146

TRUNK AUTOMATIC EXCHANGES AT CALCUTTA

MINISTRY OF COMMUNICATIONS
(DEPARTMENT OF TELECOMMUNICATIONS)

PUBLIC ACCOUNTS COMMITTEE 1988-89

HUNDRED AND FORTY-SIXTH REPORT

EIGHTH LOK SABHA

LOK SABHA SECRETARIAT
NEW DELHI

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(1988-89)

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

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

INTRODUCTION

I, the Chairman of the Public Accounts Committee do present on their behalf this 146th Report of the Committee on Para 32 of the Report of Comptroller and Auditor General of India for the year ended 31 March, 1987, Union Government (P&T), relating to Trunk Automatic Exchanges at Calcutta.

2. The Report of the Comptroller & Auditor General of India was laid on the Table of the House on 29 March, 1988.

3. In this Report the Committee have brought out that the Department of Telecommunications set up a Telephone Switching Systems Committee in 1959 to choose an appropriate Switching System for the country to replace the Strowger step-by-step direct switching type of equipment. The said Committee recommended the Penta Conta System. The Government accepted the recommendation and introduced it in the country. However, immediately after it was introduced, the system was found deficient, requiring a lot of modifications. The main reason, in the opinion of the Committee, was the import of untried and unproven technology from Belgium, as against tried systems available elsewhere like, France.

4. The Committee have also found that there was an undue delay of about 13 years in completion of the Project. While the proposal for installation of 4000 lines of the Penta Conta Trunk Automatic Exchange, sanctioned in December, 1966, was to be completed in about 15 months, the first phase of the 2000 lines was commissioned in 1974 and the second phase by March, 1980. The Committee are led to the conclusion that the approach of the Department in fixing the time schedule for such a costly project was casual. It also shows serious deficiencies in project management.

5. Due to long time over-run there was also huge cost escalation in supply of equipment by ITI from Rs. 99.80 lakhs to Rs. 385 lakhs, and there was continuous irregularity for 8 long years in incurring expenditure far in excess of the authorisation. The Committee have recommended that responsibility be fixed for the continuous irregularity for several years as to how such excess drawls over sanctioned cost were permitted, though the budget provision was consistently falling far short of actuals for a period of 15 years.

6. The Committee have brought out that the PC TAX had been grossly underutilised during the 7 years ending March, 1987, in-as-much

as the percentage utilisation of the TAX had ranged between 34—60 and 60—95.

7. The Committee have also found that while Audit has contended that there was deficit of Rs. 288.74 lakhs for the working of the PC TAX at Calcutta during 6 years ending 1986-87, the Department have pleaded that there was a surplus of Rs. 465.22 lakhs. A probe into these variations has led the Committee into an astonishing finding that the Department have assumed a totally static figure of expenditure of Rs. 87.68 lakhs for a period of 6 years, showing neither any increase nor decrease. The Committee have taken strong exception to supply of such misleading data to them by the Department and recommended that appropriate action be taken against those responsible for such misleading statements.

8. The Public Accounts Committee examined the Audit Paragraph at their sitting held on 14 December, 1988. The Committee considered and finalised this Report at their sitting held on 6 April, 1988. The Minutes of the sitting form Part II* of the Report.

9. For facility of reference and convenience, the observations and 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 II to the Report.

10. The Committee would like to express their thanks to the officers of the Department of Telecommunications for the Cooperation 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.

AMAL DATTA
Chairman,
Public Accounts Committee.

NEW DELHI
April 6, 1989
Chaitra 16, 1911 (S)

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REPORT

CHAPTER I

CHOICE OF TECHNOLOGY

Introductory

1.1 In 1965 the Department of Telecommunications proposed to establish a Trunk Automatic Exchange (TAX) of 4000 lines at Calcutta in order to bring the eastern region of the country on the national automatic trunk net work. In June, 1974, a 2000 lines Penta Conta TAX-(PC TAX) was commissioned in the first phase and another 2000 lines expansion was commissioned later, in two phases - in March 1979 and March 1980, bringing the total capacity to 4000 lines.

1.2 Calcutta being one of the important commercial centres, it was anticipated by the Department that traffic for 1983 would require a capacity of 6246 lines for the TAX. A 3000 lines Stored Programme Controlled TAX (SPC TAX) was commissioned in August 1983 and further expanded to 4000 lines in March 1984. The total capacity of the TAXs at Calcutta was 8000 lines by March 1984.

1.3 The implementation of the schemes/projects relating to these Trunk Automatic Exchanges came up for review by Audit and its findings are mentioned in Para 32* of the Report of the Comptroller & Auditor General of India for the period ending March 1987 (P&T).

1.4 Some major short comings brought out are : there was unusual delay in commissioning of the PC TAX COMPLETELY more than 13 years; there was heavy cost over run; the PC TAX had been under-utilised to a great extent during 7 years ending March 1987; the working of PC TAX had resulted in a loss of Rs. 288.74 lakhs during the 6 years ending 1986-87; the average percentage failure of STD calls in SPC TAX was very heavy during the years 1984-85 to 1986-87; the inter TAX STD traffic actually handled in 1984 and 1985 being far less than the anticipations/projections of the department, there was a shortfall in revenue of Rs. 43.57 crores and Rs. 31.63 crores in 1984 and 1985 respectively.

Selection of Penta Conta Switching System

1.5 In the fifties, the switching system in use in India was of the Strowger step-by-step direct switching type; this equipment was manufactured in India under a collaboration agreement with a British company. In this equipment the basic step-by-step switching scheme was adopted

*Given in Appendix 1.

in almost all single and multiple exchange areas. However, the direct step-by-step system had a number of limitations such as inflexibility in numbering plans, non-availability of alternate routing and lack of capability to provide the facilities required in multi-exchange metros and the most serious limitation of this system was its inability to provide subscriber trunk dialling on a nationwide scale based on universal numbering scheme.

1.6 Taking into account the telecommunication plans of the country and the limitations of the Strowger switching system, the Department felt the need to change over to another switching system which would meet the essential requirements of large metropolitan areas and nationwide Subscriber Trunk Dialling. In 1959 the Telephone Switching System Committee was set up to choose an apropriate switching system for the country. The Committee made an assessment of the switching equipment needs of the country (local exchanges, transit exchanges, facilities etc.). Simultaneously the Telecommunication Research Centre of the Department set about compiling information on modern switching systems and building some of the circuits. This Committee held discussions with the International Switching experts who were in India for a Conference in 1960. The members of the Telephone Switching Systems Committee also paid visits to important telecommunication organisations and leading manufacturers in Europe and Japan and obtained first hand information on the different aspects of modern switching systems from the point of view of applications as well as manufacture.

1.7 Based on the studies made, a detailed memorandum was prepared and it was issued in 1961 to important telephone administrations and principal manufacturing concerns of the world. The memorandum spelt out comprehensively the requirements of, and the desirable features in, the switching system for use in India. Information was requested on different aspects relating to the technical features of the systems in use and the manufacture of these systems. The Telephone Switching Systems Committee received replies to the Memorandum from 7 firms (2 from the U.K. and one each from the Netherlands, West Germany, Belgium, Sweden and Japan). Based on the extensive studies of the replies and discussions with Experts, the Committee inter-alia, recommended consideration of proposals received from three specified agencies, including an offer from a Belgium firm.

1.8 The Penta Conta Switching System as offered by the Belgium firm was chosen for India. According to the Department this system was developed in France by the CGCT and the first exchange system of Penta Conta type had been installed in Italy in 1954.

1.9 Asked, to what extent the PC TAX System had been tried in other countries when we decided to import this system and how long this system

had worked in those countries, the Department stated that the Penta Conta System was manufactured in different countries by different companies such as CGCT of France, LMT of France, SESA of Spain etc. and that the technology for penta Conta system in India was obstained from Bell Telephone Company of Belgium. The Committee have also been informed that though the systems manufactured by other companies were in operation for several years, the system manufactured by BTMC of Belgium was not extensively tried out in other countries before introduction in India.

1.10 In reply to another question by the Committee, the Department of Telecommunications have stated that "the technology could be considered to be proven to the extent that it was manufactured in other countries and was in operation before introduction in India."

1.11 During oral evidence before the Committee the Secretary, Telecommunications elucidated that :

> "Till 1963 the Indian Telecommunication Net work was using the strowger type of equipment. At the same time, the Penta Conta equipment was being used in other countries. . . . This PC system was developed in France by CGCT. It has been in use in France from 1960 onwards. We did not have much experience about PC system at that time. . . . Those equipments which we ordered were imported from Belgium. It is the Belgium Telephone Manufacturing Company which supplied the equipment and they also agreed to transfer the technology for the manufacture of equipment by ITI, Bangalore . . . . . In Europe and particularly in France it (this system) worked well. . . . . As far as I know the equipment which they had offered was of the latest design having much capacity and that was supplied to India. This was manufactured by this Company for the first time in 1964."

1.12 Asked whether it could be concluded that India bought this system without its having been proved good, the Secretary, Telecommunications replied in the affirmative.

