

**PUBLIC ACCOUNTS COMMITTEE
(1976-77)**

(FIFTH LOK SABHA)

TWO HUNDRED AND TWENTY-FIFTH REPORT

**DIESEL LOCOMOTIVE WORKS
VARANASI**

MINISTRY OF RAILWAYS

(RAILWAY BOARD)

**[Paragraph 9 of the Report of the Comptroller and
Auditor General of India for the year 1972-73—Union
Government (Railways)]**



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(1976-77)

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SECRETARIAT

Shri H. G. Paranjpe—Chief Financial Committee Officer.

Shri T. R. Ghai—Senior Financial Committee Officer.

INTRODUCTION

1. The Chairman of the Public Accounts Committee as authorised by the Committee do present on their behalf this Two Hundred and Twenty-Fifth Report of the Public Accounts Committee (Fifth Lok Sabha) on paragraph 9 relating to Diesel Locomotive Works, Varanasi included in the Report of the Comptroller & Auditor General of India for the year 1972-73—Union Government (Railways).

2. The Report of the Comptroller & Auditor General of India for the year 1972-73—Union Government (Railways) was laid on the Table on the 15th March, 1974. The Committee (1974-75) examined the paragraph on the 13th January, 1975. Written information in regard to the paragraph was also obtained from the Ministry of Railways (Railway Board).

3. The Committee (1976-77) considered and finalised this Report at their sitting held on the 2nd August, 1976. Minutes of the sittings of the Committee form Part II* of the Report.

4. A statement showing the main conclusions/recommendations of the Committee is appended to the Report (Appendix V). For facility of reference these have been printed in thick type in the body of the Report.

5. The Committee place on record their appreciation of the commendable work done by the Chairman and Members of the P.A.C. of 1974-75 in taking evidence and obtaining information for the Report.

6. The Committee place on record their appreciation of the assistance rendered to them in the examination of the paragraph by the Comptroller and Auditor General of India.

7. The Committee would also like to express their thanks to the Chairman and officers of the Railway Board for the cooperation extended by them in giving information to the Committee.

NEW DELHI;

August 2, 1976.

Sravana 11, 1898 (S).

H. N. MUKERJEE,

Chairman,

Public Accounts Committee.

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CHAPTER I INTRODUCTORY

Audit Paragraph

1.1. In August 1961 Government decided to establish the Diesel Locomotive Works at Varanasi for indigenous production of diesel locomotives. Urgency certificate sanctioning expenditure of Rs. 13.70 crores for the project was issued in December 1961. The abstract estimate for the project, with an outlay of Rs. 19.57 crores approximately, was sanctioned in February 1963. Initially, it was planned to produce 150 broad gauge diesel locomotives or equivalent a year with fully established incentive working.

1.2. The main consideration in establishment of indigenous capacity for production of diesel locomotives was that the increasing tempo and pattern of traffic made it necessary to replace or re-inforce steam traction by either electric or diesel traction. Taking into account the capital expenditure involved in establishment of electric traction system, the time factor and availability of power, it was considered that the balance of advantage would lie in going for dieselisation to a large extent.

Collaboration Agreement

1.3. The Diesel Locomotive Works had entered into four separate agreements with ALCO Products Incorporated and its subsidiaries for technical association and allied services. These were:—

- (1) Technical association for manufacture of diesel locomotives with ALCO Products Incorporated.
- (2) Technical association for manufacture of diesel engines—with ALCO Products Incorporated.
- (3) Supply of technical personnel for manufacture of diesel locomotives|engines—with Transworld Manufacturing Services Incorporated.
- (4) Purchase and inspection of material and equipment for manufacture of diesel locomotives|engines to be obtained from U.S.A.—with Overseas Diesel Corporation.

1.4. These agreements came into force on 12th February 1962 and were valid for ten years with an option for extension. However, on ALCO being purchased by Montreal Locomotive Works (locomotive portion) and ALCO White (engine portion), the first two agreements were re-entered into by Diesel Locomotive Works with Montreal Locomotive

Works and ALCO White from 4th September 1971. The agreement with Overseas Diesel Corporation was also modified to the extent that both Montreal Locomotive Works and ALCO White were made parties to the agreement. On expiry of the original period of the agreement, fresh agreements were entered into with Montreal Locomotive Works, ALCO White and Overseas Diesel Corporation for five years from 12th February 1972.

1.5. The fresh technical association agreements provide for payment of annual fees of \$1000 (Canadian dollars in the case of Montreal Locomotive Works and U.S. dollars in the case of ALCO-White) to the contracting parties with a provision that payment for additional supplies|services etc., would be mutually determined.

1.6. The choice of a collaborator for manufacture of diesel locomotive was limited to U.S.A. as funds for payment of technical fees and royalties in foreign exchange were available only from U.S.A., i.e., loan from the Development Loan Fund (later known as AID) and loans from the U.S. Export Import Bank. There were three leading diesel locomotive manufacturers in U.S.A.—(a) General Electric, (b) General Motors and (c) ALCO. Tenders were not invited but discussions were held in U.S.A. in 1961 with the parties by the Chairman and the Financial Commissioner of the Railway Board. While the product of General Electric was not considered technically suitable, General Motors did not evince sufficient interest and finally the collaboration agreement was entered into with ALCO in 1962.

[Sub-paragraphs 9.1 to 9.6 of Paragraph 9 of the Report of C.&A.G. for the year 1972-73 on Railways.]

1.7. The Committee desired to know whether approval, at the highest level, was obtained before the collaboration agreement with the American firm was finalised by the Chairman and the Financial Commissioner of the Railway Board. In a note dated 17th August, 1976, the Railway Board have stated:

“The agreement was finalised in consultation with the Ministry of Finance (Revenue) as well as Department of Economic Affairs, the Development Wing of the Ministry of Commerce and Industry and its associated Finance and Ministry of Law. The broad terms of the agreement were approved by the Minister for Railways, the Finance Minister and the Minister for Commerce (Industry).”

1.7A. The Committee desired to know what was the scope of new

agreements entered into in February, 1972. In a note, the Railway Board have explained:

"Two technical Association Agreements valid for five years from 12-2-1972 were entered into with—

- I. White Industrial Power Inc., USA—for Diesel Engines, and
- II. MLW|Canada—for Locomotives.

Broadly, those two agreements cover the following:

- I. For current series of engines (251B and 251D, and locomotive models (DL 560-C and DL 535A) covering technical consultancy services and advice regarding engineering changes for product improvements etc. free of cost.
- II. For other types of Engines and Locomotives developed by White Industrial Power Inc. and MLW, technical assistance will be available on mutually agreed terms and conditions for loco purposes and other diversified applications.

For these services under the Technical Association Agreements, DLW are required to pay an annual fee of \$1000 only to M/s. White Industrial Power Inc. and \$1000 to MLW."

1.8. The Committee asked whether the Diesel Locomotives Works was still bound to produce locomotives of the original design evolved in 1962 or was it free to incorporate improvements. The Committee also asked whether any design modifications had been carried out to improve the performance of the diesel locomotives, in the context of the recent steep increase in the prices of petroleum crude. In a note, the Railway Board have stated:

"DLW is free to incorporate improvements and manufacture any other type of locomotive desired. For example DLW have, in consultation with RDSO developed the design of heavy duty high horse power diesel electric shunting locomotive (termed WDSO) of which the prototype has been manufactured and is under trials.

Product and design modifications|improvements is a continuous feature at DLW, and in collaboration with the RDSO large number of improvements have been effected in the design of the locomotives from time to time particularly to suit indigenous manufacturing capabilities and improving performances.

No modifications have however been specifically made to improve performance in the context of the recent steep increase in the price of petroleum products. However, the specific fuel

consumption of the diesel engines manufactured at DLW is much lower than the similar types of engines manufactured by other engine builders.

A few representative examples of design improvements made are indicated below:

L. Improvements in the design of—

- (a) Injection Nozzles and Pumps for the Fuel system.
- (b) Fuel supply system.
- (c) Air supply system.
- (d) Fuel Oil and lubricating oil filters, etc. etc.
- (e) Modification|design improvements in the Under-frames.”

1.9. During evidence before the Committee, the Member Mechanical stated:

“The agreements do not prevent us from making any improvement in designs, and from time to time we have been making improvements. They are not of a major nature, but there have been improvements. In any case there is no restriction from the contractual point of view to make any alteration in designs.”

1.10. In the same context, the Chairman, Railway Board stated:

“When we refer to change in engine design, it means change for higher horse power. We had selected 2600 and 1350 for Broad and Meter gauge and these are the engines that we are building. At the moment our effort has been to use this design, develop it, and indigenously the manufacture of this engine to the maximum extent possible. If you go on changing the design frequently, industry cannot respond in the same way. Even to-day we have not been able to develop fully the cylinder liners. Whatever designs have been changed, it has been marginal. There is no change of the horse power of the engine. There is no radical change.”

