railways for slow progress of the project has been the shortage of funds, particularly during the first 8 years of the project i.e. upto 1980-81. The Committee note in this regard that despite the directive of the Cabinet for allocation of funds exclusively for this project, outside the normal plan allocation for Railways, the Railways presented a consolidated demand for all Metro Projects and Planning Commission allotted a consolidated fund for all metropolitan city projects, as a result, the Planning Commission as well as the Railways failed to treat the project as a special one. The Committee desire to know how and why the directive of the Cabinet was not implemented all these years.

It is seen from the statistics regarding the allocation made available for the project and the funds spent by Railways on it, that the Planning Commission as also the Railways are both responsible for this state of affairs. While on the one hand, whatever funds had been allotted through annual budgets upto the year 1975-76, were not utilised fully by Railways resulting in surrender of funds ranging between 30 and 52 per cent of the original allotments upto the year 1975-76, the allocations were far less than needs during 1976-77 to 1980-81, as a result of which the progress had to be regulated with reference to the available funds. Again the actual expenditure by Railways in 1981-82, 1984-85 and 1986-87 was less than the initial allotment resulting in surrender of Rs. 4.12 crores, Rs. 15.26 crores and Rs. 5.80 crores respectively. Whereas the project cost had been revised twice from Rs. 140.8 crores in 1972 to Rs. 559.14 crores in December, 1981, the actual outlay by the end of the year 1980-81 was only Rs. 95.70 crores.

3.21 The Committee note that despite the recommendation of this Committee in paragraph 1.194 (ii) of their 55th Report (1981-82)

and acceptance thereof, the allocation of funds for all metro projects in the 6th and 7th Plans were only Rs. 255 crores and Rs. 400 crores, as against requirement of Rs. 259 crores and Rs. 414 crores for the Calcutta Metro Project alone as requested by the Railways. In fact, to expedite the completion of the project, the Railways should have projected higher demands for the Metro Railway, Calcutta for Sixth & Seventh Plan periods. The reason for their failure to do so could not be adequately explained to the Committee. The Committee are convinced that non-observance of the specific directive of the Cabinet for separate and exclusive allocation for the project, as also non-implementation of their recommendations in the 55th Report for allotment of adequate funds, so that the progress does not suffer for want of funds are resulting in delays in completion of this project by a considerable period. Both the Planning Commission for its failure to consider this project as outside the Railway Plan Programme and the Railways for its failure to insist on implementation of directive of Cabinet owe an explanation to the Committee in this regard.

(ii) *Deficiencies in administrative set-up*
Independent Authority for Metro Railway

3.22 The Union Cabinet while approving the Metro Railway Project for Calcutta in 1972, had directed that the possibility of setting up a separate Metropolitan Transport Authority for Calcutta be investigated. The Planning Commission was directed to initiate discussion with the State Government and the concerned Ministries at the centre with a view to reaching a consensus about the composition and other organisational aspects, functions and responsibilities of this authority, its relation with the State Government and the Central Ministry responsible for the coordination of metropolitan transport in different cities.

3.23 The Railway Convention Committee in their Report of February 1973 regretted the delay in taking a decision in this important matter which was pending with the Government since January 1970 and observed that the whole matter regarding the financing and management of the metropolitan transit system was a sensitive subject requiring consultations and coordination with the State Government and other agencies. Taking note of the facts that such systems are managed by independent organisations in other countries and that the Administrative Reforms Commission had also recommended the

creation of a separate transport authority for the purpose, the Railway Convention Committee recommended that the Government should take a decision without loss of time in consultation with State Government and other authorities, so that necessary authority to manage the system could be organised on proper lines and associated with the project during the period of construction.

3.24 As a follow up of the directions of the Cabinet, the Planning Commission prepared a draft paper in October 1974 for the Cabinet and circulated the paper to the concerned Union Ministries. The Ministry of Finance in their comments suggested to the planning Commission to defer a decision on the formation of a new organisation for execution and management of the Metro Railway, Calcutta till more experience had been gained, and based on these suggestions, the draft paper was not put up to the Cabinet. According to the Ministry of Railways, there was constraint of funds for the project till 1980 and on that account the question of setting up of a separate authority remained dormant till then. When the allocation of funds to Calcutta Metro improved from 1980 onwards, the question of setting up a separate authority again became alive. At this stage the National Transport Policy Committee (NTPC) also submitted its Report. In March 1982, the Government accepted the recommendation of NTPC with certain modifications and decided that single transport authority would be in overall charge of all modes of transport in metropolitan cities including the Metropolitan Rapid Rail Transit system except for suburban rail services run on sections common to trunk railway operations. The cabinet directed the Ministry of Works and Housing to take further action in this regard in consultation with other Ministries and State Government.

3.25 Thereafter, a series of meetings were held by Ministry of Works & Housing with the representatives of West Bengal Government, the Calcutta Metropolitan Development Authority (CMDA) and the representatives of concerned Union Ministries. In the meeting of the Committee of Secretaries held on 30-12-1983 and on 31-7-1984, it was decided that:

- (i) The Calcutta underground railway system might be set up as a statutory Authority;
- (ii) The authority would be under Central control and would function under the Ministry of Railways for the time being;
- (iii) The functioning of the Metropolitan Transport Authority would be distinct from that of the Railways. It would have its own staff governed by separate scale regimes and terms and conditions of service.

3.26 A comprehensive draft legislation providing for the operation and regulations of Metro Railway, Calcutta including setting up of a separate Authority was then stated to have been submitted to the Ministry of Law. Chapter VIII of the draft legislation deals with matters pertaining to accounts of the proposed Authority and the subsidy to be given to it from the General Revenues for the maintenance and operation of Calcutta Metro.

3.27 The Ministry of Finance objected to the proposal for grant of subsidy for the operation and maintenance of Metro Railway and on that account, the enactment of the legislation was held up. To resolve the issue, the Railways prepared on 18.9.86 a memorandum for submission to the Cabinet, seeking approval, *inter-alia*, to the following proposals:

- (a) The capital fund of metro rail authority to be kept outside the Railway Plan;
- (b) The expenditure on renewals and replacement of Metro Rail Authority as also losses in operation of metro system to be financed from general revenues of Government.

3.28 The Cabinet Secretariat directed these proposals to be considered first by the Committee of Secretaries but this Committee could not reach a unanimous decision on these issues. The issues remained unresolved and in August 1987, the Railways intimated the Public Accounts Committee that a memorandum was being submitted to the cabinet shortly for consideration. Asked to intimate further progress on the issue, the Ministry of Railways have stated in a note that the Government have not yet taken a decision on the issues and that the Railways have been asked to submit a detailed note on the functions, powers, etc. of the proposed Authority, on receipt of which the matter would be considered by the Cabinet. Ministry of Railways have added that as setting up of the proposed Authority involves various legal and financial implications, these are being examined by them in depth, in consultation with the concerned Ministries/Agencies.

3.29 On the question of participation by State Government in the authority, the representative of the Railways stated during evidence that the West Bengal government had expressed its inability to participate in the monetary matters.

3.30 The Railway Ministry, have also observed that non-setting up of an autonomous authority had not affected the "timely execution and proper supervision of this Project."

3.31 The Cabinet, while sanctioning the project in 1972 had desired the Railway Board to investigate the possibility of setting up a separate Metropolitan Transport Authority for Calcutta. As far back as in 1973, the RCC had also urged the Government to examine the question of setting up an Independent Authority for Calcutta Metro as such Rapid Transit Systems abroad were also managed by Independent Authorities. The Committee understand that the Administrative Reforms Commission too had recommended creation of a separate Transport Authority for this purpose. Surprisingly, a final decision in the matter has not been taken even though the project has been in progress for the last 16 years. From the events stated by the Railways, explaining the position in this regard, it is apparent that the matter has been allowed to languish for want of seriousness and urgency that it deserved. The Committee cannot but deprecate the casual manner in which this vital matter has been shuttling amongst the Planning Commission, Ministry of Railways (Railway Board), Ministry of Finance, Cabinet Secretariat etc. and could not be given finality for 16 years. The Committee hope that the Government will now give the serious attention this important matter deserves and sort out the connected issues so as to reach a final decision as early as possible. The Committee would like to be apprised of the further progress in the matter.

Tenure of Service in Senior Managerial Posts

3.32 The Metropolitan Transport Project, Calcutta was headed by Chief Administrative Officers upto 27.8.1972 and General Managers thereafter. The following statement indicates the names of the Executive Heads of the Project from the beginning to date.

Sl. No.	Name's	Designation	Period of working		Reasons of leaving Project
			From	To	
1	2	3	4	5	6
1.	Sh. S.S. Goel	CAO	27.7.69	23.6.71	Transferred to Bombay.
2.	Sh. J.N. Roy	CAO	24.7.71 16.8.71	09.7.71 27.8.72	
3.	Sh. S.S. Mukherjee	GM	28.8.72	30.6.74	Retired.
4.	Sh. T.R. Vacha	GM	01.7.74	27.9.74	He was Addl. Member (W) Rly. Board, New Delhi and was looking after the duties of GM/Metro Rlys. till posting of a GM.

1	2	3	4	5	6
5.	Sh. P.K. Ganguli . .	GM	28.9.74	31.10.75	Retired.
6.	Sh. A.K. Chakravarti .	GM	1.11.75	31.8.79	Retired.
7.	Sh. A. Sukumaran . .	GM	12.9.79	31.10.80	Retired.
8.	Sh. P.V. Narayanaswami	GM	1.11.80	30.11.81	Retired.
9.	Sh. K.N. Dasgupta . .	GM	1.12.81	30.11.84	Retired.
10.	Sh. H.S. Sinha . .	GM .	1.12.84	31.10.86	Retired.
11.	Sh. Gauri Shankar . .	GM	1.11.86	17.4.87	Transferred to E. Railway.
12.	Sh. A.S. Agarwal . .	GM	18.4.87	Still Continuing.	

3.33 The past 9 General Managers held office for an average period of 1½ years each. Six of the nine past General Managers retired on superannuation from the post of General Managers Metropolitan Transport Project Calcutta.

3.34 Taking note of the frequent changes in top management posts, the Committee in their Report* of August 1981 on Metro Railway, Calcutta had emphasised the need to appoint General Managers or Chief Engineers who could continue on the job for a long time, preferably from the beginning of a project till the entire project was completed. The Committee had asked the Railways to examine in depth their suggestion for creation of ex-cadre posts especially for such a project which was being executed by the Railways on agency basis and had emphasised the need for laying down of proper guidelines in this regard for future. In their Action Taken Note the Ministry of Railways informed the Committee as under:

“The Ministry entirely agree with the views of the Committee. For such projects, continuity of persons in important management posts is essential for its efficient management. This has been kept in view while doing the new postings in the higher management cadre viz. C.Es, G.ms etc.”

3.35 However, it is seen from the aforesaid statement that even thereafter the General Managers have been appointed for short periods. This is evident from the fact that Shri H. S. Sinha was

appointed General Manager on 1 Dec. 1984 and he retired in October 1986. Shri Gauri Shankar appointed on 1 November, 1986 was transferred to Eastern Railway just after 5½ months in April 1987. Even the present incumbent (Shri A. S. Aggarwal) appointed in April 1987, as admitted by the representative of Railway Board during evidence, is available for 2 years only.

3.36 When asked during evidence as to why the General Managers for the project were selected from amongst those who were on the verge of retirement and why the Railways could not appoint a person who could remain with the project all through, the Chairman, Railway Board deposed that they had to put somebody on the top who was quite experienced. The Chairman, Railway Board added that when one General Manager superannuated they had to appoint the next senior man and his claim could not be ignored.

3.37 On being pointed out that the project was likely to take a few years more to complete and in that case another General Manager would have to be appointed, the representative of the Railway Board explained that the project had already taken in interminably long period and the reasons for this were not those which could have been solved merely by the continuation of the General Managers because the problems were such that even if a General Manager had continued, he could not have overcome these problems.