1.13 The first phase of PC TAX was commissioned only in June 1974 with an installed capacity of 2000 lines and the second phase of 2000 lines in two blocks of 1000 lines each in March 1979 and March 1980. Apart from the inordinate delay in commissioning the PC TAX lines in Calcutta, according to the Department, the PC Crossbar equipment suffered from a large number of circuit deficiencies and defects necessitating large scale circuit modifications to be carried out at site and even after commissioning, a massive programme of upgradation of the equipments involving changing of components, addition of new components and changes in wiring was carried out to improve the performance.

1.14 In addition to the above, the following engineering limitations of a PC TAX were also felt by the Department:

(a) The capacity of a PC TAX cannot be expanded beyond 5000 lines.

(b) The number of connected stations cannot normally exceed 20.

(c) The number of outgoing routes cannot exceed 88.

1.15 During the course of examination, while explaining the reasons for delay in commissioning of the PC TAX, the Secretary, Telecommunications stated :

> "....the technology which we had taken was not a proven technology. That is the main crux of the problem. When the equipment was installed in our net work, we found a lot of deficiencies. It was not performing satisfactorily. It required a lot of modifications to be done in the equipment. Because of this problem even the production of equipment by ITI had to be delayed. They had to know what modifications etc. were to be done. There was a delay in the start of manufacture by ITI because of technical problems."

1.16 In reply to another query by the Committee, the Secretary, Telecommunications admitted that :

> "..... in retrospect it is seen that there has been an error of judgement in placing too much (emphasis) on attractive conceptual features (of PC TAX) against field proven criteria. This was actually a case of an error of judgement by the Department in placing too much emphasis on this technology of the BTM Company..... to quard against similar errors, it is now being insisted that any new technology is fully field proven before its large scale induction into the net work is taken by the Government."

1.17 The Committee on Public Undertakings was informed in this regard by ITI that the ITI had encountered serious difficulties with the design and use in Indian environment of the crossbar switching equipment for which the know-how was obtained from the Belgium firm. The deficiencies noticed were corrosion, contact failure, loss of mechanical adjustments, component failure, circuit deficiencies etc., apart from high cost and increased maintenence efforts. Though the foreign firm was contractally required to rectify the deficiencies it took too much time and ITI constituted a Task Force to solve the problems of the crossbar project. Though the Committee on Public Undertakings were informed that the problems were solved, the Department conceded that the system was not quite satisfactory.

Introduction of Stored Programme Controlled (SPC) TAX

1.18 Since the PC TAX system was not performing satisfactorily, the Committee enquired why it was not decided to switch over to some other system. The Secretary, Telecommunications stated that :

> "In 1967 when we took up this technology we had already ordered the plant and machinery. When the problem came up, the Department and the engineers themselves took up the task of identifying the problem and modifying the circuits. They took about three years' time to complete all the modification work. Then they came up with an independent cross-bar design of equipment which overcame all the problems of the Penta Conta TAX cross-bar. It is called Indian Cross-bar system. With that new design of equipment, a factory was established at Rai Bareilly in UP."

1.19 While the PC TAX system was being upgraded at Rai Bareilly, the P and T Board decided in November, 1984 to phase out the PC TAX at all metro cities and replace it with the Stored Programme Controlled TAX (SPC TAX). By phasing out the PC TAXs, the following benefits were expected :

(i) with highly efficient SPC TAXs STD traffic flow will be improved and greater subscriber satisfaction will result.

(ii) Since call failure rate in SPC TAX will be less, there will be increase in STD revenue.

(iii) Phasing out of PC TAXs and their replacement by expansion of SPC TAXs at the metro centres is expected to result in savings in annual maintenance expenditure.

(iv) Large technical accommodation in the heart of the city will become available on phasing out of PC TAXs. This switch room space can be utilised for installing electronic exchange equipment saving substantial capital investment that would otherwise become necessary to provide additional equipment space.

1.20 The PC TAX at Madras and Delhi have been phased out and the SPC TAXs/Digital TAX are used for providing TAX facilities. According to the Department at both these locations the desired results have been fully achieved, as the customer satisfaction at these two places has improved after the commissioning of the SPC TAX.

1.21 In respect of Calcutta and Bombay, the replacement Digital TAXs are yet to be commissioned and so the PC TAXs at these two places have not yet been phased out.

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* Paragraphs 23 to 30 of Thirty Eighth Report of Committee on Public Undertakings (Seventh Lok Sabha).

1.22 The Committee enquired whether the SPC TAX system was in operation any where at the time of initial selection of the PC TAX for Calcutta and why the SPC TAX was not initially selected. The Department of Telecommunications have informed the Committee that at the time of initial selection of the Penta Conta TAX technology the SPC switching technique was in a developmental stage in certain other countries and no exchange was in commercial use.

1.23 During evidence, the Committee enquired why the PC TAX was commissioned even after 1975 by which time a new advanced sophisticated technology of electronic exchange had already come into operation and that too, after finding that this PC TAX system was not working satisfactorily in the country. The Secretary stated that in 1977 when the Department came to know about the electronic technology, tenders were invited for purchase of equipment and there was no point at that time in going for one more analogue technology. He also observed that later the Department went into a collaboration with a French firm for manufacture of digital electronic telephone exchange.

1.24 The Committee note that in the fifties India had the Strowger step-by-step direct switching type of equipment manufactured in India under a collaboration agreement with a British Company. However this system suffered from a number of deficiencies, the most serious limitation being its inability to provide the subscriber trunk dialling on a nationwide scale based on universal numbering scheme. Therefore, in 1959, the Government of India set up the Telephone Switching Systems Committee to choose an appropriate switching system for the country. After a detailed assessment of the switching equipment needs of the country, discussions with the international switching experts, consultations with important telecommunication organisations and principal manufacturing concerns in Europe and Japan, the Telephone Switching Systems Committee recommended, and the Department introduced in India, the Penta Conta Switching system, a system which was in use since before 1960.

1.25 The Committee find that the Penta Conta Cross Bar technique was first installed in the world in Italy as early as 1954 and that the system became commercially available in 1960. The Penta Conta system was being manufactured in different countries and was working well in Europe, particularly France. But the Telecommunications Department obtained the Penta Conta System from Bell Telephone Company of Belgium who had manufactured the system for the first time in 1964 and had not tried their system in any other country before introduction in India.

1.26 The Committee also note that a number of deficiencies were noticed when the system was installed in India. It was not performing satisfactorily and required a lot of modifications. Because of this, even the production of the equipment by ITI was delayed. As admitted by the

Secretary, Telecommunications, there was an error of judgement in placing too much emphasis on attractive conceptual features of PC TAX against field proven criteria.

1.27 The Committee feel disturbed that an untried and unproven system of the Company was imported though some similar proven systems manufactured by other companies were working satisfactorily in other countries in Europe and were also available. At this distant time the Committee cannot but regret that an important decision on choice of technology and manufacturer/collaborator was made with the result that what was to be a step forward in modernisation in the field of communications, proved deficient and defective after it was installed. This shows that the decision making body was not fully abreast of the developments in the area and the lacunae to look for in the detailed working on field level while selecting the system and the manufacturer/collaborator.

1.28 The Committee also consider it unfortunate that even when alternatives in the form of electronic exchange became available in 1977, the Department did not foreclose the arrangement to set up the balance half of the proposed PC TAX and did not take steps to absorb available alternate technologies, as a result of which substantial additional investment made after 1975–77 also failed to give reasonable return.

1.29 The Committee would, therefore, hope that the Department will keep themselves abreast of the latest technological developments in the field of telecommunications and, in future, introduce any new technology not only after detailed consideration of the relative merits of the available alternative technologies/systems but also of the prospective collaborators' products so that our limited resources are put to best use and the speed of modernisation is not hampered.

CHAPTER II

TIME AND COST OVER-RUN

Delay in execution

2.1 The proposal for installation of a 4000 lines Penta Conta Trunk Automatic Exchange was sanctioned in December 1966 and it was envisaged that the installation would be completed in about 15 months, subject to receipt of stores in time.

2.2 The Audit Para has brought out that the order for the supply of TAX equipment was placed on the Indian Telephone Industries Limited (a Government of India Undertaking) in January 1967 and the supply commenced in 1967-88. The first phase of the TAX with 2000 lines was commissioned in June 1974; the second phase with 2000 lines was commissioned in March 1980. Thus, it took more than 13 years for the Department to commission the TAX completely.

2.3 The Committee enquired a totally unrealistic time frame was fixed for the execution of the project. The Department of Telecommunications have stated that the time of 15 months stated in the project estimate was the approximate time for the installation of the equipment after the receipt of all the items of stores and that the project was formulated long before the first PC TAX was commissioned in the country and as such first hand experience of the new technology was not available in the country. The Department also added that the technical problems were not anticipated.

2.4 According to the Department, the installation of the first phase commenced in March 1970 even before the receipt of all the items of equipment at site. The Department has further stated that the critical items of equipment required for the commissioning of the first phase were received during 1972–74 and the first phase was commissioned in June 1974.