1.11. In reply to a question whether any suggestions from the industry about the changes in designs, etc. were received, the Member Mechanical stated:

“Industry has not come to a stage where they can offer us useful suggestions as they are very much dependent on us.”

The Chairman, Railway Board, added: “For developing certain items we have to give them lot of help and assistance.”

1.12. The Committee asked whether there was no scope for any modification/improvement in the design of the locomotives with a view to economising on the use of diesel or whether no special attention has been given to this particular aspect. In a note, the Railway Board have stated:

"The specific fuel consumption of the type of diesel engines manufactured at DLW is lower than that of the type of engines manufactured by other engine builders. There may be scope for further improvement in this regard but as this is a major development work, it can be carried out only with the aid of strong Research and Development team backed by a properly equipped diesel engine testing laboratory. Product design improvement is a continuous process which has to be undertaken on the existing design in case further reliability and economy in operation are to be secured under all the varying conditions of working. Development activity is a slow process. A feasibility report regarding setting up of diesel engine design development facilities in RDSO had been prepared but in view of the difficult ways and means position coupled with the projected cut back in diesel manufacture the project was not taken up."

1.13. The main motivation for establishing, indigenous capacity for production of diesel locomotives at DLW, Varanasi, was that the increasing tempo and pattern of traffic made it imperative to replace and/or re-inforce steam traction by electric or diesel traction. At that time, taking into account the capital expenditure involved in the setting up of an electric traction system, the time factor in construction and the availability of power, the balance of advantage was found to lie in going in for large-scale dieselisation. However, in the context of the recent steep increases in prices of petroleum crude and the non-materialisation of the traffic targets visualised earlier, rethinking on the traction system and a reassessment of the requirement of diesel locomotives has been urgently called for. In fact, as will be seen later in this report, a process of diversification has already been started at DLW with a view to utilising the capacity rendered spare because of the scaling down of the targets of diesel locomotives production. The Committee wish that this diversification should not be attempted as a somewhat desperate ad hoc measures, but should form an integral part of a well-thought-out perspective plan for the utilisation of the infra-structure already created. The Committee would like to be apprised of the action taken in this behalf.

1.14. The Committee observe that the choice of a collaborator for the manufacture of diesel locomotives was limited to the U.S.A. as funds for payment of technical fees and royalties in foreign exchange were reported

to have been available only from the U.S.A. i.e. loan from the Development Loan Fund (later known as AID) and the loans from the U.S. Export Import Bank. The choice was further restricted as no tenders were invited from the then available established manufacturers of diesel locomotives and the collaborator was selected on the basis of discussion held in USA in 1961 with American parties by the Chairman and the Financial Commissioner of the Railway Board. This appears to be an unusual and unbusiness like practice which, in the absence of special justification which has not been forthcoming, the Committee cannot but deprecate, even though final decision in the matter appears to have been taken at the highest level. Curiously, when the collaboration agreements were renewed after 10 years, the same parties viz. Montreal Locomotives Works, Alco White and Overseas Diesel Corporation, were again, almost automatically, selected. The Committee would like to know if better terms could not be had from elsewhere, and an elucidation of the entire position.

1.15. It appears to the Committee that no design modifications have been specifically made for better performance by the diesel locomotives produced at DLW in the context of the recent steep increase in the price of petroleum products. At the same time it is learnt that there is scope for further improvement in this regard but a major development task of this sort can be carried out only with the aid of a strong Research and Development team backed by a properly equipped diesel engine testing laboratory, which the Railways lack. The Committee would have thought that during the last 15 years or so of its existence the DLW had developed sufficient expertise to undertake vital R&D activities. After all, the DLW cannot afford to look for all time to come towards their foreign collaborators for technical services and advice. The Committee feel that the difficult ways and means position of our Railways should not come in the way of developing a strong research and development team.

CHAPTER II

CAPITAL STRUCTURE

Audit Paragraph

2.1. The abstract estimate sanctioned in 1963 for Rs. 19,57,33,000 underwent two revisions; first in 1968 and subsequently in 1969. Both the revisions merely modified the relative provisions for the Civil Engineering, Mechanical and Electrical departments and did not affect the overall cost of the project. Details are given below:

Department	Provision in abstract estimate (1963)	Provision in first revised estimate (May 1968)	Provision in second revised estimate (May 1969)	Expenditure upto March 1972
	(thousand of rupees)			
Civil Engineering	9,59,05	7,85,79	7,89,65	7,89,03
Mechanical	8,64,74	10,42,78	10,42,78	9,68,35
Electrical	1,33,54	1,28,76	1,24,90	1,14,04
Total	19,57,33	19,57,33	19,57,33	18,71,42

In addition to the project estimate for production of broad gauge locomotives, Rs. 1.38 crores were sanctioned between 1968-69 and 1970-71 for facilities for production of metre gauge locomotives, spares for diesel locomotives, plates and sheets etc.

2.2. A statement showing capital at charge is in Appendix I. The project estimate has not yet been closed (January 1974).

[Sub-paragraph 9.7 and 9.8 of paragraph 9 of the Report of C&AG for the year 1972-73 on Railways].

2.3. The Committee desired to know why the project estimate of the Diesel Locomotive Works sanctioned in 1963 had not been closed even now. The Member Mechanical explained during evidence:

“All the work has been completed long ago. Only on account of one or rather two items, this estimate has been kept open and that is to the total value of Rs. 50 lakhs.”

2.4. Subsequently in a note dated 3rd March, 1975 furnished to the Committee, the Railway Board have clarified:

"The DLW Project Abstract Estimate has been closed notionally with effect from 31-3-1974. No fresh liability is being authorised against this Project Estimate since then. At present, only that expenditure is being incurred, liability for which was admitted as chargeable to the Project Estimate before 31-3-1974. Out of a total 484 sub-detailed Estimates, constituting the Project Abstract Estimate, 471 have been closed. As of January, 1975, 13* sub-detailed estimates are yet to be closed. The closure of these estimates is being given most urgent attention. Some of these estimates are awaiting closure for the following reasons:—

- (a) A number of Court Cases arising out of compensation payable to parties due to acquisition of land for DLW, are pending before the Hon'ble Courts. As soon as these Court cases are finalised and the judgement of the Hon'ble Courts implemented, the relevant estimate pertaining thereto would be closed.
- (b) Some of the estimates are awaiting closure pending receipt of machine/material, purchase orders for which have already been placed on the suppliers but the delivery against which has not been completed."

2.5. During evidence the Committee drew attention to the fact that the original estimate sanctioned in 1963 was formulated on the basis of prices of 1962 and this estimate had not undergone any change in the subsequent revisions made in 1968 and 1969 despite phenomenal rise in the prices *vis-a-vis* the price structure of 1962. In this connection, the Chairman, Railway Board stated:

"If you look at the different items, you will find that between 1963 and the year 1966 the bulk of the civil engineering works were completed. It was cut down to 7.85 because most of the civil engineering works were completed in the year 1966. Variations occurred mostly in the mechanical and electrical side. The electrical side also was practically completed by then; but on the mechanical side there is plant and equipment where the variations occurred, and that is the change drafted into the estimate."

*In a note dated 3rd July, 1976, the Railway Board have informed that the present position of 13 sub-detailed estimates shown as outstanding is that 4 have been closed, leaving a balance of 9.

2.6. In a note, the Railway Board have elaborated as follows:

"The original Project Abstract Estimate was sanctioned, *vide* Railway Board's letter No. 61/WS/PDLW/1 dated 8-2-1963 with the following department-wise provisions:—

	Rs.
Civil Engineering	9,59,05,000
Mechl. Engineering	8,64,74,000
Elect. Engineering	1,33,54,000
Total	<u>19,57,33,000</u>

As the construction work progressed, it was visualised that the Mechanical Department would require extra provision for the following reasons:—

The provision in the Abstract Estimate for the Mechanical Department was made on a lumpsum basis, taking into account the approximate cost of Plant and Machinery items, based on the data available with DLW at that time. Since most of the machines were required to be imported from abroad, their cost of procurement on a most realistic basis could be available only when the imports were actually effected. As a consequence, the actual cost of procurement of a number of machinery and plant items was at variance with what was initially envisaged.

Yet another reason for variation between the Abstract Estimate and the Revised Estimate pertaining to the Mechanical Department was the receipt of revised recommendations from ALCO from time to time for machinery and plant items. ALCO recommendations were accepted because certain additional items which were to be manufactured in DLW shops were not available from indigenous sources. This could not be initially envisaged.