3.38 Apart from the delay in constituting the Independent Authority, the administrative set-up has been seriously handicapped due to failure to appoint General Managers as also senior officials at levels below the General Managers to the project for longer periods. As many as 10 General Managers have been associated with the project in the last 16 years. The past 9 General Managers held office for an average period of 1½ years each. Six of the 9 past General Managers retired on superannuation from the post of General Manager. Four General Managers held the office for a short period of about a year each while the 2 worked on the project for less than one year. The current incumbent is not likely to remain there till the completion of the project. What has perturbed the Committee is that even after conceding that for such projects, continuity of persons in important management posts, is essential for its efficient management and assuring* the Committee in July 1984 that this had been kept in view while doing the new postings in the higher management cadre viz. C.Es, G.Ms, etc. as many as 3 General Managers have been appointed since then in the Metro Railways. The Committee take a serious

* 2nd Report (Eighth Lok Sabha)

view of the fact that the Railways have failed to implement their earlier recommendation even after assuring them of taking necessary action in the matter. The Committee need hardly emphasise that continuity of administrative set-up at the top would have ensured a sense of involvement and responsibility in the minds of the incumbents. That, this has not been ensured for no better reason than giving recognition to claims of seniority of a few officials about to retire within a short period, shows lamentable lack of sense of priorities on the part of the Government.

3.39 The Committee fail to understand why, in the context of the intention to set-up a separate Authority, the entire project, which is not linked with trunk railway system, was not considered special and outside the normal project activities of the Railways for the purpose of appointments in the higher management posts. With a view to obviating the compulsion of making appointments by seniority from the Railways, the Committee in their Report of August 1981* had recommended of ex-cadre posts of General Managers. The Committee reiterate its earlier recommendation in this regard and trust that appropriate decisions will be taken without delay.

Technical Know-how

3.40 Calcutta being the first city in India where it was decided to go in for an underground Railway system there was hardly any technical expertise available in India for a project like this. According to the Railways they had to start from Zero knowledge and had to acquire and develop techniques and ideas of construction from outside agencies.

3.41 The Railways have further stated that the technical know-how sought by the Railways from abroad was confined to certain specific areas in which knowledge and experience were lacking. These comprised mainly the following aspects:

- (i) Planning of Metro System;
- (ii) Design of underground structures for Metro;
- (iii) Construction techniques for underground works
 - (a) Tunnelling through soft soil.
 - (b) Cut and cover construction.
- (iv) Architecture for Underground stations.

- (v) Design, construction, operation and maintenance of air-conditioning and ventilation systems;
- (vi) Design of Rolling Stock and maintenance facilities for the same;
- (vii) Automatic train operation and control system;
- (viii) Design and Construction of power supply system;**
- (ix) Operation of Metro services;
- (x) Automatic Fare Collection system.

3.42 Nothing that soil condition of Mexico City is similar to that of Calcutta and that the Mexico Metro was constructed in hardly 2½ years time notwithstanding its larger population as also greater length of the line than the Calcutta metro, the Committee enquired whether any study was made with reference to that metro railway. The Ministry have stated that the study was not conducted because the height from ground level to rail level in Mexico was only 3.80 metres as against 12.00 metres in Calcutta and that with the much wider expertise of the Soviet Metro, no other foreign expertise was deemed necessary at the techno economic feasibility study stage.

3.43 Asked to clarify whether there was any prohibition in getting more amount of technology from outside, the Chairman, Railway Board observed during evidence that the policy was that if we can do a work and become self-reliant, we should do it. The Chairman Railway Board added that in a job of this magnitude, a risk was undertaken, schemes were attempted on the advice of consultants, some succeeded and some failed; though the Railways gained valuable experience for doing such jobs.

3.44 The Committee had already observed in their Report* of August 1981 that in heavy investment oriented projects like Metro Railway, where indigenous expertise is not available, global tenders should be called for as a matter of general policy. Having regard to the trial and error methods adopted, as conceded by the Chairman, Railway Board during evidence, the Committee at this stage cannot but regret the highly unscientific approach to the task, resulting not only in substantial waste of funds on the trials which failed, but also in additional sufferings that were and are still being imposed on the Calcutta public during the extra years required for construction.

*55th Report (Seventh Lok Sabha)

(iv) Delays in finalisation of tenders and disputes with Contractors

3.45 The Report of the C&AG of India points* out that during the period June 1972 to June 1984 the Administration awarded 79 major contracts for structural Engineering works (diaphragm walls, sub-way structures including tunnels etc.) in 42 contract sections. A review of 16 major civil engineering tenders and contracts in audit revealed that delays in finalisation of tenders|contracts ranged between 12 and 34 months. According to the Ministry of Railways, the major reasons accounting for the delays were as follows:

- (1) Delay due to scrutiny of alternative designs submitted by the tenderers;
- (2) Large number of special conditions imposed by certain tenderers and time involved for sorting out these;
- (3) Repeated negotiations involved both at the administration level and at the Board's level;
- (4) Tenders remitted by the Board to the Railway Administration for clarifications on certain queries.

3.46 The list of 16 cases cited by Audit included 6 cases where the delays in finalisation of tenders amounted to 20 months or more. The reasons given by the Ministry of Railways for the delays in these cases are detailed in Annexure II. A review of the reasons indicates that factors as mentioned below were also responsible for delays in finalisation of tenders:

- (1) Resources constraint and ban on entering of new contracts between October, 1974 and April 1975.
- (2) Revision of priorities and consequent rephasing of works.
- (3) Delay in receipt of approval to the tenders from the Railway Board.
- (4) Delay in evaluation of the capacity of tenderers.
- (5) Lack of timely decision on requests for advances and special conditions.
- (6) Inordinate delays in conducting negotiations with the contractors.

3.47 As regards the steps taken to avoid delays in finalisation of tenders, the Ministry have stated that the powers for acceptance of

*Paragraph 10 of the Report of the C&AG for 1984-85 (Railways)

tenders by the General Manager have been reviewed and enhanced by the Board from time to time so that the necessity of average number of cases going to the Board for their approval could be minimised. The present power of the General Manager for approval of tender is Rs. 5 crores in each case as against earlier powers of Rs. 1 crore from 1974 to 1982, Rs. 2 crores from 1983 to 1984 etc. Some of the works like sub-way structures, tunnelling etc. where delay had occurred in a few cases were new types of works undertaken by Metro and the experience gained from such work has enabled the Administration to progressively reduce the time-lag subsequently.

3.48 When enquired whether the delays could not have been avoided if adequate financial powers were delegated to the General Manager, Metro Railway or if separate authority with required degree of autonomy had been created and continuity of key personnel were ensured, the Ministry have stated that only high value tenders have been coming to the Board for approval and the delays resulted due to the reasons enumerated above and not because the powers of the General Managers, in this regard, were not adequate. According to the Ministry, a separate Authority was constituted with autonomy, and continuance of key personnel was ensured, the benefits of a second high level in-depth study of high value tenders would have been lost, leading to complications and delays during actual execution.

3.49 Asked to indicate the particulars of works wherein disputes arose with the contractors, in execution of the agreement, necessitating reference of such disputes to arbitration, the Ministry have stated that apart from the 8 cases cited by Audit in its Report, there were 32 cases, of disputes which had been referred to arbitration. The progress in the 40 cases is reported as under:

Awards in favour of contractors	
paid by Railways	14 cases Rs. 130.62 lakhs.
Awards in favour of contractors but challenged by	
Railways in Courts	2 cases Rs. 122.56 lakhs.
	1 case 'over Rs. 3 lakhs'.
Disputes pending with arbitrators	23 cases

3.50 The Committee are concerned to note that a review of major Civil Engineering tenders and contracts has revealed delays in finalisation of tenders/contracts ranging between 12 and 34 months. Out of the various reasons furnished by the Railways

explaining these delays. the major factor accounting for these delays appears to be time taken by Railway Board in negotiating the cases, referred to them by the Project Authorities, at their level and in seeking clarifications on certain queries. The Committee feel that these delays could have been substantially curtailed if adequate financial powers were delegated to the General Manager, Metro (present power of whom has now been raised at Rs. 5 crores for approving the tenders) or if a separate authority with required degree of autonomy had been created. The contention of the Ministry that if the cases were not referred to Railway Board, the benefit of a second high level in-depth study would have been lost resulting in delay and complication during actual execution is not convincing as in spite of such scrutiny wide variations between the contracted quantities and quantities actually executed and sanctioning of non-scheduled items during the execution of the works took place depriving the Project of the benefit of competitive rates. Further, the large number of disputes with contractors and failure of Railways to avoid extra payment even in one disputed case belie the contention that reference to the Railway Board was necessary to avoid complications during actual execution of contracts. In the opinion of the Committee, the remote control by the Railway Board, on the other hand, contributed substantially to the delays and disputes, resulting in extra expenditure on litigation and payments as a result of awards in arbitration. At this stage the Committee can only hope that the Government will draw a lesson from this experience and avoid such situations by appropriate delegation of powers in future.

(v) Grant of extensions of contractors

3.51 For the major civil engineering contracts, the Administration had fixed the period of completion between 18 months and 56 months, depending upon the magnitude of the work involved. However, extensions ranging between 10 and 68 months were granted on Administration's account for reasons like delay in handing over worksites, non-availability of steel, cement etc. The grant of long extensions with the attendant additional financial liabilities on account of escalation and contractors claims for extra charges for idle labour, plant and machinery during the period of extensions not only resulted in slowing down the progress of work but also pushed up the cost of construction.

3.52 The Ministry have not calculated the financial liability which accrued on account of the delays in construction beyond the original contract periods.

3.53 Asked to indicate the basis on which the initial periods for execution of contracts were determined, the Ministry have stated that the initial periods for execution of contracts were arrived at keeping in view the anticipated time period required for completion of the work and assuming that there would be no fund constraints. It was also assumed that there would be no impediments to the smooth progress of the work in regard to such factors as listed below:—

- (i) Land acquisition.
- (ii) Availability of vital construction materials viz cement, steel and stone chips.
- (iii) Unusual monsoon.
- (iv) Utility diversion by other Agencies.
- (v) Unpredictable weak soil pockets.
- (vi) Law and order problems at site.
- (vii) Labour problems resulting in strikes and lockouts.
- (viii) Uncharted utilities springing surprises and taking time for diversion.
- (ix) Unusual occurrences like sewer bursts, subsidences, rupture of water mains etc.

3.54 Explaining the causes for extensions, the Ministry have stated that work sites are mostly under the busy arterial roads of Calcutta encumbered with flowing traffic with live utility services underneath. The Ministry have also stated that the handing over of work sites is dependent on the convenience of several extraneous agencies like traffic police, Calcutta Tramways, Calcutta Municipal Corporation, Calcutta Metropolitan Development Authority, Calcutta Improvement Trust, Calcutta Telephones, Calcutta Electric Supply Company, Calcutta Metropolitan Water and Sewage Authority etc. etc. According to the Ministry, several preliminary diversion works have to be done by these Agencies before site can be handed over, which result in delay in handing over of work sites. The Ministry have further stated that cement and steel being controlled commodities are always in short supply and cement producers are reluctant to supply levy cement to Government at lower levy rates, with the result that keeping cement supplies to contractors as required is a tight rope walk. As regards steel, the Ministry have stated that because there was overall shortage of production, Joint plant Committee used to allot less quantities than required

and steel mills were also reluctant to roll sections which were not profitable to them, resulting in shortage of steel and its non-availability in time.

3.55 As regards the shortage of power, the Ministry have stated that the whole city of Calcutta suffered power shortage for several years and the Metro works could not be made an exception.

High rate of contractors over estimates

3.56 Audit has pointed out that in the absence of sanctioned detailed estimates showing quantities, rates and costs based on realistic basis, the correctness of the quantities included in the documents and evaluation of the tendered rates could not be ensured. In respect of 28 major contracts, awarded upto May, 1988 cited by Audit as instances, the value of the accepted tenders was higher by 26 to 219 per cent than the estimated value shown in the tender documents.

3.57 Asked to justify the abnormal increases, the Ministry have stated that the estimated tender values were based on the original abstract estimates sanctioned in 1972 or on the revised estimates sanctioned subsequently, or on similar contracts awarded earlier whereas the contracts were entered into years after the estimates were prepared. The Ministry have further stated that in some cases, the tenders were for new items of work with special features.