2.5 The second phase was initially scheduled for commissioning in 1975. This target was revised to 1980-81 in view of the enormous modifications to the indigenously supplied equipment which became necessary based on the experience of the PC TAX at Madras which was commissioned earlier. The second phase was commissioned in March 1980.

2.6 The Committee enquired whether the supply schedule was discussed with the ITI while drawing up the project report. The Department of Telecommunications have stated that the project estimate was sanctioned in 1966 when production of PC equipment at ITI had not started and that the supply schedule was therefore not discussed with the ITI while framing the project estimate.

2.7 The Committee enquired whether such long delays had taken place in regard to other projects of the Telecommunications Department also. The Committee have been informed that such long delays have not taken place in regard to other projects, that Delhi and Bombay PC TAXs were installed in a little ever two years and that subsequent Crossbar TAX projects were completed between 19 and 24 months after the complete receipt of stores.

2.8 The Committee also enquired about the mechanism provided to monitor the implementation of the projects. The Department have stated that regular coordination meetings were held with the suppliers of equipment to the projects and that the status and priority for the supply of equipment was revised at the these meetings. Further the Directorate monitored the progress reports submitted by the installation units.

2.9 The Committee also desired to know whether any study has been undertaken to analyse the implementation of the various projects on hand so as to provide guidelines for timely completion of the projects to avoid time overrun and cost overrun. In a note, furnished to the Committee it has been stated that the implementation of the various projects in the Department of Telecommunications were studied by the Committee on Telecommunications set up in 1981 under Shri H. C. Sarin. This Committee made a number of recommendations for reducing delays in the implementation of the projects. According to those recommendations, the Department stated, guidelines for the effective project management have been laid down, regular training in project management has been introduced for training officers and staff, PERT Chart has been made an essential component of all projects before sanction and a special monitoring cell has been created in the headquarters to monitor the implementation of the projects as drawn out in the action plan for each year.

2.10 Asked whether the existing monitoring mechanism calls for a review, the Department of Telecommunications have stated that "based on the feed-back of the monitoring methods already introduced, periodical reviews are being made."

Cost over-run

2.11 When the project for installation of the 4000 lines Penta Conta TAX was sanctioned in 1966 it was estimated that it would cost Rs. 103.14 lakhs. However, the Audit Para has brought out that the actual expenditure on this Project came to be Rs. 449.46 lakhs.

2.12 Asked to explain the major reasons for this heavy cost over-run, the Department of Telecommunications have stated that the increased cost was primarily due to the escalation in the cost of equipment supplied by ITI. As against the original budgetary cost of Rs. 99.80 lakhs, the cost of equipment actually supplied was Rs. 385 lakhs. The Dpartment added that the pricing agreement provided for cost escalation due to variable factors. Another contributory cause for cost escalation was the installation of an Engine Alternator at a cost of Rs. 22.96 lakhs in order to provide uninterrupted TAX service as the city of Calcutta started facing heavy powercuts in the 1970's.

2.13 In regard to the cost escalation clause, the Department of Telecommunications have added that although the cost escalation clause introduced an uncertainty about the final cost, it was unavoidable on account of the variation in the input costs. The Department added that the cost escalation clause has been forming part of all purchases and the formula recommended by the Bureau of Industrial costs & Pricing (BICP) was applied in determining escalation in this case.

2.14 Inview of the substantial cost over-run, the Committee wanted to know whether the revised estimates have been approved by competent authority. The Department stated that the revised estimate was sanctioned in October 1988. As the second phase of PC TAX was commissioned in March 1980, the Committee desired to know the reasons for the inordinate delay in sanction of revised estimates. The Secretary, stated during evidence that the Department waited to get the total figure of expenditure so that when the estimate was revised, there was no figure that was left out. Asked to justify delay of over 10 years in sanctioning the revised estimates, the Secretary stated that ITI gave a provisional bill for supplies and that because of escalation in various costs, it gave an escalation bill which is normally sent after two years of the completion of the supplies. The Secretary, however, concluded his evidence on this by stating "I cannot really give a very clear explanation for the delay but I am sorry for that."

2.15 In regard to the provision made for the project in each year and the actual expenditure there against the Department gave the following information :—

Year	Budget provision		Utilisation	
	Cash	Stores	Cash	Stores
1967-68	1,00,000·00	10,000	11,76,159·35	—
1968-69	30,00,000·00	5,000	19,31,365·85	15,200·00
1969-70	6,00,000·000	2,000	31,91,408·42	2,962·50
1970-71	10,00,000·00	2,000	17,15,696.96	887·50
1971-72	10,00,000·00	2,000	11,97,788·82	757·00
1972-73	10,000·00	1,000	37,63,663·52	—
1973-74	50,000·00	2,000	79,07,972·71	70·00
1974-75	10,000·00	—	1,11,14,467,71	—
1975-76	35,000·00	—	7,48,225·01	6,160·00
1976-77	1,00,000·00	—	28,27,943.83	1,900·00
1977-78	5,00,000·00	—	8,15,127·38	—
1978-79	50,000·00	—	14,98,453·89	1,000·00
1979-80	5,00,000·00	10,000	7,80,72!·75	7,825·00
1980-81	3,00,000·00	20,000	6,30,549·93	37,154·44
1981-82	3,65,000·00	—	13,04122·78	—
Total	76,20,000	54,000	406,03,667·91	73,916·44

2.16 The table will indicate that in every year (excepting 1968-69) the provision in budget was substantially less than the actual expenditure. Against the total provision of hardly Rs. 76.74 lakhs in 15 years, the expenditure incurred was as high as Rs. 406.78 lakhs; thus in every year, the budget provision was underestimated.

2.17 The Committee find that the proposal for installation of 4000 lines Penta Conta trunk automatic exchange was sanctioned in December 1966 and it was envisaged that the installation would be completed in about 15 months, subject to receipt of stores in time. The first phase of the TAX with 2000 lines was commissioned in June 1974 and the second phase with another 2000 lines was commissioned in March 1980. Thus, it took more than 13 years for the Department to commission the TAX completely. The main explanation given for the long delay by the Department is that it could not be avoided as first hand experience of the new technology was not available in the country and the technical problems were not anticipated.

2.18 Similarly, there was huge cost escalation in supply of equipment by ITI from Rs. 99.80 lakhs to Rs. 385 lakhs and an amount of Rs. 22.96 lakhs was invested on provision of an engine alternator, to meet power failure in Calcutta during the 1970's.

2.19 In the preceding chapter the Committee have incidentally referred to the delay in handling the project, mainly, on account of import of non-proven technology. Besides, the Committee find that Indian Telephone Industries, who alone was to manufacture and supply the equipment, was not consulted while drawing up the time schedule for completion of the project. Although, the ITI happens to be under the administrative control of the Department of Telecommunications themselves. The delay has also been attributed to delays in commencement of production of equipment by ITI due to innumerable modifications necessitated right from the beginning. The Committee are surprised to note that the Telecommunications Department being the repository of expertise in telecommunications could not foresee these problems altogether. The time schedule of 15 months was fixed without considering the problems likely to be encountered in introducing a new technology and manufacturing equipment for the same. Even ITI who were to be the sole manufacturer and supplier of the equipment was not consulted in drawing up the time schedule. The casual approach in fixing the time schedule of a costly project has resulted not only in considerable time overrun but has also necessitated payment of a large amount by way of escalation in costs. This is indicative of a serious deficiency in the project management by the Department. The Committee cannot but strongly disapprove such a casual approach on the part of the Department. The Committee hope that the Department shall take a more realistic view while drawing up such projects, take all possible factors into account and consult all concerned agencies in advance so that such long delays and heavy cost overruns can be avoided in future.

2.20 The Committee note that the project sanctioned at an estimated cost of Rs. 103.14 lakhs in 1966 was commissioned in 1980 and the revised estimate with reference to actual cost of Rs. 449.4 lakhs was sanctioned 8 years later in October 1988, after the Public Accounts Committee were seized of the Audit paragraph. The Committee are surprised to note that against the sanctioned cost of Rs. 103.14 lakhs, the Department went on incurring expenditure to the tune of Rs. 449.4 lakh without

any sanction for the excess. The Committee would like to know how such excess drawals over sanctioned cost were permitted and recommend that responsibility may be fixed for the continued irregularity for several years.

2.21 The Committee are also surprised to note that consistently for a period of 15 years (except for one year), the budget provision was falling for short of the actual expenditure with the result that against a budget provision of hardly Rs. 76.74 lakhs for 15 years, the actual expenditure was as high as Rs. 406.78 lakhs. The Committee would like to know the justification for the consistent under assessment of the actual requirements of funds as well as incurring of expenditure for in excess of the budget provision. The Committee would like to be enlightened how budgetary control is exercised so far as such large projects are concerned, reasons for such abnormal increases and failure to ensure adequate provisions and action taken against those responsible for such serious lapses in budgetary control. The Committee would also like to know whether the provision in budget was related to sanctioned estimates only but the Department incurred excess expenditure without authority and if so, the Ministry may clarify how such excess expenditure was allowed to be incurred without provision year after year.