Due to devaluation of the Indian Rupees additional sums were required for payment of plant and machinery to be procured from USA.

With a view to avoiding extra provision arising out of the additional requirements of the Mechanical Department at DLW, the requirements of the Civil and Electrical Engineering

Departments were reviewed once again so as to identify areas of possible savings.

For the following reasons, therefore, certain savings could be effected with regard to the provisions corresponding to the Electrical and the Civil Engineering Departments.

Certain savings accrued in the course of actual execution of work and some changes in the design necessitated by local conditions at DLW.

Tenders were generally let out on lower rates than estimated because more competitive rates could be obtained.

A few items of work were not undertaken.

The Project Abstract Estimate provisions were adjusted by re-appropriating the provision as between the three departments as under:—

	Rs.
Civil Engineering	7,89,65,000.00
Mechl. Engineering	10,42,78,000.00
Elect. Engineering	1,24,90,000.00
Total	<u>19,57,33,000.00</u>

There was thus no pre-meditated overestimating under Civil and Electrical Engineering Departments provisions in the Project Estimate.”

2.7. Referring to the overall figure of Rs. 19.57 crores sanctioned for the project which remained unaltered, the Committee pointed out that it gave the impression that there was over-estimation. To this the Chairman, Railway Board replied: “The tendency, generally is to underestimate”. He further added:

“An estimate is an estimate; there will be changes in an estimate.”
He added:

“I have never tried to over-estimate or under-estimate. I have tried to be as accurate as possible.”

2.8. The Audit paragraph states that in addition to the project estimate for the production of broad gauge locomotives Rs. 1.38 crores were sanctioned between 1968-69 and 1970-71 for facilities for production of metre gauge locomotives, spares for diesel locomotives, plates and sheets

etc. The Committee desired to know the total outlay in DLW on facilities for manufacture of spares, the estimated value of spares supplied annually to the Railways and the return on the outlay of facilities provided for production of spares. The Railway Board have, in a note, stated:

"The total outlay on facilities for manufacture of spares at DLW, is roughly Rs. 84.69 lacs, comprising of Rs. 41.38 imported equipment and Rs. 43.31 lacs indigenous machines.

Spares for diesel locomotives are sophisticated items, with accurate finish and close tolerances and such items are not available as finished products from the trade, and hence the necessity for processing at DLW. Depending upon suitable offers, some finished items are also purchased directly by Railways from sources developed in trade. There is a continuous pursuit for development of trade sources for meeting demand of spares, but the response has been tardy. Moreover, the nature of some of the spares required by the Railways is such that they require specialised equipment which DLW alone can process at present.

It is also to be pointed out that at present no other Railway Workshop/Diesel Shed has been equipped with facilities for manufacture of all such spares. Details of supplies of spares (inclusive of initial, maintenance and emergency spares) during various years are indicated as below:

Year	Value (Rs. lacs approx.)	Value as a %age of initial investment
1969-70	7.85	9.27%
1970-71	6.80	8.02%
1971-72	25.58	30.20%
1972-73	24.78	29.26%
1973-74	30.94	36.53%

It is to be specifically noted that in addition to supplying of these spares, repair and return activities e.g., cylinder block repairs, cylinder liner reclamation, expressor crank shaft repairs, rotor balancing etc., are also undertaken at DLW on behalf of Railways, the value of which services is not reflected in the above figures."

2.9. The Committee note that the DLW Project Abstract Estimate sanctioned in 1963 had been only notionally closed with effect from 31-3-74 and as on January, 1975, out of a total of 484 sub-detailed estimates constituting the Project Abstract Estimates, 13 sub-detailed estimates were yet to be closed. It is further seen that although the abstract estimate for Rs. 19,57,33,000 sanctioned in 1963 underwent two revisions, first in 1968 and subsequently in 1969, the overall cost of the project remained the same. That the overall figure of Rs. 19.57 crores sanctioned for the project in 1963 remained unaltered even after twelve years during which there was a phenomenal rise in the general price structure, gives the impression that ab initio there must have been over-estimation of high magnitude. No tangible reason for this lack of variation between the abstract estimates and the revised estimates of the project as a whole appears to have been forthcoming. It is difficult to credit the proposition that in the conditions that have prevailed in India, an estimate could be resilient enough to absorb the shock of changes in the price structure over a period of more than a decade.

2.10. The DLW Project Abstract Estimate comprised of provisions under 3 heads viz, Civil Engineering Medical Engineering and Electrical Engineering. The Railway Board have explained that as the construction progressed it became evident that the Mechanical Department would require extra funds. With a view to avoiding such extra expenditure, the requirements for the Civil and Electrical Engineering Departments were then reviewed and certain savings effected. Such savings were facilitated by appropriate changes in the design and also on account of more competitive rates obtained in tenders.

2.11. The Committee fail to see why the savings effected in the provision for Civil Engineering and Electrical Engineering Departments in subsequent years to make additional provisions for Mechanical Engineering Department could not be visualised at the time of formulation of estimates. This only reinforces the Committee's impression that the estimates were not critically examined with reference to the Plans and programmes and that there was, for some apparently unfathomable reason, over-estimation of the provisions particularly in respect of Civil Engineering and Electrical Engineering Departments. The Committee regret to have to reach this unpalatable conclusion and can only ask that there should be a more careful and realistic estimation so that the limited resources of the nation are laid out in such a manner that the maximum benefit accrues.

2.12. The Committee find that about Rs. 84.69 lakhs comprising, Rs. 41.38 lakhs of imported equipment and Rs. 43.31 lakhs indigenous machines have been laid out on facilities for manufacture of spares at DLW. The explanation offered for the establishment of this capacity for

spares is that the spares for diesel locomotives were sophisticated items, with accurate finish and close tolerances and such items were not available as finished products from the trade. It has been further stated that depending upon suitable offers, some finished items were also purchased directly by Railways from sources developed in trade. While the Committee agree that the requirements of specialised equipment have to be met without failure and delay they feel that efforts should have been directed towards encouragement of more ancillary industries by placing orders on them for the manufacture and supply of sophisticated spare parts. This would not only have subserved the national interest by giving a fillip to the growth of industry but at the same time could have enabled the DLW to concentrate more on important activities. For example, the outlay of about a crore of rupees on the facilities for spares could have perhaps been more profitably utilised for Research and Development had the industry been encouraged to meet the requirements of spares for DLW. This aspect of the matter may be borne in mind for future planning.

CHAPTER III

PRODUCTION

Audit Paragraph

3.1. The first locomotive, wholly assembled, came out in 1964. The installed capacity of the project expected to be attained by 1967-68 was 150 broad gauge diesel locomotives a year. In 1965 it was decided to diversify production to include manufacture of metre gauge locomotives also. As a result, from 1968-69 production capacity was revised as 100 broad gauge and 60 metre gauge locomotives a year.

3.2. Full production has not yet been attained though nearly a decade has elapsed since commencement of production. The abstract estimate for the project envisaged outturn of 307 diesel locomotives in five years time, i.e. by 1967. By 1966-67, however, only 116 broad gauge diesel locomotives had been produced. There were substantial shortfalls, by nearly 50 per cent of the installed capacity, in the next three years also.

3.3. As per the project report, 941 broad gauge locomotives or equivalent should have been manufactured during 1963-64 to 1971-72. The actual outturn was, however, 427 broad gauge and 80 metre gauge locomotives. Production plan for the Fourth Five Year Plan as reported to the Estimates Committee (1969-70) (Fourth Lok Sabha) and incorporated in its hundred and nineteenth Report was:—

Year	Broad gauge	Metre gauge	Total
1969-70	65	25	90
1970-71	80	30	110
1971-72	90	45	135
1972-73	95	58	153
1973-74	100	60	160
Total	430	218	648

These targets were substantially modified in May 1971 as indicated below:—

Year	Target of locomotive production		Actual locomotive production		Total production of locomotives	
	broad gauge	metre gauge	broad gauge	metre gauge	Target	Actual
1969-70	58	24	58	24	82	82
1970-71	57	11	57	11	68	68
1971-72	65	40	70	35	105	105
1972-73	90	45	60	35	135	95
1973-74	100	60	45*	25*	160	70*
Total	370	180	290	130	550	420

*Upto December, 1973.

Production fell in 1972-73 primarily because of power shortage and labour problem.

3.4. Diesel Locomotive Works takes about six months to produce a locomotive. The Railway Board had been placing orders for locomotives two years (from April 1973 this is three years) in advance of the delivery period. The orders placed by the Railway Board from 1969 onwards are shown below:—

	Broad gauge locomotives	Metre gauge locomotives
February 1969	106	33
May 1970	113	75
June 1971	..	2
April 1972	135	..
December 1972	5	..
March 1973	..	80
Total	359	190

The order placed in May 1970 still (September 1973) remains unfulfilled to the extent of one-third.