3.58 The Committee are not convinced by the reasons advanced by the Railways for the grant of liberal extensions ranging between 10 and 68 months to the contractors. The delay in handing over of sites which were dependent on several extraneous agencies and which in turn resulted in granting of extension, could have been avoided by adequate planning and coordination with the concerned authorities in overcoming the problems, if any. The Railways' plea that the difficulties in shifting the utilities, especially the hidden ones, were not foreseen in the first instance, while fixing the contract period shows their casual approach in the matter. The Committee are pained that such a prestigious project has been allowed to suffer for want of basic inputs such as power, cement and steel, lack of timely availability or non-availability of which has also been cited as reasons for grant of the long extensions to the contractors. Timely and proper coordination with the concerned Agencies/Departments for procurement of these materials was essential for which the Committee consider that it was necessary that continuity of key per-

sonnel at the top level should have been ensured. The Committee are convinced that most of the reasons attributed to the grant of extensions could have been foreseen and had the periods of execution of various contracts been fixed realistically after taking into account all the foreseeable factors, much of the expenditure involved in escalation, idle time payments etc. necessitated by extensions could have been avoided. The Committee hope that the Government will draw suitable lessons from the expensive experience by ensuring that the periods for execution of works are fixed after taking into account all foreseeable hindrances.

3.59 The Committee are surprised to note that in a large number of contracts, the rates offered by contractors and accepted by the Project Authorities are far in excess of the anticipated cost as tendered by the Authorities and the high rates are attributed by the Authorities to the tenders having been invited years after the estimates were prepared. The clarification is indicative of the fact that the tender costs had not been updated with reference to the latest schedule of rates of the Railways with the result that there exists no method for an objective evaluation of the rates offered by the contractors for various items of work for an in-depth analysis. The Committee consider it necessary for all estimates of works to be revised and updated with reference to latest schedule of rates before tenders are invited, so as to facilitate a proper scrutiny of the tenders received, and strongly recommend that the Railways make such practice invariably in all cases.

(vi) *Time taken in change of technology from sheet piles to diaphragm wall*

3.60 According to the Railways, the sheet piling method was adopted initially for underground construction as it was suggested in the Project Report, which provided for 5.3 km. length with sheet piles, 4.2 km. length with diaphragm walls and the balance by other methodologies like elevated structures, tunnel, open cut with slopping sides, soldier piles and timber laggings etc.

3.61 The Project Report had envisaged multiple use of sheet piles and corroborated by the advice of USSR consultants, obtained in 1971. Sheet piles envisaged in the project Report were to be imported as those of the required thickness (Larssen or 6) were not rolled in India.

3.62 The comparative economics of the two methods viz. sheet piling and diaphragm wall technology hinged around whether multiple use of the sheet piles was practicable. Diaphragm walling was

cheaper if multiple use of sheet piles was not practicable. However, as per project Report, sheet piles could not be used for supporting road decking laid over them and were also not capable of being integrated with the main boxes. Due to the inherent low flexural rigidity, as compared to diaphragm walls, sheet piles were found to be prone to lateral deformation causing damage to adjacent utilities and buildings.

3.63 The first tender of sheet piling was floated in 1973 and the work was awarded in March, 1974. The Ministry have admitted that no trials were conducted or could be conducted before awarding contract for Section 2 with sheet piling technology. Section 2 itself was in fact a trial of sheet piling technology.

3.64 The sheet piles required for Metro works were of Larsen 5 or Larsen 6 type which are 22 mm thick and were to be imported from USSR. During deliberations with the Soviet Team who visited in 1974, indications were given by them to the Railways that supplies of piles would have to be spread over a number of years. However, indigenous 'Z' section piles with much lesser sections weight as compared to the imported piles were used by Railways in section 2.

3.65 The Ministry of Railways have stated that when some experience had been gained on the sheet piling work and definite conclusions were derived, it was considered prudent to switch over to diaphragm wall technology in 1978-79, which had by then successfully tried out in Section 11 & 12 in the Maidan area. Elaborating further in this regard, the Ministry have stated that from the actual field experience it was found that extraction and re-use of sheet piles was well high impossible and sheet piles had to be left buried. If only a single use of sheet pile was possible, the cost of sheet piling would be 25 to 30 percent higher than Diaphragm walls. Further, the decision to switch over to the Diaphragm walls was also based on the consideration that steel sheet piles could not be used in places where decking was necessary or where the surrounding areas are built up and abound in utilities. Moreover, it was considered that the sheet pilling method was fraught with risks in regard to safety due to separation of the clutches at deeper depths and also soil movement during extraction leading to ground subsidence.

3.66 However, it is seen that the Soviet Consultants had, in June 1974, informed the Railways that in USSR sheet piles were not extracted although they had advised them in 1971 that sheet piles

could be used 4 or 5 times. Again in September 1976 it was opined by them that technically it is not possible to extract sheet piles with available means as the clutches get jammed resulting in excessive friction.

3.67 When enquired as to why advice was obtained in this regard only from Russia and not from any other country having experience in the construction and operation of Metro Railways, the Ministry have justified their action for the following reasons:

- (i) USSR had the requisite expertise as evident by the well developed underground railway system at Moscow, Leningrad and Kiev.
- (ii) There was the possibility of the project being financed out of the favourable rupee balance accumulated with the Soviet Government.

3.68 The Ministry have admitted* that the officers deputed to foreign countries had not commented anything on the aspect of extraction and re-use of sheet piles. It is clear that they had no opportunity of seeing it.

3.69 In reply to a query why the change to diaphragm method was not done immediately after the revised Russian advice was known in 1974, the Ministry have explained that the contract in Section 2 was awarded in March 1974 and the Russian advice came in June, 1974. It would not have been prudent to change this contract just within three months of its award, when not even a single pile was driven and actual experience with Indian conditions was lacking.

3.70 On an enquiry why the diaphragm method was not adopted in the first instance, the Ministry have stated that without getting some experience with the sheet piles methodology (which would have been cheaper if multiple use of sheet piles was possible) which was stipulated in the approved Project Report, a major deviation in favour of another technology (which was only in the developing stages then in India), would not have been a prudent step.

3.71 As regards the sheet piling method, the Public Accounts Committee had commented adversely earlier also in Paragraph 1.186 of their 55th Report (7th Lok Sabha) which is *inter-alia* reproduced as under:

*Para 1.123 of the 55th Report of PAC (7th Lok Sabha).

"According to the Project Report prepared in 1971, no difficulty on the extraction of sheet piles and re-using them was anticipated. However, at the time of inviting tenders in November, 1972 the technical advice available was against it.....Despite this expert advice and the information available in technical literature that in the case of deep excavations sheet piles cannot be recovered due to deformation, as also absence of any studies by the Railway Administration regarding the feasibility of extraction of sheet piles under the Calcutta soil conditions, the Railway Administration invited tenders in November 1972, stipulating extraction of driven sheet piles in Contract Section 2 which lay in one of the most crowded localities of Calcutta. Again in June 1974 another Soviet team stated that in USSR sheet piles were not extracted. Though the letter of acceptance had been issued to the contractor in March 1974 and the work of driving sheet piles had not started by June 1974 but the Administration took no action either to modify the scope of the contract by deleting the work of extraction of driven sheet piles and carrying out necessary changes in the conditions of the contract. Soon after the driving of the sheet piles the contractor started representing that the extraction of the sheet piles was not feasible. The Audit para brings out that after examining the contractor's repeated submissions regarding non-feasibility of extraction of sheet piles, the Chief Engineer of the Metro Railway proposed in March, 1977 that the sheet piles already driven be left in position as the extraction and re-use of sheet piles was impracticable, even though in March, 1976, the Engineer-in-Charge had observed that the method of extraction adopted by the contractor, though slow, was practical and safe. The Committee fail to understand why in the face of overwhelming opinion against it, the Railway Administration decided to continue with extraction and re-use of sheet piles. That this was technically not a sound proposition has now been conceded by the Railway Board and the Committee find that in a subsequent tender, item for extraction of sheet piles was not provided for the same reason."

3.72 The Committee regret to observe that six precious years were taken by the Project Administration before realising in 1978-79 the disadvantages of sheet methodology and switching over to

Diaphragm Wall Technology which by then had successfully been tried out in two sections. The Railways were already aware of the majority of the constraints in the working of sheet piling method which are being advanced as the reasons for the switch over. For example, it was already known that sheet piles could not be used for supporting road decking over them and were also not capable of being integrated with the main boxes. Further, it was mentioned in the Project Report that due to the inherent low flexural rigidity as compared to Diaphragm Walls, they were found to be prone to lateral deformation causing damage to adjacent utilities and buildings. In spite of the knowledge of these shortcomings earlier, the Railways appear to have adopted this method as it was considered to be cheaper than the Diaphragm walling on the assumption that the sheet piles could be re-used according to the advice of USSR consultants obtained in 1971. Sadly enough, the Project Administration persisted with this method and did not choose to rescind the contracts awarded for sheet piling work in March, 1974 although the Soviet consultants had, in June 1974, informed the Railways that in USSR sheet piles were not extracted. The Railways also did not obtain fresh advice from some other country having experience in the construction and operation of Metro Railway with a view to removing any doubts in this regard. That, it was not done is regrettable. What has surprised the Committee more is the fact that the deputation of the officers abroad could also not be taken advantage of in this regard. The Ministry have admitted that they had not commented anything on the aspect of extraction and re-use of sheet piles. The considerable time taken in switch over to diaphragm walling has contributed a lot to the huge time and resultant cost over run which could have been avoided with intelligent anticipation and planning.

3.73 Another disquieting feature of this aspect is the fact that although as per the Project Report the sheet piles to be used in the Project were to be imported (Larsen heavy duty piles). yet, when sheet piles with required thickness were not available indigenously the Railways decided to go ahead with the use of indigenous sheet piles which were much weaker. After problems arose in import of the sheets from Russia the Railways did not explore the world market for its import. In the Committee's view, the very rationale of this methodology was defeated the moment the decision to use weak sheet piles was taken.

3.74 The Committee consider that the Railways committed serious mistake in:

- (a) Initially opting for sheet piling on the basis of Russian advice without appreciating the disadvantages discussed with it and only on the ground of slight cost advantage of this technology provided the sheets could be re-used.**
- (b) Persisting with this technology in the absence of sheet piles of required thickness/specification.**
- (c) Continuing with this technology even after the Russians made it clear (June 1974) that they had no experience in extraction and re-use of the sheet piles on the ground that tender had been awarded for sheet piling of a section in March 1974.**
- (d) Ignoring the revised advice by Russian experts (1976) that extraction of sheet piles is impossible because of jamming of clutches.**
- (e) Taking up diaphragm walling as the appropriate technology not earlier than 1978.**

The Committee consider that the Railways do not have an adequate system for reception, scrutiny for application, absorption and implementation of new technology and recommend that the present system be analysed for its defects and shortcomings and appropriate steps be taken for rectifying this serious situation. The Committee would like to be informed of the steps taken by the Railways in this regard.

CHAPTER IV

WORKING OF THE REMAINING PORTION

(i) *Award of consolidated contracts*

4.1 The Committee have been given to understand that in Section A & B (5, 6A, 7, 8 and 9) comprising Northern Section, works for diaphragm walls and road decking in sub-sections 5, 6A, 6B and 9 were awarded, in the early eighties, to M/s. National Projects Construction Corporation Ltd., M/s. Cemindia and M/s. National Building Construction Corporation Ltd. Contracts for diaphragm wall and road decking in sub-sections 7 and 8 could not be awarded, at that time since the State Police wanted these works to be started only after the completion of Sealdah flyover by Calcutta Municipal Development Authority. Later, in 1984, contracts for box construction works and other civil works for sub-way contracts in Section A & B, as also diaphragm wall and road decking in sub-sections 7 and 8 were awarded to M/s. Hindustan Construction Company Ltd.

4.2 The Ministry of Railways have contended that construction of sub-way in the Northern Section was relatively complicated compared to the Southern Section as there were no parallel roads for diversion of traffic in the Northern Section. Consequently, cut and cover method had to be modified by providing road decking to enable traffic to move overhead while construction of sub-way boxes would progress underneath. This construction methodology involved 'mechanised' construction using sophisticated equipments, cost of which would be about Rs. 10 to 12 crores and only a contract costing 3 to 4 times that amount could have been viable. Such a big contract could be executed only by big contractors, who have the necessary wherewithal. It was on account of this reason that it was decided to go in for global tenders for the Northern Section.

4.3 Another reason, according to the Ministry, for grouping various types of works in a single major contract was that the experience of executing works in the Southern Section, through the agency of a number of small contractors, had shown that the progress of work was not fast enough. It was, therefore, considered

that if a major contract was awarded on the basis of global tenders, big contractors with requisite machinery would come forward and the pace of work would get expedited.

4.4 In reply to a question as to why the modified cover and cut method, which was envisaged in the project report itself, was not applied while working in the Southern Section, the representative of Railway Board explained during evidence that the position was not that critical there with regard to space and they were able to divert the traffic to the parallel road to the large extent and occupy a portion of the main road also.