CHAPTER III

UNDER-UTILISATION OF INSTALLED CAPACITY

3.1 The first phase of the PC TAX was commissioned in June 1974 with an installed capacity of 2000 lines. However, as brought out in the audit paragraph, only 203 circuits (10.15 percent of capacity) were put into service on the date of commissioning of the first phase. The second phase of 2000 lines was commissioned by March 1980 and during the seven year period ending March 1987 the percentage utilisation ranged between 34.60 and 60.95, with the result that there had been gross under-utilisation of the installed capacity of 4000 lines of the PC TAX.

3.2 The SPC TAX which was commissioned with an initial capacity of 3000 lines in August 1983 and additional 1000 lines in March 1984, was utilised to the following extent during the period 1983 to 1987 :

Date	Installed capacity (No. of lines)	Capacity Utilised (No. of lines)	Percentage utilisation
31-8-1983 .	3000	792	26·4
31-3-1984 .	4000	1836	45·9
31-3-1985 .	4000	2942	73·55
31-3-1986 .	4000	3455	86·38
31-3-1987 .	4000	3677	91·9

3.3 The forecast and actual circuits realised in both PC TAX and SPC TAX were reported to be as under :

	Forecast	Realised	Percentage
1983 . .	6246	2900	46·4
1984 . .	6246	3589	57·5
1985 . .	7827	4308	55·0

3.4 The utilisation of the SPC TAX upto 91.9% as on March 1987 was possible because as many as 1213 junctions had been shifted from PC TAX to SPC TAX from time to time. The Audit Para has brought out that had these junctions not been shifted, the percentage utilisation would have been 61.60 only. The total installed capacity and utilisation of the PC TAX and SPC TAX as in March 1988, was as follows :

Type of TAX	Installed capacity	Utilisation
PC TAX	4000 lines	1364
SPC TAX	4000 lines	3827

3.5 In their explanatory note to Audit regarding under-utilisation of the PC TAX, the Department of Telecommunications stated in September, 1987 that the utilisation of a TAX depends on the automatisation of dependent stations, the availability of transmission media and the availability of connecting equipments. The Department, however, agreed that "they should have ensured simultaneous development of all these related factors."

3.6 The Committee enquired about the detailed reasons for the gross under-utilisation of the PC TAX. The Department of Telecommunications have stated that on account of the technical problems of the PC TAX it was decided to load the TAX gradually and that additional traffic could not have been carried by the TAX without causing congestion. Moreover, though the main Common Control equipment was fully loaded by March 1981, according to the Department, the terminations were underutilised, due to delay in automatisation of Darjeeling & Siliguri and their connection to PC TAX besides non-availability of transmission media for Jamshedpur, Kharagpur and Shillong for their connection to TAX.

3.7 On the technical problems relating to PC TAX, the Department stated that large scale modifications were required to be carried out in the equipment for which materials were required to be obtained from the manufacturer and that upgradation of equipment was given priority over loading of TAX.

3.8 Since the utilisation of a TAX depends upon the automisation of dependent stations, the availability of transmission media and the availability of connecting equipments, the Committee enquired whether the feasibility of automatisation of dependent stations was taken into account while planning this project. The Department clarified that the project was formulated way back in 1966, primarily to cater to the Calcutta telephone system and that the scheme envisaged the connection of Calcutta with the Trunk Automatic Exchanges which were proposed to be set up at Bombay, Madras, Delhi and Kanpur. According to the Department, the interconnection of the automatic exchanges in the Eastern Region was an additional objective of the project and there was no specific programme with regard to automatisation of dependent stations.

3.9 The Department further stated that although at the planning stage automatisation of dependent stations was given due importance, there have been shortcomings in the actual implementation due to reasons beyond the control of the department such as non-availability of equipment in time due to resource constraints, non-availability of physical possession of land due to prolonged litigation and delay in completion of technical buildings in out of the way locations.

3.10 The Committee enquired about the monitoring system that was developed for installation and utilisation of the PC TAX Project.

The Department stated that in the initial years, there was no specific monitoring system though in later years the Regional Trunk Planning Committe (RTPC) was set up to monitor STD plans and coordinate the activities of various units.

3.11 In regard to the SPC TAX, the Audit Para has brought out that the circuit requirements for the year 1983 and 1985 were projected as 6246 and 7827 TAX lines, thereby justifying the installation of 3000 lines SPC TAX and its expansion by 1000 lines. However, as already brought out in the preceding paragraphs the percentage utilisation of the SPC TAX ranged between 26.4 and 73.55 only during 1983 to 1985, the Committee enquired the detailed reasons for such a gross under-utilisation. In a note, the Department of Telecommunications have stated that the circuit forecast was made on the basis of the TAX commissioning programme of the entire country and the stations to be parented to each TAX and that in the case of Calcutta, the circuit forecast was made on the basis of providing Inter TAX routes to 23 TAX in the country and 10 stations to be parented to Calcutta TAX. The achievements during 1983-85 were however limited to linking of 10 stations to the TAX and only 13 TAXs could be commissioned in the country. According to the Department, this shortfall was primarily due to resource constraints.

3.12 The Committee find that the PC TAX had been grossly under-utilised during the seven years ending March 1987, inasmuch as the percentage utilisation of the TAX had ranged between 34.60 and 60.95 and that the PC TAX was not utilised fully on account of technical problems for which reason it was loaded only gradually. Further, the utilisation of a Tax is stated to depend *inter alia* upon the automatisation of the dependent stations, the availability of transmission media and the connecting equipments. Although at the planning stage the question of automisation and simultaneous development of the dependent stations, provision of reliable media and trunk automatic exchange is stated to have been given due importance, there have been Shortcomings in the actual implementation. According to the Ministry, the shortcomings such as non-availability of funds, non-availability of equipment in time, non-availability of physical possession of land, delay in completion of technical buildings in out of the way locations etc. were beyond the control of the Department. It seems to the Committee that all relevant factors were not kept in view at the planning stage so as to avoid such gross underutilisation. The Committee cannot help reaching a conclusion that inadequacy in planning process, both from physical and financial angles, has been the contributory cause for substantial under-utilisation of the facility.

The Committee desire that the Department should take a more realistic view of the requirement as well as the problems likely to be encountered in the execution of a project so that such under-utilisation of capacity or

wastage is avoided in future especially when fast technological changes are taking place in the field of telecommunications.

3.14 The Committee also note that at the planning stage, the introduction of SPC TAX was justified on the basis of the anticipated demand for 6246 lines in 1983 an 7827 lines in 1985 as against the then available capacity of only 4000 lines in the PC TAX. At the same time when these projections were made, a proposal to phase out PC TAX and to replace it by SPC TAX was under examination. The decision to phase out the PC TAX was taken in November 1984. It is hence evident that the planning process for installation of 4000 lines in SPC TAX was intended not to meet the additional demand but to replace the existing PC TAX equipment. Viewed in this context as also the actual realisation of 2900 to 5191 lines between 1983 and 1988, the Committee wonder how far the demand estimations were realistic and in tune with the trend. In the circumstances, the Committee are constrained to observe that the proposal for additional capital investment was not presented with full and correct data in respect of the trend of demand.

3.15 The Department of Telecommunications have stated that when the Calcutta PC TAX project was formulated in 1965-66, the primary objective was to cater the Calcutta Telephone system and provision of connections to other Trunk Automatic Exchanges which were to come up at Bombay, Delhi, Madras and Kanpur and that inter-connection with other exchanges in the Eastern Region was also envisaged. On the achievement side, it has been reported that the PC TAX Calcutta was connected with major cities as soon as it was commissioned and that connections with dependent stations in the region were provided as and when it became feasible. In regard to the lack of coordination for development of dependent stations and consequent non-utilisation of facilities to optimum level, the Department has accepted that in the initial years there was no specific monitoring. Since the system was being introduced for the first time at Calcutta, the Committee cannot over-emphasise the need for a proper monitoring system right from the inception of the project until its completion so that the bottlenecks could have been identified at appropriate level and remedial measures initiated avoiding wasteful expenditure and idle investment.

CHAPTER IV

FINANCIAL RESULTS

Uneconomic Working of PC TAX

4.1 The initial project estimate for PC TAX for Calcutta envisaged a surplus (excess of income over revenue expenditure) of 46% on the original sanctioned cost of the project. According to the revised project estimate prepared by the Department, annual revenue collections attributable to Calcutta PC TAX was estimated at Rs. 102.58 lakhs and the revenue expenditure at Rs. 87.68 lakhs leaving a surplus of Rs. 14.90 lakhs which worked out to 3.2 per cent of the capital invested. The Department attributed the substantial fall in estimated revenue to the abnormal increase in equipment cost which came to Rs. 9620 per line as against the estimated cost of Rs. 2100 per line and failure of growth in traffic to the anticipated level. The Department also stated that when the project was formulated in 1966, it was not possible to estimate the STD revenue with any degree of accuracy due to non-availability of a long term forecasting mechanism.