3.5. The Diesel Locomotive Works Administration attributed the shortfall in attainment of target mainly to restricted availability of foreign exchange and has claimed that during four years (from 1968-69 to 1971-72) actual production has practically corresponded with what could be expected from the constraint of foreign exchange availability. It has been claimed that this has been achieved in spite of serious constraints on indigenous supply, particularly of castings and forgings, and on supply of electric traction equipment by Heavy Electricals (India) Limited, Bhopal, and Bharat Heavy Electricals, Hardwar. Further, the Works have been given the added responsibility of procurement/manufacture and supply of spares of diesel locomotives to the user Railways—a function which was not contemplated at the project stage.

3.6. Shortfall in production of diesel locomotives led to larger utilisation of steam locomotives, resulting in extra expenditure because of higher operating cost of steam locomotives.

[Sub-paragraphs 9.9 to 9.14 of paragraph 9 of the Report of C&AG for the year 1972-73 on Railways]

3.7. The following table gives the targets of production, as per Project Report prepared by the Collaborators for D.L.W. upto 1968-69 in terms of broad gauge locomotives of type WDM-2 and actual production during the same period:—

Year	Target	Actual Production		WDM2 or equivalent total
		WDM2	WDM-4	
1963-64	3	4		4
1964-65	26	18		18
1965-66	54	39		39
1966-67	108	55		55
1967-68	150	66		66
1968-69	150	60	10 (counted as 14 WDM-2)	74
Total	491	242	14	256

[Source: Para 3.12 of 119th Report of Estimates Committee (1969-70)]

It is seen from the above table that against a target of 491 B.G. locomotives only 242 B.G. and 10 M.G. locomotives were produced during the period

1963-64 to 1968-69. The shortfall is nearly 50 per cent of the installed capacity.

3.8. From the figures of production of locomotives in DLM during the Fourth Plan period (1969-70 to 1973-74) as given in the Audit Paragraph it is seen that the initial target of 648 locomotives (430 B.G. and 218 M.G.) was scaled down to 550 locomotives (370 BG and 180 MG) in May 1971. Against the revised target of 550 locomotives the actual production was 445 locomotives (307 B.G. and 138 M.G.). The Committee desired to know the reasons for the shortfall in production during the Fourth Plan. In a note, the Railway Board have explained:

“The actual production of locomotives during the Fourth Plan *vis-a-vis* the targets was as under :—

Year	Target as per Rly. Board's letter of 20-5-1971		Actual Production	
	BG	MG	BG	MG
1969-70	58	24	58	24
1970-71	57	11	57	11
1971-72	65	40	70	35
1972-73	90	45	60	35
1973-74	100	60	62	33
Total	370	180	307	138

Against the target of 550 locomotives the actual production during the Fourth Five Year Plan was 445 locos.* The production during the years 1969-70 and 1970-71 was in conformity with the revised targets laid down in Board's letter of 20-5-1971. The production during the year 1971-72 was marginally better than the target laid down in the Board's letter of 20-5-1971 as there was an increase of 5 B.G. locomotives compared to a decrease of 5 M.G. locomotives. The shortfall in production during 1972-73 as compared to the target laid down in Board's letter of 20-5-1971 was primarily due to the labour trouble and power shortage during that year. The target of production for 1973-74 as reflected in the Railways Minister's Budget Speech of February '73 was 140 (90 B.G. and 50 M.G.); thus, the

*In a note dated 23rd July, 1976, the Railway Board have informed that against the targetted production of 100 locomotives (80 B.G., 15 M.G. and 5 WDS-6) the actual production during 1974-75 was 92 locomotives (72 B.G., 15 M.G. and 5 WDS-6).

earlier target for the year 1973-74 of 100 B.G. and 60 M.G. reflected in Board's letter of 20.5-1971 was revised in February, 1973. The fall in production in the year 1973-74 as compared to the revised target of 140 locos was primarily due to labour troubles and power difficulties."

3.9. According to the Audit Paragraph full production in DLW has not yet been attained though more than a decade has elapsed since the commencement of production. Explaining the reasons for not attaining full production in DLW so far and the prospects of optimum utilisation of the works, the Railway Board have in a note stated:

"The principal factors which were responsible for original production programme not materialising are as under :—

- (i) Production targets incorporated in the collaborator's Project Report were intended for purposes of long range resources provisioning but actual production had to be regulated in accordance with orders for diesel locomotives placed by the Board on DLW and the quantum and timing of foreign exchange released for the purpose of importation of components and raw-material etc. Placement of orders for diesel locomotives by the Board was done annually with due regard to anticipated increase in traffic and replacement programme for steam locomotives. As regard foreign exchange its scale and period of availability depend to a large extent upon the availability of foreign loans/credits and its distribution by the Central Government to different departments/sectors.
- (ii) In the production of a diesel-electric locomotive, DLW's own contribution is only about one third in value. Another 44 per cent has to be contributed by HEIL/BHEL. The remaining, about half is from a large number of indigenous vendors and the balance by import. Thus, locomotive production at DLW is heavily dependent on regular supplies of purchased material.
- (iii) For imported material, procurement-*cum*-inprocess, lead time is about 2 years and so the decision whether to import or not, fully or partially, has to be taken two years in advance of locomotive production to which it applies. In order to

conserve scarce foreign exchange, deletions from import are assessed on the basis of estimates of what indigenous vendors concerned would be able to supply two years hence. To the extent estimated supplies do not materialise in practice due to unforesee circumstances, dislocation of production becomes unavoidable as it becomes too late to make up such shortfall in supplies by imports in time.

- (iv) Experience has shown that even with well established vendors of repute, rate of supply becomes erratic and inconsistencies in the quality of material supplied come up frequently with no set pattern which makes it extremely difficult to predict and make correct allowances therefore in advance.
- (v) Locomotive production programme hinges on continuous availability of matched sets of raw materials, castings/forgings and finished purchased components in conformity with the schedule of production. Thus, rate of supply of critical items of material determines the rate of completion and despatch of locomotives and since locomotive completion and despatch acts as the real pace setter for the entire works, the tempo of activity in all production areas, in effect, gets limited by the rate of supply of critical items of material. It becomes difficult to make up shortfall in production in a period of time/month during the succeeding period of time/month. Further, from the standpoint of smooth working and works morale, it is important that the rising tempo of production activities once developed should be sustained and kept steadily rising.
- (vi) Incentive Working once introduced has to be sustained, the programme for introduction of incentive working had to be deferred till 1969 because with locomotive orders placed on DLW, it could not be ensured that it would be possible to sustain the higher rates of production in different production centres that would be generated through incentive working. However, with formulation of the Fourth Plan locomotive production targets, the picture became clear and work connected with introduction of incentive working was intensified.

From the foregoing, it would be observed that locomotive production at DLW was conditioned by several factors outside DLW's control and a judicious compromise had also to be made between the interest of locomotive production and indigenous development. In the circumstances the practical

course of action was to maintain a close watch on developments arising from the various factors and continuously make adjustments to yield the most optimum overall results. Till such time as the maximum rated level of production at DLW is achieved and indigenous supplies as planned regularly are materialised, both DLW and its vendors would remain on a "rising curve of production". This makes future planning difficult and in such an environment setbacks become unavoidable. In the resultant situation, the main effort has to be confined for the effect of individual setbacks and to make continuous adjustments for optimum overall results that may be possible in the circumstances. Further, it may be mentioned that it is necessary for DLW itself to prove out all production centres and allied services at DLW for their capacity to meet the demands of optimum locomotive production. Accordingly, production targets are kept sufficiently high so that it may be possible to try out individual centres realistically and pressures may be kept up for removing the deficiencies and gearing up for higher rate of production. In this manner, even if the planned targets are not fully achieved, the objective of reaching rate of production at DLW gets substantially advanced."

3.10. As per the project report, 941 broad gauge locomotives or equivalent should have been manufactured during 1963-64 to 1971-72. As against this target 427 broad gauge and 80 metre gauge locomotives were actually produced. In this connection the Railway Board have in a note, stated :

"The bulk orders placed on DLW by 1969-70, *i.e.*, two years in advance of 1971-72 was only for 552 locomotives and even by 1970-71, the bulk orders were placed only for 740 locomotives, made up of 572 BG and 168 MG locomotives. Thus even bulk orders for the 941 locomotives were not placed on DLW.