4.5 On being pointed out that this kind of decking on the platform could have been provided at the entire stretch of S P. Mukherji road from Esplanade and the miserable period through which the people had to go could have been avoided, the witness replied:

"It was a process of evolution. It evolved itself. Even during the work on the Southern Section, we learnt that on the Northern Section it will be more difficult."

4.6 The Committee feel that cover and cut method adopted in Northern Section and consequent grouping up of various types of works in a single major contract should also have been used in Southern Section which apart from expediting the construction would have helped in avoiding to a larger extent the sufferings and inconvenience caused to the population along the entire stretch of S.P. Mukherji Road from Esplanade. That, this method envisaged in the project report, was not applied while working in Southern Section is regrettable. The Railways could not explain why decking even to the extent used in the Northern Section was not used in the Southern Section except to indicate indirectly that the necessity for the same so as not to inconvenience the public had not been appreciated by them. The Committee consider this to be even more regrettable.

(ii) *Constraints on timely completion*

4.7 On the difficulties due to which the Railways are unlikely to complete the project in time, the Ministry of Railways have explained that the main reason for anticipated time overrun beyond December 1990 has been the delay of nearly 1½ years that took place in obtaining possession of the first 10 plots of land between Shyambazar and Esplanade. According to the Ministry (January 1988) the main bottleneck still existing is land acquisition which is being done by the State Government. During the last one year

several meetings have been held by them with Chief Secretary, Minister for Urban Development and Chief Minister of the State in this regard. Explaining further in this connection, the Ministry have identified the following constraints which may become critical in the event of unforeseen delays beyond the control of the Project Administration:

- (a) Handing-over of the remaining 12 plots of land needed for various surface structures between Shyambazar and Esplanade. Out of these 8 plots are still under Court Injunction. These include 5 plots at Shyambazar—5 point crossings which are required for constructing a power receiving station to feed traction power to Metro trains. If possession of these is not given by April 1988, this again could lead to a further time overrun.
- (b) There are 8 road crossings in the Shyambazar Esplanade section. Each of these crossing will present construction problems requiring execution in phases, duly directing the traffic as well as underground utilities. For tackling the crossings, the required road blocks and traffic regulation have to be arranged by the Police in the different stages, failing which, these could also prove to be critical.
- (c) M/s. Hindustan Construction Company Ltd., who are the main contractors now for the entire length between Belgachia and Esplanade, which is yet to be completed have lately been facing certain cash-flow problems, due to non-realisation of their dues from other projects in India and abroad. All possible efforts are being made to see that their work does not slow down on this account.
- (d) Underground work involves diversion of several utilities laid underground, like pipe line cables and sewers. The available plans of many of these utilities are not fully tallying with the actual lay out at site. As a result, unforeseen problems arise when any utility like pipe line or cable is unexpectedly encountered during excavation. The Project Organisation has to depend on the utility agencies like Calcutta Electric Supply Corporation, Post and Telegraph, Calcutta Municipal Corporation, Calcutta Municipal Development Authority etc. to divert them promptly on being approached to enable Metro construction to proceed speedily.

4.8 As regards the acquisition of plots, the Ministry of Railways have informed the Committee on 27 October 1988 that the State Government has not handed over the 12 plots of land required by Metro Railway for various surface structures so far despite several requests including from the Minister of State for Railways addressed to the Chief Minister, West Bengal and neither the reasons for not handing over the plots nor the likely future date for this purpose have been made available by the State Government.

4.9 As regards the work on road crossings, the Ministry of Railways have further informed the Committee that these crossings* lie on important arterial roads in East-West direction. 4 of these have tram lines and remaining 4 have large diameter trunk sewers under them. According to the Ministry, several stages are required to tackle a road junction, because main road traffic, cross road traffic and tram traffic have to be kept flowing while work is in progress. The Ministry have further stated that road junctions can only be partially blocked in consultation with police, with suitable traffic diversion arrangements.

4.10 Further, according to the Ministry, work has been done on tram line diversion on Lenin Sarani. Work has also been started on Grey Street, and Colutola Street junctions in consultation with police. Police felt that dates for alternative roads should be staggered as far as possible, to reduce inconvenience to road users in East-West direction. They were not agreeable for total stoppage of traffic on cross roads. Only in case of Beadon Street, blocking of roads was considered possible for short periods.

(i) Grey Street (Arabinda Sarani)	}	Section—A.
(ii) Beadon Street		
(iii) Vivekananda Road		
(iv) Mahatma Gandhi Road	}	Section — B.
(v) Colutola Street		
(vi) B.B. Ganguli Street		
(vii) Ganesh Chandra Avenue	}	
(viii) Lenin Sarani		

4.11 The Committee have been given to understand that the time required for completion of works at these road crossings will be varying from $2\frac{1}{2}$ to $3\frac{1}{2}$ years, according to the number of stages and the quantum of sequential works, without blocking the road completely (i.e. only partially) though with full blocking of cross roads, about 6 months time can be saved.

4.12 As observed earlier in the Report, the Committee have a feeling that keeping in view the likely expenditure to be incurred, availability of funds and the infrastructure available with the Railways to utilise the funds in a year, the project is not likely to be completed till 1993-94 although Railways expect it to be completed by June 1991. According to the Railways, the reason for the time over-run anticipated beyond December 1990 has been the delay of nearly $1\frac{1}{2}$ years that took place in obtaining possession of first 10 plots of land between Shyambazar and Esplanade. The main bottleneck still existing in the completion of the project according to them, is the acquisition of 12 plots of land needed for various surface structures. On the expectation that possession of these plots would be handed over by April 1988, the Railways expected the completion of the project by June 1991. The possession of these 12 plots has not been handed over to the Railways so far. This is likely to lead to further time over-run. Out of these 12 plots, 8 are stated to be under Court Injunction. The Committee desire that Railways should impress upon the State Government the need to get the Court Injunction vacated expeditiously in respect of these plots. As regards the remaining 4 plots, the Committee are surprised to point out that Railways have not been able to ascertain the reasons for the delay in taking possession thereof. For the expeditious completion of the already belated Project, it is essential that all these 12 plots are acquired at the earliest. For this, the Railways should take up the matter with the State Government once again at the highest level.

4.13 The Committee also desire the Railways to complete the work on the 8 road crossings expeditiously and in constant consultation with traffic police in such a way that it does not cause avoidable inconvenience to the road users. As regards the problems involved in underground work, the Committee expect the Railways to tackle them effectively by springing into timely action

the various concerned agencies for repairs/maintenance etc. and for which close coordination should be maintained with them at the appropriate level.

....

(iii) Monitoring of the Progress

4.14 The progress of the project, according to Ministry of Railways, is being monitored through PERT Charts. Completion of certain activities which are important are termed as milestones. The Committee are informed that a list of milestones is made out by the Railways for every year, indicating the target for achievement of each milestone. If there is slippage of any milestone, reasons are analysed for taking immediate corrective action. Slippages of milestones are intimated through a monthly 'flash report' to the Ministry of Programme Implementation directly by the Project Authorities, with a copy to the Railway Minister. Railway Ministry after a scrutiny of the 'flash report' sends an 'exception report' to the Programme Implementation Ministry, indicating action taken.

4.15 On being asked whether the method of monitoring through PERT Chart was an adequate method, the representative of Railway Board explained during evidence that the project organisation was bringing out the physical problems if any, and monitoring the progress achieved and that instructions have been issued to monitor every ten days the quantities achieved vis-a-vis the balance remaining to be done. However, the Chairman, Railway Board admitted that quantity-wise checking was not done at Ministry's level though it was certainly being done at the General Manager's level.

4.16 Asked to clarify how despite the availability of a monitoring system, delays in finalisation of high value tenders of Rs. 50 lakhs and above arose to the extent of 7 to 25 months, the Ministry have stated that in the beginning, the control on project implementation was through Bar Charts and that CPM/PERT Charts were introduced about 1985 only. According to the Ministry, all these Charts by themselves can only point out that something which should have happened by a particular date has not happened; and the monitor them communicates this to the implementor for taking suitable action to overcome the delay. In the view of the Ministry a Chart, only detects a malady but action to correct the malady lies with the implementor.

4.17 The Metro Railway Administration have now started monitoring the progress of the project through mile-stone system under

which only the key events are identified and their completion monitored through flash reports. This system suffers from the inherent deficiency in that neither the work break-down structure is prepared nor inter-dependencies between the events are taken care of. The Committee desire the Railways to take appropriate measure to remove these deficiencies.

4.18 Even though the quantity-wise progress is stated to be under constant monitoring of the Project organisation it would have been better if the same had been done at Ministry's level. Even the issuance of Ministry's instructions to monitor this progress every ten days is belated and perhaps has been prompted due to taking up of examination of the subject by the Public Accounts Committee. The Committee hope that henceforth the quantity-wise progress would also be constantly monitored at the Ministry's level with a view to ensuring the expeditious completion of the Project.

CHAPTER V

METRO COACHES

5.1 Audit para points out that the Integral Coach Factory, Madras was asked to supply 16 prototype coaches for carrying out trial run over a period of two years or 2 lakh kms., whichever was earlier to prove the reliability of the design, workmanship and materials before starting series production. The first order for manufacture of 8 prototype coaches was placed on the Integral Coach Factory in August 1977 with the condition that their manufacture should be so planned that the field trials could commence from December 1979/July 1980. The second order for series manufacture of 136 coaches inclusive of the second lot of 8 prototype coaches were placed in July 1978. The prototype coaches were, however, received on Metro Railway during the period September 1981 to May 1983. In order to commence commercial operation of Metro Railway over a stretch of 1.74 kms. approximately by 1984, the Administration approached the Railway Board in February 1982, to give clearance for undertaking series manufacture of 12 coaches out of the total number of 136 coaches to be supplied on the basis of trial run of BHEL type prototype. Formal order for manufacture and supply of 12 such coaches was placed by the Railway Board on the Integral Coach Factory in July 1982. While apprehending that it may not be possible for the Integral Coach Factory to deliver the 12 coaches in time to enable the Administration to commence commercial operation, the Project Administration decided, with the approval of the Railway Board, in June 1983 to withdraw the BHEL type prototype rakes comprising 8 coaches from the trial run and send them to the Integral Coach Factory, Madras for carrying out rectification and modification based on the trial run undertaken till then. Consequently, the BHEL type rakes (8 coaches) were withdrawn from the trial run even though the targetted period of two years' running or 2 lakh kms. of their trial run had not been completed. While the first rake was withdrawn after completing trial run for 21 months and 16138 kms., the second rake was withdrawn in September 1989 after completing trial run of 14 months and 17181 kms. It is not clear how the Administration has ensured the reliability of the design had been ensured by adopting a proven bogie design

workmanship and materials of the coaches without the scheduled trial runs.

5.2 In this connection the Ministry of Railways (Railway Board) have explained that the reliability of the design and shell structure similar to that of MG Units with necessary modifications. The Ministry of Railway have stated that the trial run of 2 lakhs kms. or for a period of two years whichever is earlier for prototype coaches had been initially envisaged on the premise that a new type of Metro stock would be designed and manufactured on the recommendation of the Soviet experts. According to the Ministry, the completion of scheduled trial run was not possible due to short length of track for trial operations and as a proven bogies and shell design was adopted, the withdrawal of the coaches before the completion of the scheduled run did not in any way affect the reliability of the design etc. of the coaches.

5.3 The Committee note that the scheduled trial runs of the prototype coaches were not completed either for the prescribed period or for the prescribed kilometerage. The Committee are not sure whether these minimum trials were prescribed by technical experts and whether the reduction in the targeted trials is justified technically. The Committee only hope that the shortfalls in the scheduled trial runs do not in any way endanger safe travel by public and that adequate care has been taken to ensure the reliability of the design, workmanship, materials etc. of the coaches even though the scheduled trial runs have not been completed.

CHAPTER VI

FINANCIAL VIABILITY OF THE PROJECT

6.1 Based on the original estimated cost of Rs. 140.3 crores, the project was considered financially viable if an average fare of 32 paise per passenger trip (to break even with costs including 6 per cent interest charges) was adopted. The cost of operation and earnings were assessed on the presumption that the system provided for a train frequency of 24 points per hour during the peak hours and a traffic of 1.3 million passenger trips per week day in the year of opening, with a journey time of 32 minutes for the distance of 16.43 kilometres interspersed with 16 stations.