4.2 According to the standards laid down by the P and T Directorate, the share of revenue attributable to a TAX should be taken as 1/12th of the total STD revenue. Applying this standard, Audit has observed that during the six years ending 1986-87 the revenue realisation in respect of the PC TAX at Calcutta had fallen short of the revenue expenditure by Rs. 288.74 lakhs. With reference to these observations, Audit was intimated by the Directorate in September 1987 that the uneconomic working of the PC TAX at Calcutta was due to non-loading of PC TAX to the full extent based on a policy decision to phase out the PC TAX.

4.3 When the Committee called for clarification on the loss highlighted by Audit, the Department has informed the Committee in November 1988 that "it is not a fact that the working of PC TAX had resulted in a loss of Rs. 288.74 lakhs during the six years ending 86-87". The Department has observed that the loss mentioned by Audit has been arrived at taking into account the revenue of the local exchange of Calcutta system only whereas for a TAX the revenue should be calculated taking into account the revenue earned by the inter TAX traffic. On the basis of revenue earned by the Inter TAX traffic the Department has contended that the working of the

PC TAX Calcutta during the six years ending 1986-87 resulted in a surplus of Rs. 465.22 lakhs as per details below :—

Year	Total STD revenue as per Gp. B. Hr. traffic carried by PC TAX	Revenue attributable to PC TAX (1/12th of STD revenue)	Annual recurring expenditure in respect of PC TAX	Net cash flow
	(Rs. in lakhs)	(Rs. in lakhs)	(Rs. in lakhs)	
1981-82	3012	251	87·68	+163·32
1982-83	3130	260·8	87·68	+173·12
1983-84	3283	273·5	87·68	+185·82
1984-85	1246·5	103·5	87·68	+15·32
1985-86	301	25	87·68	—62·68
1986-87	940	78	87·68	—9·68
			Net surplus	+465·22

4.4 The Department has also contended on the basis of the above figures that operation of PC TAX became uneconomical from 1985-86 and therefore it was justified to phase out the PC TAX at Calcutta.

4.5 The Committee note that the revised project estimate envisaged a surplus of Rs. 14.90 lakhs per annum and on this basis the surplus for six years should have been Rs. 89.40 lakhs. On the other hand Audit has pointed out that the working of PC TAX at Calcutta resulted in a deficit of Rs. 288.74 lakhs during the six years ending 1986-87. When this deficit of Rs. 288.74 lakhs was pointed out by Audit, neither the correctness of this figure nor the basis of its calculation was questioned by the Department. On the other hand when clarification was sought by the Committee on the working results of the PC TAX at Calcutta, the Department has come forward with a different basis of calculating revenue of a TAX and has contended that on the basis of this method of calculation the working of PC TAX at Calcutta during the six years ending 1986-87 showed a surplus of Rs. 465.22 lakhs which is more than 5 times the surplus envisaged in the revised project estimates. If these contentions are correct, the Committee wonder whether there was any justification from the angle of financial return at least, to consider phasing out of the PC TAX at all. However, a perusal of the statement furnished to the Committee indicates that the surplus has been arrived at with reference to a fixed expenditure of Rs. 87.68 lakhs for each of the six years ending 1986-87. It is astonishing to note that the expenditure has not shown any increase or decrease for

a period of 6 years and that figure of Rs. 87.68 lakhs is the same as was assumed as the anticipated expenditure in the revised project estimate. It is unfortunate that the actual revenue assessed by the Department has been compared with the assumed figure of expenditure. It is not clear to what extent this assumed figure of expenditure is realistic and correct. The Committee are not able to believe that the expenditure has remained fixed for each of the six years and on this basis the conclusion is inescapable that the figure of surplus assessed by the Department is not correct. The Committee take strong exception for supply of such misleading data to them and recommend that appropriate action may be taken against those responsible for misleading the Committee with incorrect data.

4.6 The Committee also recommend that the operational revenue of PC TAX at Calcutta may be rechecked in the context of the prescribed guidelines on the subject and correct working results for the six years ending 1986-87 duly vetted by Audit, furnished to the Committee.

Loss due to phasing out of PC TAX

4.7 The Audit Para has brought out that in November 1984 the P&T Board approved a proposal for the phasing out of the PC TAX because of the poor performance of the system and to replace it by introduction of the SPC TAXs. In the view of the P&T Board this replacement would result in improvement of the STD traffic, increase in STD revenue and savings in annual maintenance expenditure. After phasing out the PC TAX, the equipment in good and serviceable condition valued at Rs. 257.08 lakhs was proposed to be used as maintenance spare for other working PC TAXs to the best advantage of the Department. Thus, the exchange equipment whose effective life is 25 years was proposed to be phased out even during its life time after having been used for hardly 5 to 10 years only.

4.8 The Committee find that in November 1984 the P&T Board approved a proposal for the phasing out of the PC TAX due to the poor performance of the system. It was proposed to be replaced by the SPC TAXs. After phasing out of the PC TAX, the equipment in good and serviceable condition valued at Rs. 257.08 lakhs was proposed to be used as maintenance spare for other working PC TAXs. While the Committee do not wish to dilate on the question of phasing out of the PC TAXs to be replaced by the SPC TAXs in the metro cities, they hope that the equipment so released in good and serviceable condition would be properly stored and profitably utilised so that the available assets are put to best advantage of the Department. The Committee consider it highly unfortunate that the PC TAX system though successfully operated in various foreign countries, was obtained from a country without any proven record and as a result a substantial investment is being written off quite prematurely.

Average failure of STD calls and non-achievement of anticipated traffic/ revenue

4.9 The Audit Para points out that the percentage of effective calls to total calls ranged between 11.30 and 15.80 during 1984-85 : 11.02 and 13.58 during 1985-86 and 11.80 and 15.60 during 1986-87. The table below shows the average percentage of effective calls to total calls, the percentage of actual call failure and percentage of permissible failure in STD calls fixed during these last 3 years :—

Year	Percentage of effective calls to total calls	Percentage of actual call failure	Percentage of permissible failure in STD calls
1984-85	13·77	86·23	40·00
1985-86	12·27	87·73	Could not be furnished by local authorities
1986-87	13·47	86·53	Do.

4.10 The Committee desired to know the major reasons for such high percentages of failure of STD calls. The Department of Telecommunications have explained that every call attempt registered as a seizure is not necessarily a call generated by the subscriber and that apart from genuine calls, seizures occur due to flicks on channels, route failures, testing by maintenance staff during routine tests, etc.

4.11 The Department added that the call completion rate is affected by the failure of calls due to permanent signalling, partial dialling and depends on the entire network which is predominantly made up of electromechanical crossbar/strowger type exchange.

4.12 According to the Department, the call completion rate is significantly altered due to factors like called number busy, called number faulty, no reply, call abandoned at ringing stage, incomplete dialling, subscriber dialling the codes of stations which are not accessible repeated attempts for closed/changed numbers not known to them, congestion due to inadequacy of circuits, etc.

4.13 The Committee enquired wheather any standard percentage of efficiency of STD calls on SPC TAXs has been laid. The Department have stated that no such parameter has been defined.

4.14 In regard to the traffic carried/revenue earned, the Audit Para has brought out that in the project estimate for 3000 lines SPC TAX, the total revenue to be realised on Inter-Tax traffic to be handled by the Trunk Automatic Exchanges at Calcutta had been anticipated at Rs. 121.47 crores

per annum. However, the actual traffic flowing in 1984-85 in 12 of the important routes was very much less than the anticipations of the Department. As against the revenue of Rs. 82.42 crores per annum, based on anticipated traffic in these 12 routes, the annual revenue accruing to the Department in 1984 and 1985 was Rs. 38.85 crores and Rs. 50.79 crores, respectively.

4.15 Thus, the shortfall in revenue in 1984 and 1985 was Rs. 43.57 crores and Rs. 31.63 crores respectively.

4.16 Asked to explain the reasons for such huge shortfall in revenue, the Department of Telecommunications have stated that the revenue per annum of Rs. 82.42 crores for 12 important Inter-TAX routes has been calculated by Audit on the basis of the traffic for the projected TAX capacity of 7098 lines whereas the actual SPC TAX capacity at Calcutta was only 4000 lines. According to the Department, if the traffic/revenue is scaled down and calculated on pro rata basis, the anticipated revenue per annum would work out to Rs. 46.45 crores; as against this the actual revenue earned was Rs. 38.85 crores during 1984 and Rs. 50.79 crores during 1985. Thus, according to the Department, there has been a surplus in 1985.

4.17 In reply to another question the Department of Telecommunications have stated that the shortfall in revenue is partly due to the actual traffic growth not conforming to the projected pattern and partly due to the sub-optimum performance of the Penta Conta TAX.

4.18 Asked to quantify the percentage of fall in revenue due to "traffic not conforming to the projected pattern", the Department of Telecommunications have stated that it may not be possible to work out the percentage of fall in revenue due to traffic growth not conforming to projected pattern.

Method/formula for calculation of traffic/revenue projections

4.19 The Committee enquired about the basis on which traffic/revenue projections had been made. The Committee also desired to know whether the method/formula for such projections had proved valid in the case of other projects also. In a note furnished to the Committee, the Department of Telecommunications have explained that with manual methods that were so far available, it was extremely difficult to measure actual traffic and to build up a model for forecasting the same. According to the Department some plans are now in hand for building in automatic traffic measuring equipment in the various trunk automatic exchanges to measure and analyse the traffic between different stations and to some extent, more reliable data will start becoming available in another 3 years; the Department has further observed that even after that the uncertainties in regard to the forecasting will remain, because of the large number of variable factors.