Against 507 locomotives produced by 1971-72, the Rolling Stock orders placed on DLW by 1969-70 *i.e.*, 2 years earlier, were for 459 B.G. and 93 M.G. locomotives or a total of 552 locomotives and the foreign exchange availability was for 387 B.G. and 65 M.G. locomotives or a total of 452 locomotives. Even by 1970-71, *i.e.*, one year earlier, the foreign exchange availability was for 477 B.G. and 110 M.G. locomotives or total of 587 locomotives, against actual production of 427 B.G. and 80 M.G. locomotives, *i.e.*, a total of 507 locomotives by 1971-72. The production of locos had thus been broadly in

conformity with the availability of bulk orders for locomotives and the foreign exchange for the imported components.

The actual production in 1973-74 comprised of 62 B.G. and 35 M.G. locomotives making a total of 95. This therefore gives an overall production of 445 locos against a target of 550 representing a level of 81 per cent obtained of planned projections. Against the target of 135 locomotives for 1972-73 the provision made in the Revised Estimates submitted in December 1972 as only 110 locomotives, in consideration of labour troubles in the workshops. Mention about this labour trouble was also made in the Hon'ble Railway Minister's speech presenting the Railway Budget in February, 1973. There were power cuts between December 1972 and March 1973, when the tempo of production is generally very high and there were also interruptions in power supply during December 1972 and January 1973. Such disruption in power supply necessitated frequent changes in the timings of the shifts which had very adverse effects on production. The actual production was only 95 locomotives as compared to the provision of 110 locomotives in the Revised Estimates for 1972-73 prepared in December, 1972.

The labour situation in the workshop took such a turn that resulted in manhandling and assault of senior officers on the shop floor. Cases of intimidation and blackmailing of supervisors also occurred along with cases of intimidation of family members. Concurrently, one person also lost his life in an incident on the shop floor. This trouble continued right upto the end of December, 1973, when even the General Manager was obstructed from his inspection rounds. Thus the conditions in 1972-73 were continuously disturbed and with consequential effect on production.

Power Interruptions.—Serious power interruptions occurred in December, 1972 and the first three months of 1973. This continued on a large scale till June 1973 and persisted even after that. On account of this single shift working had to be resorted to during the night in February and March of 1973. During May and June 1973, the power supply was so regulated that staff were required to work predominantly in the hottest period of the day. Thus the frequent interruptions in the railway working hours and discontinuance of day with night shift working had affected overall capability of the Shop in its production scheme.

Reckoning from the time of RSP order to DLW the overall time cycle for physical production of a locomotive is approximately 3 years. The break-up includes the cycle time for initial preparatory work, tendering etc. for indigenous items is of the order of nearly 2 years and in the case of imported items 18 months from the date of release of foreign exchange. The overall impact of this is that normally 3 years' time elapses before the locomotives rolls out of the reduction unit.

The position of placement of bulk orders by the Railway Board and the actual cumulative production is tabulated below:—

Year upto	Bulk Order		Actual Production	
	BG	MG	BG	MG
1963-64	95	..	4	..
1964-65	203	..	22	..
1965-66	203	..	61	..
1966-67	251	..	116	..
1967-68	278	40	182	..
1968-69	459	93	300	34
1969-70	459	93	300	34
1970-71	562	168	357	45
1971-72	707	170	427	80
1972-73	707	250	487	115

Note : In addition to the above, orders for 10 WDM6—1400 HP locomotives have also been received during 1972-73.

It will be seen that the production was in line with the placement of bulk orders on a 2 year time-lag schedule.

The production at DLW has been by and large commensurate with the release of foreign exchange. Other factors mitigating the production have been the availability of indigenous components including supply of electric traction equipment by Heavy Electricals (India) Ltd., Bhopal. The position of availability of foreign exchange during the period 1966-67 to 1969-70 and

the locomotive production during the period 1968-69 to 1971-72, taking a lead time of 2 years, has been as under:—

Year	Availability for foreign exchange in terms of cumulative No. of locos covered		Year	Locomotive Production	
	BG	MG		BG	MG
1966-67	251		1968-69	242	10
1967-68	283	40	1969-70	300	34
1968-69	338	60	1970-71	357	45
1969-70	387	65	1971-72	427	80

The production of locomotives upto 1971-72 has been broadly in conformity with the availability of bulk orders and the progressive build up of production capacity.”

3.11. The Committee desired to know what remedial steps had been taken or were proposed to be taken to remove the impediments coming in the way of full attainment of production targets. In a note, the Railway Board have stated :

“The remedial steps taken or proposed to be taken are indicated below :—

- (a) Provision of standby generating sets.
- (b) Maintenance of continuous dialogue with labour to improve relations.
- (c) Vigorous follow-up of indigenous sources for development of various equipment to reduce dependence on imports.
- (d) Expediting supplies of vital imported components and accessories procured through ISM Washington.”

3.12. During evidence before the Committee, the Member Mechanical deposed that the limitation of resources constituted a serious constraint on the level of production in DLW. In this context the Financial Commissioner stated.

“May I explain this? This has happened this year and probably will happen next year also. The Planning Commission have taken an overall view of how many crores they can afford for rolling stock and they have pegged us at a certain level of

financial outlay. For example, this year we have got Rs. 147 crores for rolling stock of which Rs. 25 crores or so is for diesel locomotives. With these Rs. 25 crores for diesel locomotives, with the prices and wages going up, we can manufacture a smaller number of locomotives than even last year. If these difficulties remain for next year also, the number would be still lower. So, it is not only a question of what is our capacity but how much can we afford to utilize that capacity in the context of present constraint on resources. That is the major problem for this year and next year."

3.13. The Member Mechanical stated in this connection :—

"Our main restraint today is the allocation of funds. If the allocation is made, the production for 1975-76 can be upto 100 locomotives. We are well placed now to produce locomotives. Unless we are given 24 months advance notice, we will not be able to achieve. So, the decision as to what allocation of funds is going to be for the next three years at least, is a very important factor to determine the production in the DLW."

3.14. In a note subsequently furnished to the Committee, the Railway Board have stated :

"The targets and projections of outturn for the remaining years of the Vth Plan cannot be laid down realistically owing to financial constraints. The funds made available for DLW during 1974-75 for RSP (Rolling Stock Programme) is Rs. 24.78 crores which will enable production of only 80 B.G. and 15 M.G. besides 5 WDS6 for Steel Plants. Similarly, the availability of funds for 1975-76 RSP for DLW to the extent of Rs. 21.13 crores would limit the production to 63 B.G. and 4 M.G. locos besides 22 WDS6 shunters programmed for Steel Plants."

3.15. The Committee enquired about the plans for the production of diesel locomotives during the Fifth Plan and desired to know whether these had been prepared after taking into account the recent steep rise in prices of petroleum crude. In a note on the subject, the Railway Board have stated :

"According to earlier Fifth Plan formulations based on 280 originating million tonnes, tentative requirements of diesel electric locomotives from DLW have been worked out as 572 B.G. and 151 M.G.=723 locomotives during the period 1974-75 to

1979-80. However, based on the availability of funds which has been influenced by the oil crisis, the production for the first year viz., 1974-75 has been pegged down to 80 B.G. and 15 MG=95 locomotives (and 5 WDS6 shunters for steel Plants). In consonance with funds allocation, the programme of production for 1975-76 envisages 63 B.G. and 4 M.G. (+22 WDS6 for Steel Plants). Further programme for production from 3rd year onwards will again be on the basis of funds allocations which are not clearly known at this moment."

3.16. The Committee have not been informed whether the Fifth Plan formulations take into account the rise in prices of petroleum crude. It is however seen from the Annual Report and Accounts of Indian Railways 1974-75 that :—

"The Railways have given serious thought to the adjustments needed to meet the situation created by the sharp hike in the crude oil prices and examined the measures that could be initiated to curtail requirements of diesel oil and the extent to which electric or steam traction could be developed to meet growth of traffic in coming years. At present 50 per cent of the total freight traffic is being hauled by diesel traction and there appears to be little possibility of substituting haulage of such a large proportion of traffic by electric traction. Electrification is a time-consuming process and the availability of capital also acts as a serious deterrent on a too rapid acceleration of the electrification programme. For hauling the same volume of traffic steam locomotion requires much higher capital investment by way of expansion of line capacity, besides servicing and maintenance costs. Economic studies have indicated that taking into account all factors it would not be prudent for Railways to resume the production of steam locomotives, but it would be worthwhile extending, by major overhauls, the life of the standard locomotives of adequate horse power for heavy duties. Consistent with this objective, the policy of traction modernisation through dieselisation and electrification is to be continued with greater emphasis on the latter form as and when more capital resources become available."

3.17. During evidence the Financial Commissioner for Railways informed the Committee that the supplies of locomotives from the DLW were being regulated on the basis of requirements of the Railways and the purchase plan which had been approved by the Planning Commission. On being pointed out by the Committee whether in the context of the foreseeable requirements of locomotives, it could be assumed that DLW had

surplus capacity, the Financial Commissioner for Railways stated "Quite right". He added: "Capacity has two aspects; one is mechanical capacity in the workshop and the other is the capacity of the labour employed. Since we are not requiring 150 locomotives, we have not engaged labour to go beyond a certain level of manpower. If we were to manufacture more than 95 or 100 locomotives, we will have to engage extra staff."