6.2 To cater to the needs of a traffic of 1.3 million passengers per day, it was estimated that 230 coaches would be needed with a headway of 90 second during peak hours. The second Revised Abstract estimates took into account the traffic requirement of 1.7 million passengers per day and envisaged a provision of 336 coaches fitted with Continuous Automatic Train Protection (CATP) with cab signalling. However, on the basis of actual commuter potential created by operation in the Esplanade-Tollyganj Section, the Railways have felt that it would take some time for the traffic potential of 1.7 million passengers to develop and provision has been made for 230 coaches only for a traffic of 1.3 million passengers in the revised estimates.

6.3 It was brought out in the Project Report that any shortfall in the average realisation per passenger below the flat fare of 32 paise would necessitate annual subsidy. This was based on the assumption on the completion cost of the Project of Rs. 140.27 crores and did not take into account the impact of inflation during the period of completion.

6.4 With the increase in the project cost, the financial liability has been calculated at different stages by the Railways. As per the financial analysis carried out on the basis of the cost of the project as estimated in 1982-83, the projected quantum of deficit of the assumption that there was no dividend liability, was Rs. 12

crores per annum. The calculations assumed a flat fare of Re. 1 per trip. The break-even fare to cover the cost on the above basis, worked out to Rs. 1.31 approximately as against Re. 1 fixed. Based on the latest revised cost of the Project amounting to Rs. 863.37 crores and the traffic level projected for 1990 when the project is scheduled to be completed, the financial viability of the project has again been assessed. This assessment also show that an annual subsidy of Rs. 12 crores will be needed for this Project.

6.5 The fare per trip now being charged is Re. 1 upto a distance of 5 Kms. and Rs. 1.50 for the distance beyond 5 kms. According to Railways, the broad principle adopted for fixing this fare was that the fare should be comparable to mini bus fare in the city for similar distance and actually, the Metro fare is slightly lower than the mini bus fare but higher than the ordinary bus fare.

6.6 Despite the creation of potential for 13 million passengers per day, the occupancy ratio of the limited service introduced so far i.e. Esplanade-Tollyganj and Dum-Dum-Belgachia Sections has not been satisfactory and according to Railways is as follows:

Section		8 Coaches	4 Coache
1. Esplanade— Tollyganj	Peak hours	38.8%	77.0%
	Non peak hours	16.8%	33.66%
2. Dum Dum— Belgachia			6%

The passengers carried, earnings and working expenses for the years 1984-85, 1985-86 and 1986-87 have been as under:—

Year	Passengers carried	Earnings (Rs. in lakhs)	Working expenses	Percentage of earnings to working expenses
1984-85	14.66	14.66	28.67	51
1985-86	27.58	27.58	113.61	24
1986-87	98.41	122.58	213.30	57

6.7 According to Railways, the introduction of limited service has not been profitable and even after introduction of service on the whole line when completed, the operation will not be financially viable. Consequently the Government have exempted the capital invested in the project from dividend liability.

6.8 The table below indicates the projections for traffic, earnings and working expenses from 1987-88 to 1990-91.

Year	Passengers; carried Projected	Revenue	Operating expenses	Loss
	(in lakhs)	(In lakhs of Rupees)		
1987-88	157.54	205.75	449.00	243.25
1988-89	188.00	271.00	672.00	401.00
1989-90	195.00	281.00	722.00	441.00
1990-91	210.00	301.00	772.00	471.00

6.9 The losses for the years 1984-85 to 1986-87 and the projected losses for the years 1987-88 to 1990-91 as mentioned above, do not take into account the provisions for depreciation and the interest charges. According to Railways the Cabinet has not yet taken a decision on the Ministry's proposals for (i) grant of subsidy needed for operation/maintenance of Calcutta Metro from 'General Revenues', (ii) providing cost of renewal/replacement of assets for Calcutta Metro from 'General Revenues', and (iii) Keeping the capitals of this Project outside Railway's Plan. However, the present arrangement is that the loss is borne by the Ministry.

6.10 In this connection, the representative of the Planning Commission brought out during evidence that apart from the question of depreciation the other issue involved was whether the capital at charge for the Railways would be interestfree or not and it was his understanding that a paper was being prepared by the Ministry of Railways on the subject for being presented to the Government for a final decision. He added that on account of substantial expenditure on the project, it is their anxiety that the depreciation provision should be made because otherwise the replacement of rolling stock would become a problem.

6.11 The traffic now projected by Railways for the year 1990-91 is about 21 million passengers on the part line commissioned so far. The anticipated traffic projected in the Project Report for the year 1990, though on the whole line, was 612.4 million passengers. On doubts being expressed about the utility of Metro Railways taking into consideration the huge investment involved in it, the Ministry of Railways have stated that assessment was made at the Project Report stage and it was established that the Metro Railway was going to serve the purpose it was intended for. With the opening of Esplanade-Tollyganj Section, the traffic has been developing but rather slowly. However, the Ministry expect that after the full stretch of line from Dum Dum to Tollyganj is opened, the purpose of this line will be fully served.

6.12 In reply to a query as to whether any change/expansion is necessary in view of the growth of Calcutta in North and South directions, the Ministry have stated that at the time of feasibility study the planning was that peripheral areas should be reached by surface lines after the Metro line comes out of the underground. During the last 15 years, there has been vast development in South Calcutta towards Garia. It is therefore felt that expansion from Tollyganj to Garia is a first priority. The Ministry have, however, added that at present the subject of "Urban Transport" is under the purview of the Ministry of Urban Development and it is for them to consider this matter.

6.13 The Metro railway, Calcutta has not been able to cover its working expenses by its traffic earnings on the part line commissioned so far have been mounting ever since the skeleton service was first introduced in 1984-85. These have increased gradually from Rs. 14.01 lakhs in 1984-85 to Rs. 243.25 in 1987-88 and are projected at Rs. 471.00 lakhs in 1990-81. These losses would assume alarming proportions if the interest on the huge capital involved and the depreciation provisions are added to these figures. What is a matter of great concern to the Committee is the Railways' own assessment that the project is unlikely to become financially viable and may need an annual subsidy of Rs. 12 crores to meet the working expenses even what the whole line is commissioned. The metro railway administration must explore all avenues for cost reduction. Availability of power at reasonable rates, keeping the charges of repair & maintenance and establishment under strict check are some of the possible measures on which both the Ministry and the Administration can concentrate their efforts with a view to making the project financially viable. The Committee would like to be apprised of the steps taken or proposed to be taken to keep the costs within control so as to minimise the deficit.

6.14 Where as the Government is stated to have exempted the capital investment on MTP/CAL from dividend liability in perpetuity due to its financial unviability, the Committee consider that it is absolutely essential that depreciation provision is invariably made in the annual accounts so that the replacement of rolling stock does not become a problem in the future. Although the operational losses are being borne by the Railways at present, it is incomprehensible as to why the depreciation charges are not being provided. Further Government have not yet taken a decision as to whether the subsidy needed for operation/maintenance as well as the cost of renewals/replacements of assets should be met from 'General Revenue' or from 'Railways Revenue'. The delay in taking such a vital decision even after lapse of 4 years since the part service became operational in 1984-85 is inexcusable. The Committee can hardly over-emphasise the need for taking early decision in this regard.

6.15 With a view to increasing the passenger traffic on the Metro line, Government may examine the feasibility of reaching the peripheral areas by surface lines after the Metro line comes out of the underground. This would also perhaps meet the growing demand of transport in view of vast development and expansion in North and South directions. Since it is in national interest that this project becomes financially viable and serves the desired purpose, the Ministry of Urban Development, who has now been entrusted with the task of 'Urban Transport', should in consultation with State Government act in this direction at the earliest. It is expected of the Railways and Planning Commission to extend all possible help to them in this regard. The Committee would like to be apprised of the progress made in this regard.

6.16 The Committee have been given to understand during evidence that it may not be possible for the Government to take up such huge projects as Metro Railway, Calcutta even in over-crowded cities unless there is some financial participation from the State Governments. The Committee cannot help expressing their anxiety that the experience gained by the Railways in construction and operation of the Metro Railway at Calcutta at considerable expense should not be allowed to go waste. Keeping in view the long term traffic needs in the cities bursting with population, it is imperative to undertake such projects in other large cities as well. The Committee would, however, like the Government to establish the norms for the pattern of financing by Central and State Governments and other concerned authorities including the railways on the objective basis.

NEW DELHI;
March 7, 1989
Phalguna 16, 1911 (Saka)

AMAL DATTA,
Chairman,
Public Accounts Committee.

APPENDIX I

(*vide* para 1.12)

Metropolitan Transport Project, Calcutta

Introduction

10.1 During the Fourth Plan period the Railways undertook techno-economic feasibility studies for Mass rapid transit system in Bombay, Calcutta, Delhi and Madras. Railway Metropolitan Transport Organisations were set up in Calcutta and Bombay in July 1969 and in Delhi and Madras in July 1971. A separate provision of Rs. 50 crores was made for these projects outside the Railways' Plan, which was reduced to Rs. 20 crores during mid term appraisal. However, only one project of rapid transit system (underground) between Dum Dum and Tollyganj (16.43 km.) in Calcutta estimated to cost Rs. 140.3 crores was sanctioned in June 1972 [cf. Para 7.25 of the Report of the Comptroller and Auditor General of India for the year 1973-74—Union Government (Railways)]. While sanctioning the project, the cabinet desired the Railway Board to investigate the possibility of setting up an independent Authority for Metropolitan Transport, Calcutta. The Railway Convention Committee (1971) too recommended (February 1973) constitution of necessary administrative authority who could also associate with the project during the period of its construction. However, even after a lapse of over 12 years, a final decision for constituting an independent authority is yet to be taken (November 1985). In the mean-time the project continued to be executed by the Railways on agency basis.

10.2 Project cost, Planning and Execution of work

10.2.1 Delays in preparation and sanction of detailed estimates

The Railway Board had desired the Administration to submit detailed estimate for 'General Charges', 'Land' and 'Preliminary Expenses' by 31st December 1972, and for other capital heads in due course. The first revised abstract estimate (Rs. 249.54 crores) involving an increase of 78 per cent over the original estimated cost

was submitted by the Administration only in 1974 and sanctioned by the Railway Board in December 1975.

The actual outlay by the end of the year 1980-81 was Rs. 95.70 crores only. A second revised abstract estimate for Rs. 559.14 crores submitted for sanction in December 1981 was returned (October 1982) by the Railway Board with the instructions to frame and submit detailed estimate by November 1982, based on the actual cost of completed works, the likely expenditure to be incurred on the works in progress at the accepted tendered rates, and evaluation of the balance works at the prevailing price level. As per projection of likely cost intimated to the Railway Board in March 1983 the project was expected to cost Rs. 764.83 crores. The required detailed estimate has not so far (November 1985) been submitted by the project Administration. The amount held under objection (March 1985) for want of estimate was Rs. 179.18 crores.

In the absence of sanctioned detailed estimates showing quantities, rates and cost based on realistic basis, the correctness of the quantities included in the tender documents and evaluation of the tendered rates could not be ensured. For instance in as many as 28 major contracts (each costing over Rs. 50 lakhs) awarded upto May 1983, the value of the accepted tenders was higher by 26 to 219 per cent than the estimated value shown in the tender documents. Besides, there were wide variations between the contracted quantities and the quantities actually executed. A review of 13 completed contracts in audit showed that such variations were as high as 240 to 1340 per cent over the contracted quantities.

These variations resulted in vitiation of the tenders as originally invited and the contracts as entered into. [A comment as to how the changes in the scope of work and construction methodology as well as extra contractual payments sanctioned during the execution of the contract vitiated the comparative evaluation of tenders made initially for the purpose of awarding contracts and led to additional liability, had been included in Para 13 of the Report of the Comptroller and Auditor General of India for the year 1978-79—Union Government (Railways), dealing with contract section 2 of the Metrol Railway].

10.2.2 Operation of Non-Scheduled items

A review of 35 completed contracts by Audit disclosed that 291 non-scheduled items had been sanctioned during execution of the works upto December 1983 involving payments of Rs. 77 lakhs. The

non-inclusion of these items in the original tenders/contracts resulted in depriving the Administration of the benefit of competitive rates.

10.2.3 *Delays in finalisation of tenders and awarding of contracts*

During the period June 1972 to June 1984 the Administration awarded 79 major contracts for structural Engineering Works (diaphragm walls, subway structures including tunnels, etc.) in 42 contract sections. Out of the total projected outlay of Rs. 764.83 crores (March 1983), the value of Civil structural works was estimated at Rs. 367.01 crores. A review of 16 major civil engineering tenders and contracts in audit revealed that delays in finalisation of tenders/contracts ranged between 12 and 34 months.