4.20 The Committee find that while the percentage of permissible failures in STD calls for 1984-85 was fixed at 40, the percentage of actual call failures ranged between 86.23 and 87.73 during the 3 years 1984-87. The Department has not been able to offer any tenable explanation as to reason for such high failure rate. The Department of Telecommunications have pointed out that the figure of 40 is the desirable MIS Group Target and this should not be interpreted as the maximum permissible call failure rate. However, in regard to the standard percentage of efficiency of STD calls on SPC TAXs, the Department have stated that no such parameter has been defined. The Committee feel concerned that while there is quite a high rate of failure of the STD calls, the Department has not determined a parameter for the standard efficiency. The Committee considers it as a serious lacuna as, in the absence of such a parameter, the Department cannot possibly fix the optimum level of efficiency and utilisation and arrive at the anticipated projections to traffic and revenue. The Committee recommend that this lacuna be remedied and some suitable parameter fixed as early as possible with a view to measuring efficiency of STD systems and taking steps to ensure optimum efficiency of such systems as well as to ensure the projected revenue earning.

Composition of the Telecommunication Board

4.21 The total strength of the Telecommunication Board is six, with Secretary, Department of Telecommunications functioning as ex-officio Chairman. Taking note of the fact that at the time the evidence was taken in December 1988, there was only one Member of the Board, namely, the Chairman of the Board, who was present, the Committee enquired regarding the present constitution of the Board the period since when there were vacancies in the Board and reasons therefor. The Committee were informed that apart from the Member the (Operations), all the other posts of members were lying vacant or being hold as a temporary second charge.

4.22 In the post of Member (Development), Shri A. S. Wakhle, who was Engineer-in-chief of the Telecommunication Research Centre in Delhi was officiating; in the post of Member (Finance), Shri S. Krishnan, a permanent Member in the Postal Board was officiating as a second charge. There was no Member (Technology) and no Member (Telecommunication). Apart from the Chairman of the Board, the only other Member was Member (Operations).

4.23 On enquiry by the Committee, the Secretary stated that selection of officers had been made by the UPSC and the proposals had been sent in July, 1988 for approval of the Appointments Committee of the Cabinet. They have been pending in the ACC since then. On further enquiry from the Committee, the Secretary agreed that when people are working

with the dual responsibility or posts are lying vacant and the Telecommunication Board was not fully operating, that will affect the system. The Committee also noted that the post of Secretary, which does not require any concurrence of the UPSC, was filled up only on 30th April, 1988 afternoon on the retirement of the previous incumbent of the office and the present Secretary was appointed and assumed charge from 1st May, 1988.

4.24 The Committee are concerned to note that four out of five positions of Members in the Telecommunication Board are lying vacant and some of the vacancies have lasted more than 6 months, with the result that certain officers are given dual responsibility. The Committee feels strongly that to maintain continuity of policies and programmes of such an important organisation as the Telecommunication Board, the Government should ensure not only that top positions like that of Members, Telecommunication Board, should not remain vacant even for a single day, on the contrary it should further ensure that the next incumbent proposed is selected at least a couple of months in advance and seconded to the post to be assumed by him on retirement of the holding incumbent so that he can get himself fully conversant of not only the policies, the programmes and decisions but also various nuances of the departmental working and the change over on the retirement of each top incumbent is smooth and does not cause any slowing down of the processes of decision making or implementation of works.

APPENDIX 1

Paragraph 32 of the Report of C & A G of India for the year ended 31 March, 1987, Union Govt. (P&T) on "Trunk Automatic Exchanges at Calcutta"

32. *Trunk Automatic Exchanges at Calcutta*

32.1 *Introductory*

In order to bring the eastern region of the country on the national automatic trunk net work, the Department proposed in 1965 to establish a Trunk Automatic Exchange (TAX) of 4000 lines at Calcutta. A 2000 lines Penta Conta TAX was commissioned in the first phase in June 1974 and another 2000 lines expansion was later commissioned in two phases in March 1979 and March 1980 bringing the total capacity to 4000 lines. Calcutta being one of the important commercial centres, it was anticipated by the department that traffic for 1983 would require capacity of 6246 lines for the TAX. A 3000 lines Stored Programme Controlled TAX (SPC TAX) was commissioned in August 1983 and further expanded to 4000 lines in March 1984 the total capacity of the TAXs at Calcutta was 8000 lines by March 1984.

32.2 *Scope of Audit*

A review was conducted by Audit of the schemes/projects relating to these Trunk Automatic Exchanges in January 1986.

32.3 *Highlights*

PC TAX had been underutilised to a great extent during the 7 years ending March 1987.

The working of PC TAX had resulted in a loss of Rs. 288.74 lakhs during the 6 years ending 1986-87.

Due to policy decision of the department to phase out PC TAX, book value of Rs. 257.08 lakhs as at the end of March 1987 is proposed to be written off.

The average percentage failure of S T D calls in SPC TAX was very heavy, being 86.23 during 1984-85, 87.73 during 1985-86 and 86.53 during 1986-87.

Inter TAX STD traffic actually handled in 1984 and 1985 being far less than the anticipations/projections of the department, there was a shortfall in revenue of Rs. 43.57 crores and 31.63 crores in 1984 and 1985 respectively.

32.4 *Penta Conta TAX 4000 lines*

The project estimate for installation of a 4000 lines Penta Conta (PC) TAX was sanctioned in December 1966 for Rs. 103.14 lakhs and it was envisaged that the installation would be completed in about 15 months subject to receipt of stores in time and that the scheme would fetch a profit of Rs. 47.68 lakhs per annum working out to a return of 46 per cent on capital invested.

The order for the supply of TAX equipment was placed on Indian Telephone Industries (ITI) in January 1967 and the supply commenced in 1967-68. The first phase of the TAX with 2000 lines was commissioned in June 1974 and the second phase with 2000 lines in March 1980, thus it took more than 13 years for the department to commission the TAX completely.

Against the sanctioned estimate of Rs. 103.14 lakhs, the actual expenditure on this project was Rs. 449.46 lakhs. The cost overrun was attributed to the exorbitant rise in cost of ITI equipments and cost of an engine alternator not included in the original estimate.

32.5 *Underutilisation of TAX*

203 circuits were put into service on the date of commissioning of the first phase of the PC TAX (June 1974) representing 10.15 per cent of utilisation of the installed capacity of 2000 lines. During the 7 years ending March 1987 there had been gross underutilisation of the installed capacity of 4000 lines of PC TAX. The percentage utilisation ranging between 34.60 and 60.95.

The department stated in September 1987 that the utilisation of a TAX depends on the automisation of dependent stations, the availability of transmission media and the availability of connecting equipments. It was, however, agreed to by the department that they should have ensured simultaneous development of all these related factors.

32.6 *Financial results—Uneconomic working of PC TAX*

According to the revised project estimate prepared (not yet sanctioned), revenue collections attributable to Calcutta PC TAX and annual revenue expenditure were Rs. 102.58 lakhs and Rs. 87.68 lakhs respectively, yielding a net surplus of Rs. 14.90 lakhs which worked out to 3.2 per cent on the capital outlay as against 46 per cent anticipated in the original sanctioned project estimate.

According to the standards laid down by the P&T Directorate, share of revenue attributable to TAX should be taken as 1/12th of the total STD revenue. Applying this standard, it is observed that working of PC TAX at Calcutta had resulted in a loss of Rs. 288.74 lakhs, during the 6 years ending 1986-87.

The department stated in September 1987 that the PC TAX could not be loaded to the full extent in view of the policy decisions of the Department to phase out the PC TAX at Metro Centres and as such the uneconomic working of the TAX could not be avoided. However, the fact remained that even before the decision to phase out PC TAX was taken, the percentage utilisation of the TAX ranged between 56.77 and 60.95 only during March 1981 to March 1983.

32.7 *Phasing out of PC TAX*

Because of the poor performance of the PC TAX at the Metro Centres, the P&T Board approved in November 1984 a proposal for phasing out of PC TAX and their replacement by expansion of SPC TAXs recently installed in Madras, Bombay, Calcutta and Delhi to achieve improved STD traffic flow, increase in STD revenue and savings in annual maintenance expenditure. After phasing out PC TAXs, the equipment in good and serviceable conditions was proposed to be used as maintenance spare for other working PC TAXs to the best advantage of the department. The book value of the assets to be written off as at the end of March 1987 was stated to be Rs. 257.08 lakhs in respect of PC TAX at Calcutta. Thus the exchange equipment, whose effective life is 25 years, was proposed to be phased out even during its life time.