3.18. The Committee desired to know whether some other type of activity could not be undertaken to fully utilise the installed capacity of DLW. The Chairman, Railway Board stated :

"That we are already doing. We have now brought in engine blocks for replacement on the Railways. We have stepped up that capacity to about four a month. Similarly, certain other parts, which were initially bought, are now being manufactured here. Moreover, we have taken certain orders for diesel generating sets and shunting locomotives for the steel plants."

3.19. In a note on the prospects of the optimum utilisation of the works, the Railway Board have stated :

"The original project report envisaged attainment of 150 B.G. Diesel Locomotives outturn rate per annum by 1967-68. This was projected on full incentive working on double shift-basis coupled with the installation of Machinery and Plant along with the availability of all the required jigs and fixtures.

* * *

Now, in the context of restricted availability of funds for building of rolling stock for the Railways, a broad plan for diversification of production activity at DLW is under consideration."

3.20. In regard to the steps taken so far for diversification of production at DLW, the Railway Board have, in a note, intimated:

"Action has already been initiated for diversification of production at DLW in the following directions:—

- (a) Manufacturing of 7 nos. 1750 Kilowatt Diesel Generating sets.
- (b) Manufacture of WDS6 class of diesel electric locomotives for heavy duty shunting application for Steel Plants. It is proposed to manufacture 5 no. during 1974-75 and about 22 in 1975-76 which will be continued in future also depending on the availability of further orders.

- (c) Accepting an order for the complete design, manufacturing and supply of 2 nos. 1400 Kilowatt Diesel Generating sets for Madras Atomic Power Project.
- (d) *Manufacture of 20 nos. Power Packs for WDM1 locomotives for re-power packing.*
- (e) Possibility is also being explored of exporting diesel locomotives to other countries.
- (f) *Supply of Spare Parts.* DLW is being asked to increasingly meet the requirements of spare parts of locomotives of Indian Railways and also undertake machining of important castings which are being developed indigenously for diesel locomotives towards indigenisation effort for substitution of import.
- (g) Reclamation of cylinder blocks on behalf of Railways.
- (h) Reclamation of cylinder liners to meet Railways requirements of maintenance.
- (i) A scheme for centralising repower packing of WDM2 and WDM1 of the railways diesel fleet at DLW is under examination and it is proposed to include this as an item in the Works Programme for 1976-77."

3.21. According to the Audit Paragraph it has been claimed that apart from the constraint of foreign exchange availability, there was serious constraints on the indigenous supplies which affected the attainment of production targets. It is seen that about 44 per cent of the cost of diesel locomotive is accounted for by electricals *i.e.* traction motors, generators, control panels etc. For broad gauge locomotives these are supplied by the Bhopal unit and for metre gauge locomotives by the Hardwar unit of the Bharat Heavy Electricals (India) Ltd. The Committee desired to know whether DLW had placed orders for electric traction equipments on the erstwhile Heavy Electricals (India) Ltd. Bhopal and Bharat Heavy Electricals, Hardwar well in advance; and if so, what was the normal lead time for the receipt of stores after the placement of orders. In a note, the Railway Board have stated:

"DLW had been placing letters of Intent on Heavy Electricals (India) Ltd. well in advance.... The lead time indicated by BHEL is about 2½ years.... Close liaison was maintained with HE(I)L/BHEL, Railway Board and the Ministry of Industrial Development through periodical meetings held either at Bhopal, or at Varanasi or in Board's office in Delhi."

3.22. Explaining the reasons for delay in the delivery of electrical equipment for diesel locomotives by Bharat Heavy Electricals Limited, the Ministry of Heavy Industries have in a note stated:

“The actual delivery of electrical equipment for broad gauge diesel locomotives during the year 1972-73 was 81 sets as against a commitment of 80 sets by the Bhopal Plant. With regard to requirement for metre gauge, the Hardwar Plant could not fulfil their commitments of 10 sets during the year. This was due to the fact that the Plant had undertaken the manufacture of these equipments for the first time and problems were encountered in setting up necessary facilities for their manufacture.

If the reference is made to the years earlier than 1972-73, it may be mentioned that there have been some shortfalls in the supply of these machines from Bhopal because of difficulties in establishing reliable sources of supply for material and components within the country and abroad. More than often the suppliers failed to keep their delivery commitments for castings, forgings and other material etc. which largely contributed to the delay in supply to the Railways. Against a total commitment of 194 sets under broad gauge and 20 sets under metre gauge for the period 1969 to 1971, the Bhopal Plant was able to supply 169 sets and 20 sets respectively.”

3.23. The Committee were informed by Audit that in March, 1973, the Ministry of Railways (Railway Board) placed orders as below for the import of electrical equipment for diesel locomotives which are supplied by the Bharat Heavy Electricals Ltd.:

- (i) 24 sets (i.e. for 24 locomotives) of electric transmission and control equipment—broad gauge.
- (ii) 15 sets of control equipments only—metre gauge.
- (iii) 29 sets of transmission equipment only—metre gauge.

3.24. The Committee desired to know the circumstances and justification for the import of electrical equipment in March, 1973. The Member Mechanical stated during evidence:—

“.....in the previous years from 1969-70 onwards the supplies from BHEL, were not coming up to the promised numbers and was very erratic. So, in order to ensure there was no drop in production we had to import a certain amount of electrical equipment. It was only after 1973 that there was a

certain amount of stability in their supplies, and it is not necessary now to import electrical equipment."

He added:

"If I may take you a little further, orders for these should be placed at least 24 to 30 months ahead; otherwise, we cannot ensure continuity of production. When we found that Bhopal was unable to supply the equipment, it became necessary for us to order the equipment to ensure continuity of production. Because, when we saw that they were not coming up with the promised supplies, what were we to do? Were we to scale down the production and face so many difficulties or import some matching equipment to balance the production."

3.25. The Committee asked whether the proposal to import was referred to the Ministry of Heavy Industries for their concurrence. To this the Member Mechanical replied:

"Yes. A meeting was actually conducted with the Ministry concerned and after the position was explained, it was decided to go ahead with the import."

3.26. The Committee enquired if the targets had been assessed realistically in January, 1973 when the order for import of traction equipment was finalised, could this import have been altogether avoided. The Member Mechanical replied:

"The thing is that we never expected things to happen like that and there were certain things beyond our control. For example, I have to repeat, cut in power not only for us but for all the ancillary industries which were supplying components to us."

He added:

"We have given certain targets of production and we have to find out from where we are going to get the equipment. Bhopal, year after year, did not keep up the promise to supply all equipment. So, we have to go in for imports. To ensure achievement of targetted production we had resorted to imports."

3.27. In a note furnished to the Committee, the Railway Board have explained:

"It is true that in March, 73 import of electrical equipment was

arranged for production of diesel electric locomotives at DLW as balancing imports.

The proposal for import was made *vide* DLW's letter No. MC(M)/ODC/FE/VI(A) dated 25-1-1972. The requirements of balancing imports were arrived at based on the commitments/forecast of supplies made by BHEL, Hardwar and HEEL/Bhopal for the years 1972-73 and 1973-74 *vis-a-vis* the production targets set *viz.* 135 locos in 1972-73, and 160 in 1973-74. Till 1971-72, the supplies of traction equipments from BHEL/Bhopal were irregular with repeated downward revisions of commitments from time to time, as a result of which there was no in-process or cushion available at all. With the establishment of a production level of 105 locomotives in 1971-72 it was felt that this constraint should be removed by providing for sufficient in process and cushion for achieving a still higher level of annual production.

At the time the import of traction equipment as balancing import was proposed, the Plan was to produce 612 BG and 190 MG locomotives by March, 74. To cater for shortages, damages, irregular supplies and transit time of material etc., cushion stock to the extent of 25 BG and 15 MG loco sets of traction equipment were also catered for. Provision for 25 BG and 15 MG loco sets of equipment were also made as inprocess requirement and 11 BG and 5 MG loco sets were provided for towards supply to Railways as spares. In all thus, requirement of traction equipment for production, inprocess, cushion and spares need of the Railways by March, 74 was assessed as 673 BG and 225 MG locomotives against the expected availability of 624 BG and 185 MG loco sets of traction equipment by import as also supplies from BHEL; thus, leaving a shortfall of 49 BG and 40 MG sets of traction equipment to be made up by import. The expectation of supply of equipments from BHEL taken in this working for the years 1972-73 and 1973-74 was 72 BG and 10 MG sets during 1972-73 and 81 BG and 20 MG sets during 1973-74. The import was finally cleared for 24 BG complete set and 15 sets of BG Control and 29 MG sets of equipment through the order of G.E.C./USA of March, 1973. This was done in consultation with BHEL and Ministry of Industry."