10.2.4 *Grant of extensions to contractors and Postponement of completion date*

2.4.1 For the major civil engineering contracts (diaphragm walls and sub-way structures, etc.), the Administration had fixed the period of completion between 18 months to 56 months, depending upon the magnitude of work involved. However, extensions ranging between 10 and 68 months were granted on the Administration's account for reasons like delay in handing over worksites, non-availability of steel and cement, etc. The grant of long extensions (10 to 68 months) with the attendant additional financial liability on account of escalations and contractors claims for extra charges for idling of labour, plant and machinery during the period of extensions not only resulted in slowing down the progress of work but also pushed up the cost of construction as mentioned in succeeding paragraph.

Between June 1972 (when the original abstract estimate was prepared) and March 1983, (when the latest projection was made) there had been steep increase in the estimated cost of Civil engineering works (359.4 per cent), Electrical engineering works (903.93 per cent), Signalling and Telecommunication engineering works (318.02 per cent), General charges (277.96 per cent) and Rolling Stock (820.53 per cent). This was mainly attributable to the escalation in the rates of material and labour (wages), change in the methodology of works from sheetpiles to diaphragm walls, introduction of new items, increase in quantities of work and the likely prices of rolling stock having become known after placement of orders on the suppliers, etc., etc.

2.4.2 In the course of execution of works in a number of contract sections disputes arose on account of claims preferred by the contractors for payment of extra charges for idle labour, plant and machinery as also for overheads, etc. As at the end of June 1984, 8 cases had been referred to arbitration for contractors' claims aggregating to Rs. 5.31 crores. These cases have not so far (January 1986) been decided.

2.4.3 The work on the project commenced in March 1973 and was expected to be completed by the end of 1978. Subsequently, the date of completion of the 1st phase of construction from Dum Dum to Shyam Bazar and from Esplanade to Tollyganj was fixed as 1984, which was later on changed to March 1985. The second phase from Shyam Bazar to Esplanade was scheduled to be completed by March 1987. However, the first phase was not completed due to various administrative delays/lapses, till March 1985 as stipulated. Only two stretches of it running from Esplanade to Bhowanipore (3.57 km.) and from Dum Dum to Belgachia (2.225 km.) were opened to traffic with limited service in October and November 1984 respectively.

10.2.5 *Grant of Advances*

For execution of underground construction work various utilities and service lines like telephone cables, electric power cables, gas, water and sewerage pipelines, tram lines, etc. passing through/across Metro Railway alignment had to be diverted or shifted by the utility agencies concerned. The expenditure for shifting was to be borne by the project Administration. Accordingly, advances as demanded by these agencies were paid by the Administration. Although in several cases the diversion or shifting of the utilities/service lines had been completed long ago, the completion reports thereof had not been drawn by the concerned utility agencies. Consequently, the actual expenditure incurred by the agencies out of the advances paid by the Administration, could not be known. A review in audit of the advances paid to the utility agencies showed that an amount of Rs. 1.91 crores pertaining to the period 1973-74 to 1981-82 was lying unadjusted at the end of January 1986.

Advances were also paid to suppliers of steel and cement for getting supplies of materials. Large amounts of such advances had been lying unadjusted since 1978-79 due to materials not having been supplied or short supplied. The amount of such advances lying unadjusted for over one year was Rs. 1.41 crores as at the end of January 1986. The Administration stated (June 1985) that a special drive had been launched for clearance of such advances.

10.2.6 Allocation of Funds and Progress of Expenditure

According to the project Administration the prolongation of construction was, amongst other reasons also due to paucity of funds. A review of the position has revealed that whatever funds had been allotted through annual budgets upto the year 1975-76 had not been utilised fully, resulting in surrender of funds ranging between 29 and 51 per cent of the original allotments upto the year 1975-76. Even during the year 1981-82 the original allotment of Rs. 35.65 crores was revised to Rs. 32.60 crores during mid term appraisal. However, the actual expenditure was only Rs. 31.53 crores, resulting in surrender of Rs. 1.07 crores. Similarly, during the year 1984-85, while the original allotment was for Rs. 80.70 crores, the actual expenditure incurred was Rs. 70.44 crores, resulting in surrender of funds of Rs. 10.26 crores.

The Administration had attributed the surrenders, as mentioned above, to delays in finalisation of global tenders, unprecedented rains and consequent deluge resulting inslowing of the tempo of electrical works from June to October 1984, non-supply of steel by Steel Authority of India Ltd., non-clearance of Train Radio system under trial and reduced scope of signalling work.

10.2.7 Financial Viability

Based on the original estimated cost of Rs. 140.3 crores, the project was considered financially viable if an average fare of 32 paise per passenger trip (to break even with costs including 6 per cent interest charges) was adopted. Subsequently, on a long term economic view, 30 paise fare per passenger trip was recommended necessitating a subsidy of Rs. 1 crore per annum. In the context of increased capital investment over the years, the Project Administration suggested a fare of Re. 1 per passenger trip for the present. Even with the increased fare of Re. 1, an annual subsidy of Rs. 62 crores per annum would be needed if the Administration is required to pay dividend @ 6.5 per cent on the capital investment of Rs. 764.83 crores.

10.3 Metro Coaches

The manufacture of metro coaches was undertaken indigenously for the first time in the country. It was, therefore, decided that the Integral Coach Factory, Madras should supply 16 prototype coaches for carrying out trial runs over a period of 2 years or 2 lakh kms. whichever is earlier, to prove the reliability of design, workmanship and materials before starting

series production. The first order for manufacture of 8 prototype coaches was placed on the Integral Coach Factory in August 1977 and the second order for series manufacture of 136 coaches inclusive of the second lot of 8 prototype coaches in July 1978. The manufacture of the prototype coaches was to be so planned that the field trials could start in December 1979/July 1980. The supplies of the traction equipments were given delivery terms to supply the equipments for prototype by July and August 1980. The prototype coaches were, however, received on Metro Railway during the period September 1981 to May 1983. Till July 1984 the coaches had covered trial runs as indicated below:

Rake (comprising 4 coaches each)	Type of equipments	Dates of receipt	Date of commencement of trial	Total Kilo metre age of trial run done
1st	BHEL	4-9-1981	29-9-1981	16138
2nd	BHEL	5-6-1982	24-7-1982	17181
3rd	NGEF	31-1-1983	4-6-1983	16497
4th	NGEF	22-5-1983	10-6-1983	16930

In order to commence commercial operation of Metro Railway over a stretch of 1.74 km. approximately by 1984, the Administration approached the Railway Board in February 1982, to give clearance for undertaking series manufacture of 12 coaches out of the total number of 136 coaches to be supplied on the basis of trial run of BHEL type prototype. Formal order for manufacture and supply of 12 such coaches was placed by the Railway Board on the Integral Coach Factory in July 1982. All the 12 coaches were received from Integral Coach Factory during the period from March 1984 to July 1984 out of which 8 coaches were lowered into Metro Railway tunnel at Park Street station and the remaining coaches were kept stabled at Dum Dum. In the meanwhile apprehending that it may not be possible for the Integral Coach Factory to deliver the 12 coaches in time to enable the Administration to commence the commercial operation, the project Administration decided with the approval of the Railway Board in June 1983 to withdraw the BHEL type prototype rakes, comprising 8 coaches from the trial run and send them to the Integral Coach Factory, Madras for carrying out rectification and modifications based on the trial run under-

taken till then. Consequently, the BHEL type rakes (8 coaches) were withdrawn from the trial run even though the targeted period of 2 years or kilometerage of 2 lakh kms. of their trial run had not been completed. While the first rake was withdrawn in July 1983 after completing trial run for 21 months and 16138 kms., the second rake was withdrawn in September 1983 after completing trial run of 14 months and 17181 kms. It is not understood how the Administration has ensured the reliability of the design, workmanship and materials of the coaches without the scheduled trial runs.

10.4 Damages due to heavy rains

The Metro Railway tunnels including stations from Esplanade to Bhowanipore got completely submerged in June 1984 due to heavy rainfall. Subsequently, extensive damages were caused to rolling stock, electrical, signalling and tele-communication equipments. The air conditioning and ventilation, lighting and false ceiling works wherever completed or were in the advance stage of completion had been affected badly. The traction cum auxiliary sub-stations at Park Street, Maidan and Bhowanipore had also been affected. The laying of cables between Rabindra Sadan, Park Street/Bhowanipore had also been badly damaged. The value of the contracts awarded upto July 1984 for de-watering and immediate restoration work was of the order of Rs. 46.29 lakhs.

A high level Expert Committee appointed by the Railway Board in July 1984 assessed (September 1984) the damage at Rs. 1 crore. As per the project Administration's report submitted to the Railway Board in February 1985 the loss was assessed at Rs. 2.4 crores which included Rs. 1.5 crores on account of rehabilitation of the flood affected coaches. It was also mentioned therein that the Integral Coach Factory had indicated the cost of repairs for the rehabilitation of the flood affected coaches as Rs. 3.76 crores.

10.5 Officers Rest House

The project Administration had hired accommodation to be used as rest house for its officers. As this accommodation was found unsuitable and other rented accommodation was not available even after invitation of tenders, the Administration requested the Railway Board to approve the construction of an officers' rest house at an estimated cost of Rs. 4 lakhs over the second floor of the Judges Court Officers' Rest House of Eastern Railway. The work was sanctioned by the Railway Board in May 1981 and was entrusted to

Eastern Railway Administration as a deposit work. Although, the rest house was initially proposed to have two suites, the number was revised to three suites on the plea of structural requirements for construction of an upper floor. However, the Railway Board's sanction for carrying out these major modifications was not obtained. The actual expenditure (upto June 1983) was Rs. 9.31 lakhs as against sanctioned cost of Rs. 4 lakhs. Detailed estimates for the work have not so far been prepared (December 1985). The Rest House, though completed in March 1983 has not been handed over to the Project Administration so far (December 1985). As a result, the Project Administration hired private accommodation in June 1983 on a monthly rental of Rs. 3 thousand for the use of Railway Officers visiting Calcutta in connection with Metro Railway's work.

10.6 *Summing up*

1. Although the Convention Committee recommended in February 1973 that the Government should take a decision in regard to the Administrative Authority for managing the Metro on proper lines and also associating it with the project during construction, a final decision has not been taken so far (December 1985). (Para 10.1)

2. The delays in preparation and sanction of detailed estimates and incurrence of expenditure without detailed estimates caused wide variations between the tendered quantities, contracted quantities and the quantities as actually executed. This resulted in invitation of the tenders as invited and the contracts as entered into. (Para 10.2.1)

3. The operation of non-scheduled items (involving payments of Rs. 77 lakhs) deprived the Administration of the benefit of competitive rates. (Para 10.2.2)

4. There were delays of 12 to 34 months in finalising/awarding the tenders/contracts leading to delayed commencement of the works and surrender of funds. (Para 10.2.3)

5. The grant of long periods of extensions (10 to 68 months) with the attendant additional financial liability on account of escalations and contractors' claims for extra charges for idling of labour, plant and machinery, etc. slowed down the progress of the work and also pushed up the cost of construction over the years.

The various administrative delays/lapses were responsible for the postponement of the target date of completion of the project from end of 1978 to March 1987.

(Para 10.2.4)

6. In the absence of completion report to be drawn by the utility agencies to vouchsafe the expenditure incurred by them against the advances of Rs. 1.91 crores paid by the project Administration during 1973-74 to 1981-82, it could not be known whether the advances had been spent in entirety or any amount is due for refund to the Administration.

(Para 10.2.5)

Advances of Rs. 1.41 crores paid to suppliers of steel and cement are yet (January 1986) to be adjusted after taking into account the materials not supplied or short supplied.

(Para 10.2.5)

7. The surrender of funds after allotment had the effect of prolonging the period of construction and the consequent escalation in the cost of the project and also showed lack of preparedness on the part of the Administration in executing the work according to the time schedule.

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(Para 10.2.6)

8. The cost of the project having gone up from Rs. 140.3 crores to Rs. 764.8 crores, the financial viability worked out at the time of submission of the project report is no longer relevant.

(Para 10.2.7)

9. It is not understood how the Administration has ensured reliability of the design, workmanship and material of the Metro coaches without coverage of their scheduled trial runs.