32.8 Installation of 3000 lines Electronic TAX and its expansion by 1000 lines (from 3000 to 4000 lines) at Calcutta.

The traffic forecast for Calcutta for the year 1983 indicated a circuit requirement of 6246 TAX lines, justifying an additional capacity of 2246 lines. Accordingly, the installation of a 3000 lines SPC Electronic TAX was proposed to meet the requirements upto 1983-84. Project estimate was sanctioned in March 1981 for Rs. 530.37 lakhs. The traffic forecast for 1985 indicated circuit requirement of 7827 lines justifying expansion of SPC TAX by 1000 lines. Project estimate for this expansion was sanctioned by General Manager Telephones, Calcutta in July 1983 for Rs. 89.83 lakhs. While the SPC TAX with an initial capacity of 3000 lines was commissioned in August 1983, the 1000 lines was commissioned in March 1984.

32.9 Utilisation of the capacity of SPC TAX was as follows :—

Date	Installed Capacity (No. of lines)	Capacity utilised (No. of lines)	Percentage utilisation
31-8-1983	3000	792	26·4
31-3-1984	4000	1836	45·9
31-3-1985	4000	2942	73·55
31-3-1986	4000	3455	86·38
31-3-1987	4000	3677	91·9

The utilisation of SPC TAX upto 91.9 per cent as on March 1987 was possible because as many as 1213 Junctions had been shifted from PC TAX to SPC TAX from time to time. Had these junctions not been shifted, the percentage utilisation would have been 61.60 only.

32.10 *Efficiency*

The percentage of effective calls to total calls ranged between 11.30 and 15.80 during 1984-85, 11.02 and 13.58 during 1985-86 and 11.80 and 15.60 during 1986-87. The table below shows the average percentage of effective calls to total calls, the percentage of actual call failure and percentage of permissible failure in STD calls fixed during the last 3 years.

Year	Percentage of effective calls to total calls	Percentage of actual call failure	Percentage of permissible failure in STD calls
1984-85	13·77	86·23	40·00
1985-86	12·27	87·73	could not be furnished by local authorities
1986-87	13·47	86·53	Do.

While the percentage of permissible failures in STD calls for 1984-85 was fixed at 40, the percentage of actual call failure ranged between 86.23 and 87.73 during the 3 years 1984—1987 which was very much on the higher side.

32.11 *Non-achievement of anticipations regarding traffic/revenue*

In the project estimate for 3000 lines SPC TAX, the total revenue to be realised on Inter TAX traffic to be handled by the Trunk Automatic Exchanges at Calcutta had been anticipated at Rs. 121.47 crores per annum. The actual traffic flowing in 1984 and 1985 in the undermentioned 12 important routes was very much less than the anticipations of the department as detailed below :—

Sl. No.	Route	Traffic anticipated for 1983 (in erlongs)	Actual Traffic (in erlongs)	
			1984	1985
1	2	3	4	5
1.	Calcutta—Bombay	200·2	91·90	117·7
2.	Calcutta—Delhi	264·7	113·24	161·44
3.	Calcutta—Madras	135·7	51·05	71·35
4.	Calcutta—Ahmedabad	46·7	16·1	21·7

1	2	3	4	5
5.	Calcutta—Hyderabad	27·5	10·15	16·9
6.	Calcutta—Bangalore	27·1	13·27	20·1
7.	Calcutta—Kanpur	78·8	11·13	8·6
8.	Calcutta—Nagpur	31·7	N.A.	8·6
9.	Calcutta—Patna	155·9	35·43	27·7
10.	Calcutta—Shillong	129·3	21·08	28·6
11.	Calcutta—Siliguri	108·3	31·58	20·6
12.	Calcutta—Asansol	133·0	36·25	28·1

It was observed that as against the revenue of Rs. 82.42 crores per annum based on anticipated traffic in the above 12 routes, the actual revenue accruing to the department in 1984 and 1985 was Rs. 38.85 crores and Rs. 50.79 crores respectively. Thus the shortfall in revenue in 1984 and 1985 was Rs. 43.57 crores and Rs. 31.63 crores respectively.

APPENDIX II

Statement of Conclusions/ Recommendations

S. No.	Para No. (s)	Ministry/Deptt. concerned	Observations/Recommendations
1.	2	3	4
1.	1.24 to 1.27	Deptt. of Telecommunications	1.24 The Committee note that in the fifties India had the Strowger step-by-step direct switching type of equipment manufactured in India under a collaboration agreement with a British Company. However this system suffered from a number of deficiencies, the most serious limitation being its inability to provide the subscriber trunk dialling on a nationwide scale based on universal numbering scheme. Therefore, in 1959, the Government of India set up the Telephone Switching Systems Committee to choose an appropriate switching system for the country. After a detailed assessment of the switching equipment needs of the country, discussions with the international switching experts, consultations with important telecommunication organisations and principal manufacturing concerns in Europe and Japan, the Telephone Switching Systems Committee recommended, and the Department introduced in India, the Penta Conta Switching system, a system which was in use since before 1960. 1.25 The Committee find that the Penta Conta Cross Bar technique was first installed in the world in Italy as early as 1954 and that the system became commercially available in 1960. The Penta Conta system was being manufactured in different countries and was working well in Europe, particularly France. But the Telecommunications Department obtained the Penta Conta System from Bell Telephone Company of Belgium who had manufactured the system for the first time in 1964 and had not tried their system in any other country before introduction in India. 1.26 The Committee also note that a number of deficiencies were noticed when the system was installed in India. It was not performing satisfactorily and required a lot of modifications. Because of this, even the production of the equipment by ITI was delayed. As admitted by the Secretary, Telecommunications, there was an error of judgement in placing too much emphasis on attractive conceptual features of PCTAX against field proven criteria.

			1.27 The Committee feel disturbed that an untried and unproven system of the Company was imported—though some similar proven system manufactured by other companies were working satisfactorily in other countries in Europe and were also available. At this distant time the Committee cannot but regret that an important decision on choice of technology and manufacturer/collaborator was made with the result that what was to be a step forward in modernisation in the field of communications, proved deficient and defective, after it was installed. This shows that the decision making body was not fully abreast of the developments in the area and the lacunae to look for in the detailed working on field level while selecting the system and the manufacturer/collaborator.
2.	1.28	—Do.—	1.28 The Committee also consider it unfortunate that even when alternatives in the form of electronic exchange became available in 1977, the Department did not foreclose the arrangement to set up the balance half of the proposed PC TAX and did not take steps to absorb available alternate technologies, as a result of which substantial additional investment made after 1975–77 also failed to give reasonable return.
3.	1.29	—Do.—	1.29 The Committee would, therefore, hope that the Department will keep themselves abreast of the latest technological developments in the field of telecommunications and, in future, introduce any new technology not only after detailed consideration of the relative merits of the available alternative technologies/systems but also of the prospective collaborators' products so that our limited resources are put to best use and the speed of modernisation is not hampered.
4.	2.17 to 2.19	—Do.—	2.17 The Committee find that the proposal for installation of 4000 lines Penta Conta trunk automatic exchange was sanctioned in December 1966 and it was envisaged that the installation would be completed in about 15 months, subject to receipt of stores in time. The first phase of the TAX with 2000 lines was commissioned in June 1974 and the second phase with another 2000 lines was commissioned in March 1980. Thus, it took more than 13 years for the Department to commission the TAX completely. The main explanation given for the long delay by the Depart-

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			ment is that it could not be avoided as first hand experience of the new technology was not available in the country and the technical problems were not anticipated. 2.18 Similarly, there was huge cost escalation in supply of equipment by ITI from Rs. 99.80 lakhs to Rs. 385 lakhs and an amount of Rs. 22.96 lakhs was invested on provision of an engine alternator, to meet power failure in Calcutta during the 1970's. 2.19 In the preceding chapter the Committee have incidentally referred to the delay in handling the project, mainly, on account of import of non-proven technology. Besides, the Committee find that Indian Telephone Industries who alone was to manufacture and supply the equipment, was not consulted while drawing up the time schedule for completion of the project. Although, the ITI happens to be under the administrative control of the Department of Telecommunications themselves. The delay has also been attributed to delays in commencement of production of equipment by ITI due to innumerable modifications necessitated right from the beginning. The Committee are surprised to note that the Telecommunications Department being the repository of expertise in telecommunications could not foresee these problems altogether. The time schedule of 15 months was fixed without considering the problems likely to be encountered in introducing a new technology and manufacturing equipment for the same. Even ITI who were to be the sole manufacturer and supplier of the equipment was not consulted in drawing up the time schedule. The casual approach in fixing the time schedule of a costly project has resulted not only in considerable time overrun but has also necessitated payment of a large amount by way of escalation in costs. This is indicative of a serious deficiency in the project management by the Department. The Committee cannot but strongly disapprove such a casual approach on the part of the Department. The Committee hope that the Department shall take a more realistic view while drawing up such projects, take all possible factors into account and consult all concerned agencies in advance so that such long delays and heavy cost overruns can be avoided in future.
5.	2.20	Deptt. of Telecommunications	2.20 The Committee note that the project sanctioned at an estimated cost of Rs. 103.14 lakhs in 1966 was commissioned in 1980 and the revised estimate with reference to actual cost of Rs. 449.4 lakhs was sanctioned 8 years later in October 1988, after