3.28. The Committee asked whether the production plans based on which imports were arranged had been implemented and whether both the imported and indigenous electrical equipments received had been fully

utilised to achieve the targetted production of locomotives. The Member Mechanical stated in evidence:

“No, Sir, we have not utilised them fully.”

Subsequently, the Railway Board have in a note stated:

“This import was initiated as balancing imports required for production of 162 BG and 190 MG locomotives upto the end of 1973-74 and providing 50 BG and 30 MG sets of equipment for in-process and cushion stocks. 11 BG and 5 MG sets of equipment were also to be sent to Railways as spares. The actual production by end of 1973-74 was 549 BG and 148 MG locos; thus recording a shortfall in production of 63 BG and 42 MG locos. The shortfall of 63 BG and 42 MG locos. (105 locos) was for the years 1971-72, 1972-73 and 1973-74 as under:—

Year	Production Targets			Actual production		
	BG	MG	Total	BG	MG	Total
1971-72 . . .	65	40	105	70	35	105
1972-73 . . .	90	45	135	60	35	95
1973-74 . . .	100	60	160	62	33	95
Total . . .	255	145	400	192	103	295

The above mentioned production during 1972-73 and 1973-74 was achieved with HEIL supplies and balancing imports arranged earlier. The equipments ordered in March, 73 were not received in DLW till after the financial year 1973-74. Reasons for short-fall in production in the years 1972-73 and 1973-74 have been brought out separately.”

3.29. Justifying the need for import of electrical equipment from abroad, the Financial Commissioner for Railways stated during evidence:

“About two years ago when electrical equipment was ordered from sources abroad, there was a genuine difficulty in getting regular supplies at a given rate throughout the year from BHEL. Even when they gave supplies, they used to bunch them together towards the end of the year. While this was the picture of supplies on the one hand, DLW was also thinking of stepping up the production from the present level to a higher level. So, it was thought that the only way to increase the production

of DLW would be to get supplementary supplies from source other than BHEL. It was in that background that orders abroad were placed. When these supplies have materialised today, there are other constraints on the production of DLW and stepping it up, with the result that now we have some supplies lying in the inventories which are not being utilised. We, therefore, have to stagger the further supplies which are in the pipeline from Bharat Heavy Electricals."

3.30. The Committee asked to what extent the shortfall in production in DLW was attributable to delayed supplies by the Bharat Heavy Electricals and whether there had been any improvement now in the supplies. The Member Mechanical stated during evidence:

"The Heavy Electricals' supply earlier was, if I may say so, erratic; but now it has quite improved."

He added:

"In 1969-70, for instance, against a promise of 104 they had supplied only 55 sets; again in 1970-71, against the 84 promised they supplied 77. So, it was only from 1972-73 onwards that there was a certain kind of stability in their outturn. They have outgrown their initial difficulties and they were able to supply with some stability."

3.31. On being asked whether in 1972-73 there was no delay in supplies from Heavy Electricals, the witness stated:

"The only restraint was that they were bunching instead of giving regular supplies, that is, they were supplying towards the end of the year."

3.32. In reply to a question whether such bunching affected the production at DLW, the Member Mechanical stated:

"It did not really affect production because, earlier, due to the uncertain supplies, we had built up certain alternative stocks. So, as a result of that, we were able not to allow the production to drop."

3.33. The Committee note that the first locomotive, wholly assembled at DLW came out in 1964. The original project report of DLW had envisaged for attainment of an outturn rate of 150 BG diesel locomotive per annum by 1967-68. This was based on the expectation of full incentive working on double shift, adequate installation of machinery and plant as

due as the availability of the required jigs and fixtures. However, full production targets have not yet been attained though some twelve years have elapsed since the commencement of production at DLW. During the period 1963-64 to 1968-69, against a target of 491 BG locomotives, only 242 BG locomotives and 10 MG locomotives were produced. The shortfall during this period involved nearly 50 per cent of the installed capacity. Further, during the Fourth Plan period (1969-70 to 1973-74) the initial target of 648 locomotives (430 BG and 218 MG) was scaled down to 550 locomotives (370 BG and 180 MG), and against the revised target of 550 locomotives the actual production was only 445 locomotives (307 BG and 138 MG).

3.34. According to the Railway Board the principal factors responsible for original production programme not materialising, were stated to have been as follows:—

- (i) Production targets incorporated in the Collaborator's project Report were intended for purpose of long range resources provisioning but actual production had to be regulated in accordance with the orders for diesel locomotives placed by the Board on BLW and the quantum and timing of foreign exchange released for the purpose of importation of components and raw-material etc. Placement of orders for diesel locomotives by the Board was done annually with due regard to anticipated increase in traffic & replacement programme for steam locomotives. As regards foreign exchange, its scale and period of availability depend to a large extent upon the availability of foreign loans/credits and its distribution by the Central Government to different departments/sectors.
- (ii) In the production of diesel-electric locomotive, DLW's own contribution is only about one-third in value. Another 44 per cent has to be contributed by BHEL/HEL. The remaining, about half is from a large number of indigenous vendors and the balance by imports. Thus, locomotive production at DLW is heavily dependent on regular supplies of purchased material.
- (iii) The programme for introduction of incentive working had to be deferred till 1969 because with locomotive orders placed on DLW, it could not be ensured that it would be possible to sustain the higher rates of production in different production centres that would be generated through incentive working. However, with formulation of the Fourth Plan locomotive production targets, the picture became clear and work connected with introduction of incentive working was intensified.

It has also been claimed that "locomotive production at DLW was conditioned by several factors outside DLW's control and a judicious compromise had also to be made between the interest of locomotive production and indigenous development. In the circumstances the practical course of action was to maintain a close watch on developments arising from the various factors and continuously make adjustments to yield the optimum overall results. Till such time as the maximum rated level of production at DLW is achieved and indigenous supplies planned regularly are materialised, both DLW and its vendors would remain on a rising curve of production. This makes future planning difficult and in such an environment set-backs become unavoidable."

3.35. The Committee are not impressed by these elaborate explanations. They are constrained to observe that there has been little, if any, justification for the under-utilisation of the production capacity installed at huge cost to the country. Occasional set-backs in production on account of factors beyond the control of the DLW administration are understandable. However, the continuous shortfall in production which in some years was of the order of about 50 per cent of the installed capacity can only lead the Committee to conclude that the project was not planned as well and carefully as it should have been. This is corroborated by the fact that when in 1965, i.e. about a year after the first locomotive rolled out from the DLW, the need was felt for diversifying production so that the manufacture of metre gauge locomotives could also be undertaken. It is significant also that the introduction of incentive working had to be deferred till 1969, because "with locomotive orders placed on DLW it could not be ensured that it would be possible to sustain the higher rates of production that would be generated through incentive working."

3.36. As the Audit Paragraph points out, the initial Fourth Plan target of 648 locomotives was in 1971 scaled down to 550 locomotives. This target appears to have been further lowered in February, 1973, when the Railway Minister stated in his budget speech that against the earlier target of 160 locomotives planned for 1973-74, only 140 locomotives would be produced in that year. Against the targeted production of 530 locomotives, that is to say, only 445 locomotives were actually produced at DLW during the fourth plan period. According to the Railway Board the shortfall in production in the last 2 years i.e. 1972-73 and 1973-74 of the Fourth Plan had been mainly due to labour troubles and to power supply problems. Pending final determination of the issue, the Committee would like to know whether the production targets in the subsequent years had been achieved and all the orders placed on DLW by the Railway Board were now being cleared according to schedule.

3.37. The Railway Board have sought further to emphasize that the shortfall in the attainment of overall targets of DLW was mainly attributable to restricted availability of foreign exchange as also serious constraints on resources. The Committee feel that had the targets been realistically laid down and the requirements of diesel locomotives assessed on a more careful basis, the production at DLW would have proceeded more smoothly. With adequate advance planning, the problems now pleaded for failure in performance could have been better tackled.

3.38. The Committee also find that as noted in a later section of this report, large quantities of imported stores were lying unused at DLW. A huge accumulation of inventories, of which about 32 to 50 per cent were imported items, has been reported. Perhaps, therefore, the dearth of foreign exchange was not the real problem that prevented the attainment of production targets.