(Para 10.3)

10. Had the rest house completed in March 1983 been handed over to the Project Administration, the hiring of private accommodation by it in June 1983 at a monthly rental of Rs. 3 thousand could have been avoided.

(Para 10.5)

APPENDIX II

Statement of Observations/recommendations

Sl. No.	Para No.	Ministry/Deptt. Concerned	Observations/Recommendations
1	2	3	4
1	2.18	Railways	<p>In the wake of a number of studies and surveys undertaken by various teams including the one by Soviet Experts suggesting various measures to meet the ever growing inter-city traffic of Calcutta, due to spurt in the industrial and other developmental activities in and around the city and the large scale urbanisation, Calcutta's Metro Railway underground project comprising 16.43 kms. from Dum Dum to Tollyganj in the North South direction was considered most appropriate for the purpose and was sanctioned in June 1972 at an estimated cost of Rs. 140 crores. The project formally inaugurated by the Prime Minister in December 1972 and targetted to be completed by 1978 as per the project Report, is yet to be completed. The casual manner in which this project has been handled is evident from the fact that till October 1976, the sections in which the funds were to be utilised first were not identified. The first phase covering Dum Dum-Shyambazar and Tollyganj-Esplanade Section was completed partly in October/November 1984 and partly in April 1986. The work on second phase covering</p>

Shyambazar (exclusive-Esplanade (exclusive) Section comprising 6.6 kms. is in progress and according to Railways is targetted to be completed by June 1991. Apart from the inordinate delay, there has been tremendous escalation in the project cost which, according to Railways, may now be Rs. 930 crores. However, from the expenditure incurred on the completed phase-I work and the likely expenditure on the phase-II work, the Committee are inclined to conclude that the project cost will be more than that of the latest estimate of the Railways and may touch around Rs. 1100 crores notwithstanding the fact that this estimate includes provision for only 230 coaches against 336 coaches included in the original estimate as the number needed to meet the anticipated traffic of 1.73 million passenger/day of 1990. Taking into account the projected requirement of funds by the Railways in the next 3-4 years and their capacity to utilise funds in a year, the Committee are led to the inescapable conclusion that completion of the project is likely to prolong till 1993-94. The Committee consider this is a distressing state of affairs.

2 2.19 -do-

The Railways' main contention in explaining the delay that the underground project was unique in the sense that such a project was taken up for first time in India and under most difficult conditions due to densely populated areas of Calcutta having a population of 7 million is far from convincing. There have been several instances in the world where such projects have been completed in

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			a very short span of time e.g. in Mexico City with similar soil condition as that of Calcutta the underground Railway project comprising 42.2 kms. was completed* in 1970 in 2½ years and the population of Mexico in 1970 stood at 8.6 million.** Various other grounds advanced by the Railways for the inordinate delay in completion of this vital project and the runaway escalation in cost are, therefore, not convincing.
3 .	2.20	do-	<p>The Committee do not consider that the inordinate delay and the huge cost over-run in completion of this prestigious project so vital for the life in the city of Calcutta were totally unavoidable. Besides runaway escalation in cost resulting from the delay, the prolonged construction of the project has already caused considerable disruption of life and inconvenience to the people of Calcutta. The Committee can hardly over emphasised the need for expeditious completion of the remaining portion of the project. The Committee recommend the Government to draw realistic estimates of the time and cost required for completing the remaining portion of the project and to make all out efforts to complete the balance portion of the project according to a time bound programme. The Committee would like to be apprised of the steps Government propose to take in this direction.</p>
4.	3.10	Railways	<p>The Committee are constrained to observe that for 13 years i.e. upto July 1985, the Project Administration could not prepare detail-</p>

ed project estimate. The three estimates prepared prior to that i.e. at the Project Report stage, in 1974 and in 1981 were all abstract in nature. The Railways' plea that sufficient data was not available at Project Report stage is hardly convincing as the detailed quantities of works together with the method of construction must have been decided at that stage without which it would have hardly been feasible to award item rate contracts by inviting tenders therefor. Further on the basis of the prices prevailing internationally and particularly in the developing countries, it would not have been difficult to frame the detailed estimates. The Committee fail to understand why the full fledged set-up comprising of a big contingent of technical administrative and ministerial staff existing for preparation of cost estimates including estimates of quantities of work could not prepare the detailed estimate initially itself and even thereafter for another thirteen years. The contention of the Railways that the detailed estimates could have been prepared only when the rates for contracts in the North Section were also known is not acceptable because the Railway Board themselves, while returning the second revised abstract estimate prepared by Project Authorities in October 1982, had asked them to submit detailed estimate by November 1982 knowing fully at that time that the

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*Source: Jane's World Railways and TB Rapid transit systems (1974-75)—Page 569

**Source: Encyclopedia Britannica, Vol. 12—Page 65

contracts for North Section were unlikely to be awarded before November 1982. Further, the Committee cannot believe that the rates for the contracts in the North Section were actually needed because the Railways have admitted that for civil engineering works, rates and quantities were readily available in the second revised abstract estimate for Rs. 560 crores prepared at 1980-81 price level and while calculating detailed estimates in 1985 rates have been suitably modified by a factor devised mainly to take into account the inflation upto 1984-85. Thus, it can be safely concluded that there has been inordinate and unaccounted delay in preparation of detailed estimates in the absence of which the correctness of the quantities included in the tender documents and evaluation of the tendered rates could not be ensured.

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5. 3.11 Railways

The extent of the adhocism with which the estimate was prepared at the Project Report stage is gauged from the fact that the present estimated cost of Rs. 930 crores (which may be actually much more as discussed earlier) when discounted to the year 1971-72, by the price inflation, amounts to Rs. 401.56 crores, whereas the project was estimated to cost only Rs. 140.30 crores when it was sanctioned in 1972. Such unrealistic estimate was bound to run into difficulties as the Planning Commission and the Government had to make available larger funds for the project eventually and the allocation had to be spread over a number of years, the non-availability of adequate funds thus proving to be major cause for the

delay in completion of the project and belying the hope of the people that the project would be completed in six years.

6. 3.20 Railways/Planning Commission One of the reasons put forth by the Railways for slow progress of the project has been the shortage of funds, particularly during the first 3 years of the project i.e. upto 1980-81. The Committee note in this regard that despite the directive of the Cabinet for allocation of funds exclusively for this project, outside the normal plan allocation for Railways, the Railways presented a consolidated demand for all Metro Projects and Planning Commission allotted a consolidated fund for all metropolitan city projects; as a result, the Planning Commission as well as the Railways failed to treat the project as a special one. The Committee desire to know how and why the directive of the Cabinet was not implemented all these years.

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It is seen from the statistics regarding the allocation made available for the project and the funds spent by Railways on it, that the Planning Commission as also the Railways are both responsible for this state of affairs. While on the one hand, whatever funds had been allotted through annual budgets upto the year 1975-76, were not utilised fully by Railways resulting in surrender of funds ranging between 30 and 52 per cent of the original allotments upto the year 1975-76, the allocations were far less than needs during 1976-77

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to 1980-81, as a result of which the progress had to be regulated with reference to the available funds. Again the actual expenditure by Railways in 1981-82, 1984-85 and 1986-87 was less than the initial allotment resulting in surrender of Rs. 4.12 crores, Rs. 15.26 crores and Rs. 5.80 crores respectively. Whereas the project cost had been revised twice from Rs. 140.8 crores in 1972 to 559.14 crores in December, 1981, the actual outlay by the end of the year 1980-81 was only Rs. 95.70 crores.

7. 3.21 Railways Planning Commission

The Committee note that despite the recommendation of this Committee in paragraph 1.194 (ii) of their 55th Report (1981-82) and acceptance thereof, the allocation of funds for all metro projects in the 6th and 7th Plans were only Rs. 255 crores and Rs. 400 crores, as against requirement of Rs. 259 crores and Rs. 414 crores for the Calcutta Metro Project alone as requested by the Railways. In fact, to expedite the completion of the project, the Railways should have projected higher demands for the Metro Railway, Calcutta for Sixth & Seventh Plan periods. The reason for their failure to do so could not be adequately explained to the Committee. The Committee are convinced that non-observance of the specific directive of the Cabinet for separate and exclusive allocation for the projects, as also non-implementation of their recommendations in the 55th Report for allotment of adequate funds, so that the progress does not suffer for want of funds, are resulting in delays in completion of this pro-

ject by a considerable period. Both the Planning Commission for its failure to consider his project as outside the Railway Plan Programme and the Railways for its failure to insist on implementation of directive of Cabinet owe an explanation to the Committee in this regard.

8. 3.31 Railways/Planning Commission/Cabinet The Cabinet, while sanctioning the project in 1972 had desired the Railway Board to investigate the possibility of setting up a separate Metropolitan Transport Authority for Calcutta. As far back as in 1973, the RCC had also urged the Government to examine the question of setting up an Independent Authority for Calcutta Metro as such Rapid Transit Systems abroad were also managed by Independent Authorities. The Committee understand that the Administrative Reforms Commission too had recommended creation of a separate Transport Authority for this purpose. Surprisingly, a final decision in the matter has not been taken even though the project has been in progress for the last 16 years. From the events stated by the Railways, explaining the position in this regard, it is apparent that the matter has been allowed to languish for want of seriousness and urgency that it deserved. The Committee cannot but deprecate the casual manner in which this vital matter has been shuttering amongst the Planning Commission Ministry of Railways (Railway Board), Ministry of Finance, Cabinet Secretariat etc. and could not be given finality for 16 years. The Committee hope that the Government will now give the serious attention this important matter deserves and sort out the connected issues so as to reach a
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final decision as early as possible. The Committee would like to be apprised of the further progress in the matter.

9 3.88 Railways

Apart from the delay in constituting the Independent Authority, the administrative set-up has been seriously handicapped due to failure to appoint General Managers as also senior officials at levels below the General Managers to the project for longer periods. As many as 10 General Managers have been associated with the project in the last 16 years. The past 9 General Managers held office for an average period of 1½ years each. Six of the 9 past General Managers retired on superannuation from the post of General Manager. Four General Managers held the office for a short period of about a year each while the 2 worked on the project for less than one year. The current incumbent is not likely to remain there till the completion of the project. What has perturbed the Committee is that even after conceding that for such projects, continuity of persons in important management posts, is essential for its efficient management and assuring the Committee in July 1984 that this had been kept in view while doing the new postings in the higher management cadre viz. C.Es, G.Ms, etc. as many as 3 General Managers have been appointed since then in the Metro Railways. The Committee take a serious view of the fact that the Railways have failed to implement their earlier recommendation even after assuring them of taking necessary action in the matter. The Committee need hardly emphasise that continuity of administrative set-up at

the top would have ensured a sense of involvement and responsibility in the minds of the incumbents. That, this has not been ensured for no better reason than giving recognition to claims of seniority of a few officials about to retire within a short period, shows lamentable lack of sense of priorities on the part of the Government.

10 3.39

Railways

The Committee fail to understand why, in the context of the intention to set-up a separate Authority, the entire project, which is not linked with trunk railway system, was not considered special and outside the normal project activities of the Railways for the purpose of appointments in the higher management posts. With a view to obviating the compulsion of making appointments by seniority from the Railways, the Committee in their Report of August 1981* had recommended creation of *ex cadre* posts of General Managers. The Committee reiterate its earlier recommendation in this regard and trust that appropriate decisions will be taken without delay.

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11 3.44

Railways

The Committee had already observed in their Report* of August 1981 that in heavy investment oriented projects like Metro Railway where indigenous expertise is not available, global tenders should be called for as a matter of general policy. Having regard to the trial and error methods adopted, as conceded by the Chairman,

*35th Report (Seventh Lok Sabha)

Railway Board during evidence, the Committee at this stage cannot but regret the highly unscientific approach to the task, resulting not only in substantial waste of funds on the trials which failed, but also in additional sufferings that were and are still being imposed on the Calcutta public during the extra years required for construction.