			the Public Accounts Committee were seized of the Audit paragraph. The Committee are surprised to note that against the sanctioned cost of Rs. 103.14 lakhs, the Department went on incurring expenditure to the tune of Rs. 449.4 lakhs without any sanction for the excess. The Committee would like to know how such excess drawals over sanctioned cost were permitted and recommend that responsibility may be fixed for the continued irregularity for several years.
6.	2.21	—Do—	2.21 The Committee are also surprised to note that consistently for a period of 15 years (except for one year), the budget provision was falling far short of the actual expenditure with the result that against a budget provision of hardly Rs. 76.74 lakhs for 15 years, the actual expenditure was as high as Rs. 406.78 lakhs. The Committee would like to know the justification for the consistent under assessment of the actual requirements of funds as well as incurring of expenditure far in excess of the budget provision. The Committee would like to be enlightened how budgetary control is exercised so far as such large projects are concerned, reasons for such abnormal increases and failure to ensure adequate provisions and action taken against those responsible for such serious lapses in budgetary control. The Committee would also like to know whether the provision in budget was related to sanctioned estimates only but the Department incurred excess expenditure without authority and if so, the Ministry may clarify how such excess expenditure was allowed to be incurred without provision year after year.
7.	3.12	—Do.—	3.12 The Committee find that the PC TAX had been grossly underutilised during the seven years ending March 1987, inasmuch as the percentage utilisation of the TAX had ranged between 34.60 and 60.95 and that the PC TAX was not utilised fully on account of technical problems for which reason it was loaded only gradually. Further, the utilisation of a TAX is stated to depend *inter alia* upon the automatisation of the dependent stations, the availability of transmission media and the connecting equipments. Although at the planning stage the question of automisation and simultaneous development of the dependent stations, provision of reliable media and trunk automatic exchanges is stated to have been given due importance, there have been shortcomings in the actual implementation. According to the Ministry, the shortcomings such as non-availability of funds, non-availability of equipment in time, non-availability of

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			physical possession of land, delay in completion of technical buildings in out of the way locations etc. were beyond the control of the Department. It seems to the Committee that all relevant factors were not kept in view at the planning stage so as to avoid such gross under-utilisation. The Committee cannot help reaching a conclusion that inadequecy in planning process, both from physical and financial angles, has been the contributory cause for substantial under-utilisation of the facility. The Committee desire that the Department should take a more realistic view of the requirement as well as the problems likely to be encountered in the execution of a project so that such under-utilisation of capacity or wastage is avoided in future especially when fact technological changes are taking place in the field of telecommunications.
8.	3.14	Deptt. of Telecommunications	3.14 The Committee also note that at the planning stage, the introduction of SPC TAX was justified on the basis of the anticipated demand for 6246 lines in 1983 and 7827 lines in 1985 as against the then available capacity of only 4000 lines in the PC TAX. At the same time when these projections were made, a proposal to phase out PC TAX and to replace it by SPC TAX was under examination. The decision to phase out the PC TAX was taken in November 1984. It is hence evident that the planning process for installation of 4000 lines in SPC TAX was intended not to meet the additional demand but to replace the existing PC TAX equipment. Viewed in this context as also the actual realisation of 2900 to 5191 lines between 1983 and 1988, the Committee wonder how far the demand estimations were realistic and in tune with the trend. In the circumstances, the Committee are constrained to observe that the proposal for additional capital investment was not presented with full and correct data in respect of the trend of demand.
9.	3.15	—Do—	3.15 The Department of Telecommunication have stated that when the Calcutta PC TAX project was formulated in 1965-66, the primary objective was to cater the Calcutta Telephone system and provision of connections to other Trunk Automatic Exchanges which were to come up at Bombay, Delhi, Madras

and Kanpur and that inter-connection with other exchanges in the Eastern Region was also envisaged. On the achievement side, it has been reported that the PC TAX Calcultta was connected with major cities as soon as it was commissioned and that connections with dependent stations in the region were provided as and when it became feasible. In regard to the lack of coordination for development of dependent stations and consequent non-utilisation of facilities to optimum level, the Department has accepted that in the initial years there was not specific monitoring. Since the system was being introduced for the first time at Calcutta, the Committee cannot over-emphasise the need for a proper monitoring system right from the inception of the project until its completion so that the bottlenecks could have been identified at appropriate level and remedial measures initiated avoiding wasteful expenditure and idle investment.

10. 4.5 —Do—

4.5 The Committee note that the revised project estimate envisaged a surplus of Rs. 14.90 lakhs per annum and on this basis the surplus for six years should have been Rs. 89.40 lakhs. On the other hand Audit has pointed out that the working of PC TAX at Calcutta resulted in a deficit of Rs. 288.74 lakhs during the six years ending 1986-87. When this deficit of Rs. 288.74 lakhs was pointed out by Audit, neither the correctness of this figure nor the basis of its calculation was questioned by the Department. On the other hand when clarification was sought by the Committee on the working results of the PC TAX at Calcutta, the Department has come forward with a different basis of calculating revenue of a TAX and has containded that on the basis of this method of calculation the working of PC TAX at Calcutta during the six years ending 1986-87 showed a surplus of Rs. 465.22 lakhs which is more than 5 times the surplus envisaged in the revised project estimates. If these contentions are correct, the Committee wonder whether there was any justification from the angle of financial return atleast, to consider phasing out of the PC TAX at all. However, a perusal of the statement furnished to the Committee indicates that the surplus has been arrived at with reference to a fixed expenditure of Rs. 87.68 lakhs for each of the six years ending 1986-87. It is astonishing to note that the expenditure has not shown any increase or decrease for a period of 6 years and that the figure of Rs. 87.68 lakhs is the same as was assumed as the anticipated expenditure in the revised project estimate. It is unfortunate that the

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			actual revenue assessed by the Department has been compared with the assumed figure of expenditure. It is not clear to what extent this assumed figure of expenditure is realistic and correct. The Committee are not able to believe that the expenditure has remained fixed for each of the six years and on this basis the conclusion is inescapable that the figure of surplus assessed by the Department is not correct. The Committee take strong exception for supply of such misleading data to them and recommend that appropriate action may be taken against those responsible for misleading the Committee with incorrect data.
11.	4.6	Deptt. of Telecommunications	4.6 The Committee also recommend that the operational revenue of PC TAX at Calcutta may be rechecked in the context of the prescribed guidelines on the subject and correct working results for the six years ending 1986-87 duly vested by Audit, furnished to the Committee.
12.	4.8	—Do—	4.8 The Committee find that in November 1984 the P&T Board approved a proposal for the phasing out of the PC TAX due to the poor performance of the system. It was proposed to be replaced by the SPC TAXs. After phasing out of the PC TAX, the equipment in good and serviceable condition valued at Rs. 257.08 lakhs was proposed to be used as maintenance spare for other working PC TAXs. While the Committee do not wish to dilate on the question of phasing out of the PC TAXs to be replaced by the SPC TAXs in the metro cities, they hope that the equipment so released in good and serviceable condition would be properly stored and profitably utilised so that the available assets are put to best advantage of the Department. The Committee consider it highly unfortunate that the PC TAX system though successfully operated in various foreign countries, was obtained from a country without any proven record and as a result a substantial investment is being written off quite prematurely.
13.	4.20	—Do—	**4.20 The Committee find that while the percentage of permissible failures in STD calls for 1984-85 was fixed at 40, the percentage of actual call failures ranged between 86.23 and 87.73 during the 3 years 1984-87. The Department has not**

been able to offer any tenable explanation as to reason for such high failure rate. The Department of Telecommunications have pointed out that the figure of 40 is the desirable MIS Group Target and this should not be interpreted as the maximum permissible call failure rate. However, in regard to the standard percentage of efficiency of STD calls on SPC TAXs, the Department have stated that no such parameter has been defined.. The Committee feel concerned that while there is quite a high rate of failure of the STD calls, the Department has not determined a parameter for the standard efficiency. The Committee considers it as a serious lacuna as, in the absence of such a parameter, the Department cannot possibly fix the optimum level of efficiency and utilisation and arrive at the anticipated projections of traffic and revenue. The Committee recommend that this lacuna be remedied and some suitable parameter fixed as early as possible with a view to measuring efficiency of STD systems and taking steps to ensure optimum efficiency of such systems as well as to ensure the projected revenue earning.

14. 4.24 —Do—

4.24 The Committee are concerned to note that four out of five positions of Members in the Telecommunication Board are lying vacant and some of the vacancies have lasted more than 6 months, with the result that certain officers are given dual responsibility. The Committee feels strongly that to maintain continuity of policies and programmes of such an important organisation as the Tele-communication Board, the Government should ensure not only that top positions like that of Members, Telecommunication Board, should not remain vacant even for a single day, on the contrary it should further ensure that the next incumbent proposed is selected at least a couple of months in advance and seconded to the post to be assumed by him on retirement of the holding incumbent so that he can get himself fully conversant of not only the policies, the programmes and decisions but also various nuances of the departmental working and the change over on the retirement of each top incumbent is smooth and does not cause any slowing down of the processes of decision making or implementation of works.

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