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3.50

Railways

The Committee are concerned to note that a review of major Civil Engineering tenders and contracts has revealed delays in finalisation of tenders/contracts ranging between 12 and 34 months. Out of the various reasons furnished by the Railways explaining these delays, the major factor accounting for these delays appears to be time taken by Railway Board in negotiating the cases, referred to them by the Project Authorities, at their level and in seeking clarifications on certain queries. The Committee feel that these delays could have been substantially curtailed if adequate financial powers were delegated to the General Manager, Metro (Present power of whom has now been raised to Rs. 5 crores for approving the tenders) or if a separate authority with required degree of autonomy had been created. The contention of the Ministry that if the cases were not referred to Railway Board, the benefit of second high level in-depth study would have been lost resulting in delay and complication during actual execution is not convincing as inspite of such scrutiny wide variations between the con-

tracted quantities and quantities actually executed and sanctioning of non-scheduled items during the execution of the works took place depriving the project of the benefit of competitive rates. Further, the large number of disputes with contractors and failure of Railways to avoid extra payment even in one disputed case belie the contention that reference to the Railway Board was necessary to avoid complications during actual execution of contracts. In the opinion of the Committee, the remote control by the Railway Board, on the other hand, contributed substantially to the delays and disputes, resulting in extra expenditure on litigation and payments as a result of awards in arbitration. At this stage the Committee can only hope that the Government will draw a lesson from this experience and avoid such situations by appropriate delegation of powers in future.

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13. 3.58

Railways

The Committee are not convinced by the reasons advanced by the Railways for the grant of liberal extensions ranging between 10 and 68 months to the contractors. The delay in handing over of sites which were dependent on several extraneous agencies and which in turn resulted in granting of extension, could have been avoided by adequate planning and coordination with the concerned authorities in overcoming the problems, if any. The Railways' plea that the difficulties in shifting the utilities, especially the hidden ones, were not foreseen in the first instance, while fixing the contract period shows their casual approach in the matter. The Committee are pained that such a prestigious project has been

allowed to suffer for want of basic inputs such as power, cement and steel, lack of timely or non-availability of which has also been cited as reasons for grant of the long extensions to the contractors. Timely and proper coordination with the concerned Agencies/Departments for procurement of these materials was essential for which the Committee consider that it was necessary that continuity of key personnel at the top level should have been ensured. The Committee are convinced that most of the reasons attributed to the grant of extensions could have been foreseen and had the periods of execution of various contracts been fixed realistically after taking into account all the foreseeable factors, much of the expenditure involved in escalation, idle time payments etc. necessitated by extensions could have been avoided. The Committee hope that the Government will draw suitable lessons from the expensive experience by ensuring that the periods for execution of works are fixed after taking into account all foreseeable hindrances.

The Committee are surprised to note that in a large number of contracts, the rates offered by contractors and accepted by the Project Authorities are far in excess of the anticipated cost as tendered by the Authorities and the high rates are attributed by the Authorities to the tenders having been invited years after the estimates were prepared. The clarification is indicative of the fact that the tender costs had not been updated with reference to the latest

schedule of rates of the Railways with the result that there exists no method for an objective evaluation of the rates offered by the contractors for various items of work for an indepth analysis. The Committee consider it necessary for all estimates of works to be revised and updated with reference to latest schedule of rates before tenders are invited, so as to facilitate a proper scrutiny of the tenders received, and strongly recommend that the Railways make such practice invariably in all cases.

15 3.72 Do.

The Committee regret to observe that six precious years were taken by the Project Administration before realising in 1978-79 the disadvantages of sheet methodology and switching over to Diaphragm Wall Technology which by then had successfully been tried out in two sections. The Railways were already aware of the majority of the constraints in the working of sheet piling method which are being advanced as the reason for the switch over. For example, it was already known that sheet piles could not be used for supporting road decking over them and were also not capable of being integrated with the main boxes. Further, it was mentioned in the Project Report that due to the inherent low flexural rigidity as compared to Diaphragm Walls, they were found to be prone to lateral deformation causing damage to adjacent utilities and buildings. In spite of the knowledge of these shortcomings earlier, the Railways appear to have adopted this method as it was considered to be cheaper than the Diaphragm walling on the assump-

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tion that the sheet piles could be re-used, according to the advice of USSR consultants obtained in 1971. Sadly enough, the Project Administration persisted with this method and did not choose to rescind the contracts awarded for sheet piling work in March, 1974 although the Soviet consultants had, in June 1974, informed the Railways that in USSR sheet piles were not extracted. The Railways also did not obtain fresh advice from some other country having experience in the construction and operation of Metro Railway with a view to removing any doubts in this regard. That, it was not done is regrettable. What has surprised the Committee more is the fact that the deputation of the officers abroad could also not be taken advantage of in this regard. The Ministry have admitted that they had not commented anything on the aspect of extraction and re-use of sheet piles. The considerable time taken in switch over to diaphragm walling has contributed a lot to the huge time and resultant cost over run which could have been avoided with intelligent anticipation and planning.

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16. 3.76 Railways

Another disquieting feature of this aspect is the fact that although as per the Project Report the sheet piles to be used in the Project were to be imported (Larsen heavy duty piles), yet, when sheet piles with required thickness were not available indigenously the Railways decided to go ahead with the use of indigenous sheet piles, which were much weaker. After problems arose in import of the

sheets from Russia the Railways did not explore the world market for its import. In the Committee's view the very rationale of this methodology was defeated the moment the decision to use weak sheet piles was taken.

17 3.74 Do.

The Committee consider that the Railways committed serious mistake in:

- (a) Initially opting for sheet piling on the basis of Russian advice without appreciating the disadvantages discussed with it and only on the ground of slight cost advantage of this technology provided the sheets could be re-used.
 - (b) Persisting with this technology in the absence of sheet piles of required thickness/specification.
 - (c) Continuing with this technology even after, the Russians made it clear (June 1974) that they had no experience in extraction and re-use of the sheet piles on the ground that tender had been awarded for sheet piling of a section in March 1974.
 - (d) Ignoring the revised advice by Russian experts (1976) that extraction of sheet piles is impossible because of jamming of clutches.
 - (e) Taking up diaphragm walling as the appropriate technology not earlier than 1978.
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The Committee consider that the Railways do not have an adequate system for reception, scrutiny for application, absorption and implementation of new technology and recommend that the present system be analysed for its defects and shortcomings and appropriate steps be taken for rectifying this serious situation. The Committee would like to be informed of the steps taken by the Railways in this regard.

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4.6

Railways

The Committee feel that cover and cut method adopted in Northern Section and consequent grouping up of various types of works in a single major contract should also have been used in Southern Section which apart from expediting the construction would have helped in avoiding to a larger extent the sufferings and inconvenience caused to the population along the entire stretch of S. P. Mukherji Road from Esplanade. That, this method envisaged in the project report, was not applied while working in Southern Section is regrettable. The Railways could not explain why decking even to the extent used in the Northern Section was not used in the Southern Section except to indicate indirectly that the necessity for the same so as not to inconvenience the public had not been appreciated by them. The Committee consider this to be even more regrettable.

As observed earlier in the Report, the Committee have a feeling that keeping in view the likely expenditure to be incurred, availability of funds and the infrastructure available with the Railways to utilise the funds in a year, the project is not likely to be completed till 1993-94 although Railways expect it to be completed by June 1991. According to the Railways, the reason for the time over-run anticipated beyond December 1990 has been the delay of nearly 1½ years that took place in obtaining possession of first 10 plots of land between Shyam-bazar and Esplanade. The main bottleneck still existing in the completion of the project according to them, is the acquisition of 12 plots of land needed for various surface structures. On the expectation that possession of these plots would be handed over by April 1988, the Railways expected the completion of the project by June 1991. The possession of these 12 plots has not been handed over to the Railways so far. This is likely to lead to further time over-run. Out of these 12 plots, 8 are stated to be under Court Injunction. The Committee desire that Railways should impress upon the State Government the need to get the Court Injunction vacated expeditiously in respect of these plots. As regards the remaining 4 plots, the Committee are surprised to point out that Railways have not been able to ascertain the reasons for the delay in taking possession thereof. For the expeditious completion of the already belated Project, it is essential that all these 12 plots are acquired at the earliest. For this, the Railways should take up the matter with the State Government once again at the highest level.

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20.	4.13	Railways	The Committee also desire the Railways to complete the work on the 8 road crossings expeditiously and in constant consultation with traffic police in such a way that it does not cause avoidable inconvenience to the road users. As regards the problems involved in underground work, the Committee expect the Railways to tackle them effectively by springing into timely action the various concerned agencies for repairs/maintenance etc. and for which close coordination should be maintained with them at the appropriate level.
21.	4.17	-Do-	The Metro Railway Administration have now started monitoring the progress of the project through mile-stone system under which only the key events are identified and their completion monitored through flash reports. This system suffers from the inherent deficiency in that neither the work break-down structure is prepared nor inter-dependencies between the events are taken care of. The Committee desire the Railways to take appropriate measure to remove these deficiencies.
22.	4.18	-Do-	Even though the quantity-wise progress is stated to be under constant monitoring of the Project organisation it would have been better if the same had been done at Ministry's level. Even the issuance of Ministry's instructions to monitor this progress every ten days is belated and perhaps has been prompted due to taking

up of examination of the subject by the Public Accounts Committee. The Committee hope that henceforth the quantity-wise progress would also be constantly monitored at the Ministry's level with a view to ensuring the expeditious completion of the Project.

23. 5.3 Railways

The Committee note that the scheduled trial runs of the prototype coaches were not completed either for the prescribed period or for the prescribed kilometerage. The Committee are not sure whether these minimum trials were prescribed by technical experts and whether the reduction in the targeted trials is justified technically. The Committee only hope that the shortfalls in the scheduled trial runs do not, in any way, endanger safe travel by public and that adequate care has been taken to ensure the reliability of the design, workmanship, materials etc. of the coaches even though the scheduled trial runs have not been completed.

24. 6.13 -Do-

The Metro railway, Calcutta has not been able to cover its working expenses by its traffic earnings on the part line commissioned so far have been mounting ever since the skeleton service was first introduced in 1984-85. These have increased gradually from Rs. 14.01 lakhs in 1984-85 to Rs. 243.25 in 1987-88 and are projected at Rs. 471.00 lakhs in 1990-91. These losses would assume alarming proportions if the interest on the huge capital involved and the depreciation provisions are added to these figures. What is a matter of great concern to the Committee is the Railways own assessment that the project is unlikely to become financially viable and may

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need an annual subsidy of Rs. 12 crores to meet the working expenses even when the whole line is commissioned. The metro railway administration must explore all avenues for cost reduction. Availability of power at reasonable rates, keeping the charges of repair and maintenance and establishment under strict check are some of the possible measures on which both the Ministry and the Administration can concentrate their efforts with a view to making the project financially viable. The Committee would like to be apprised of the steps taken or proposed to be taken to keep the costs within control so as to minimise the deficit.

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6.14

Railways

Where as the Government is stated to have exempted the capital investment on MTP/CAL from dividend liability in perpetuity due to its financial unviability, the Committee consider that it is absolutely essential that depreciation provision is invariably made in the annual accounts so that the replacement of rolling stock does not become a problem in the future. Although the operational losses are being borne by the Railways at present, it is incomprehensible as to why the depreciation charges are not being provided. Further Government have not yet taken a decision as to whether the subsidy needed for operation/maintenance as well as the cost of renewals/replacements of assets should be met from 'General Revenue' or from 'Railways Revenue'. The delay in taking such a vital decision even after lapse of 4 years since the part service became operational in

1984-85 is inexcusable. The Committee can hardly over-emphasise the need for taking early decision in this regard.

26. 6.15 Railways/
 Planning Commission
 Urban Development

With a view to increasing the passenger traffic on the Metro line, Government may examine the feasibility of reaching the peripheral areas by surface lines after the Metro line comes out of the underground. This would also perhaps meet the growing demand of transport in view of vast development and expansion in North and South directions. Since it is in national interest that this project becomes financially viable and serves the desired purpose, the Ministry of Urban Development, who has now been entrusted with the task of 'Urban Transport', should in consultation with State Government act in this direction at the earliest. It is expected of the Railways and Planning Commission to extend all possible help to them in this regard. The Committee would like to be apprised of the progress made in this regard. 33

27. 6.16 Railways/
 Planning Commission

The Committee have been given to understand during evidence that it may not be possible for the Government to take up such huge projects as Metro Railway, Calcutta even in over-crowded cities unless there is some financial participation from the State Governments. The Committee cannot help expressing their anxiety that the experience gained by the Railways in construction and operation of the Metro Railway at Calcutta at considerable expense should not be allowed to go waste. Keeping in view the long term traffic needs in the cities bursting with population, it is imperative to

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			<p>undertake such projects in other large cities as well. The Committee would, however, like the Government to establish the norms for the pattern of financing by Central and State Governments and other concerned authorities including the railways on objective basis.</p>