3.39. The Committee were informed that the Railway have given serious thought to the adjustments needed to meet the situation created by the sharp hike in the crude oil prices and have examined the measures that would be initiated to curtail requirements of diesel oil and the extent to which electric or steam traction could therefore be developed to meet the growth of traffic in coming years. It is seen, however, that after taking into account all relevant factors the Railways have reached the conclusion that there can be no going back on the dieselisation programme and the policy of traction modernisation through dieselisation and electrification is to be continued. In view of this decision, the Committee would urge the Railway Board to draw up the production schedules of DLW in a more effective manner than hitherto and with an eye to our future requirements, particularly in the context of the decision to lay greater emphasis on electrification. The Committee would also like a proper perspective plan to be drawn up for the optimum utilisation of the installed capacity at DLW and closer coordination with the indigenous sources of supply like BHEL. The Committee are of the view that after more than a decade of its functioning, DLW should now be in a position to fulfil substantially the country's expectations from it. However, in view of the critical situation emerging in recent years over oil and oil prices, Government would do well to get the entire issue of dieselisation examined by a high power and expert Committee.

CHAPTER IV

INCENTIVE BONUS, IDLE TIME AND OVERTIME PAYMENTS

Audit Paragraph

4.1. Incentive Scheme was introduced in June 1969 and by November 1973 it was established in 89 out of 92 sections.

4.2. An analysis of the monthly expenditure on incentive bonus and overtime payments for certain shops during 1971-72 is given in Appendix II. It indicates that the growth of incentive bonus and overtime payments was not often matched by a corresponding increase in production. In a number of cases production remained even below the targets fixed prior to introduction of incentive scheme.

4.3. Idle time as a percentage of directman-hours in the whole factory was 3 per cent in 1970-71 and 2.7 per cent in 1971-72 against 1.1 per cent in 1969-70. During the twelve months of 1972-73, idle time ranged between 4.3 to 10 per cent of direct man-hours. An examination of the idle time booked during 1971-72 in shops on incentive scheme indicated that average idle time booked due to lack of materials and tools was 25.09 per cent of the total idle time. The idle time booked on 'miscellaneous account' was 22.66 per cent attributed to shortage of gas, shortage of grinding wheels, non-availability of crane drivers, drop in compressed air pressure, non-availability of fork lift drivers, non-availability of consumable stores like grease etc. It may be mentioned that booking of idle time due to lack of materials and tools entails proportionate deduction from the incentive bonus of the chargemen/mistries, but booking of idle time on 'miscellaneous account' does not affect the bonus of supervisory staff.

It has been stated by the Administration that for stricter control, booking of idle time on 'miscellaneous account' has been abolished from 15th September 1972 and the booking is now under specified categories.

4.4. Overtime payments have also been going up steadily from Rs.70,577 in April 1971 to Rs. 1,44,282 in March 1972. Total overtime payments were Rs. 8.75 lakhs in 1969-70, Rs. 9.43 lakhs in 1970-71 and Rs. 11.84 lakhs in 1971-72. The total wage bill for all the shops was Rs. 97.22 lakhs in 1971-72.

4.5. The Ministry of Railways (Railway Board) explained that the incentive scheme had not always resulted in a commensurate increase in pro-

duction, and idle time payments had also increased because of the unsatisfactory supply of indigenous forgings and components, both as to quality and time schedule. The high incidence of overtime was stated to be due to higher percentage of absenteeism and the need to make good the time lost in infructuous production of components which failed to pass in final inspection.

[Sub-paragraphs 9.15 to 9.19 of paragraph 9 of the Report of the Comptroller & Auditor General of India for the year 1972-73 on Railways.]

4.6. The Committee were informed by Audit that under the incentive scheme a standard time was fixed for completion of each job by a worker. If the job was completed earlier, incentive bonus was paid at an average rate for the time saved. It is, however, seen from the figures given in the Annexure to the Audit Paragraph that during 1971-72, in certain shops such as Shop No. 03 Welding Shop, Shop No. 6 Light Machine Shop and Shop No. 23 Truck Machine Shop, where the incentive scheme was working, the incentive payments generally increased from month to month. But simultaneously payments on account of overtime also registered heavy increases in the same shops. The Committee asked why there should be heavy overtime payments in the same shops and whether the productivity of these shops had really increased as a result of the incentive scheme. In a note the Railway Board have stated:

“Productivity does increase upon the introduction of Incentive

Scheme to the extent that the workers earn bonus by saving time, thus improving their performance obtaining under non-incentive conditions. It would, however, be appreciated that man-power is only one of the factors of production and the actual increase in over-all productivity of the workshop will have to be dependent upon various other factors of production including the utilisation of manpower. Overall productivity of the works is, therefore, subject to many other constraints. While booking of overtime in sections covered by Incentive working is generally discouraged, wherever considerable man-days are lost due to a large number of holidays, high incidence of absenteeism, non-uniform flow of material due to poor supply from vendors resulting in bunching of work, rejections due to material defects requiring either rectification or re-manufacture, power failure and unusual working conditions due to law and order situation in the area around DLW etc., overtime booking is perforce resorted to in interest of working upto the targeted production.

Productivity of man-power utilised under incentive conditions in DLW has certainly increased to the extent workshop employees saved time by earning bonus.”

4.7. It is also seen from the figures given in the Annexure to the Audit Paragraph that the extent of idle time has gone up in the same shops where incentive scheme had been introduced. In reply to a question whether this implied that the production time saved by the operations of the incentive scheme had really been wasted away without being utilised for production purposes, the Railway Board have, in a note, stated:

“Introduction of incentive scheme in a workshop inevitably introduced strict discipline with regard to all booking of time including idle time which are constantly subjected to closer scrutiny so as to ensure optimum utilisation of man-power. Certain booking of idle time even under incentive conditions will be inevitable, due to various factors such as power failure, machine failure, human failure, delayed receipt of material etc. It is not that idle time booking in the shops working under incentive conditions has gone up presumably due to the introduction of the incentive scheme. It will be more appropriate to state that arising out of the strict discipline inherent in the incentive scheme all ideal time bookings tend to get highlighted so that the management could take corrective action to the extent possible.”

4.8. During evidence before the Committee, the Financial Commissioner for Railways stated:

“Incentive Scheme was introduced in late 1969-70 and the figures of 1971-72 are of early stages of implementation and there was a time when these things were not properly integrated, there was no control on overtime. And now, one of the benefits of the Incentive Scheme is this, that the idle time could also be controlled.”

4.9. It has been mentioned in the Audit Paragraph that 25.09 per cent of the idle time during 1971-72 was due to lack of materials and tools apart from idle time booked on miscellaneous account attributed to shortage of gas and grinding wheels and non-availability of consumable stores like grease etc. In the next year 1972-73 the extent of total idle time ranged between 4.3 to 10 per cent of direct man-hours as against only 2.7 per cent in 1971-72. This leads to a conclusion that in many instances, the Diesel Locomotive Works Administration was unable to provide in time, adequate materials and stores needed on the shop floors. The Committee desired to know the reasons for this, and while pointing out that these were apparently management failures, enquired about the steps taken to reduce the incidence of idle time on these accounts. In a note, the Railway Board have stated:

“An overall analysis indicates that the major reasons resulting in idle time comprised lack of materials of requisite quality and

at the required time; unbalanced supply of materials in inter-stage movement caused by defects in indigenous materials; key machines with sophisticated electronic/hydraulic controls system going out of order, inadequate supply of Oxygen and Acetylene gases etc. due to supplier's failure. A constant surveillance of the causes is being effected with the objective of introducing remedial measures as feasible. Preventive and prophylactic measures are being taken by the DLW management as the situation warrants. The accelerated pace of indigenisation from the initial 4 per cent to about 87 per cent in a short period and the dependence mostly on one developed and proven source for many components/materials, accentuates the problem which is outside the control of the DLW management. Multiplicity of sources is being developed but this will be necessarily gradual and time-consuming. Design changes, marginal modifications of specifications, quality control and explored, as necessary, to suit local and Indian conditions of manufacture and availability of raw materials and skills. There are fiscal and techno-economic conditions as a result of which the management cannot flood the shops with excessive supply of materials just to minimise idle time marginally; because there will be other inventory carrying cost implications and adverse effect on profitability."

4.10. It is seen from the Audit paragraph that the total overtime payments in D.L.W. had been going up from year to year. Total overtime payments were Rs. 8.75 lakhs in 1969-70, Rs. 9.43 lakhs in 1970-71, and Rs. 11.84 lakhs in 1971-72. During evidence, the Committee pointed out that overtime payments should normally be resorted to in some shops only for completing jobs to feed other shops during the normal shift hours and, therefore, the overtime payments in some shops should be counter-balanced by their total absence in other shops. The Committee asked whether that was the pattern of overtime payments in D.L.W. In a note, the Railway Board have stated:

"Normally, booking of overtime is according to the principle enunciated. However, the production schedule is disrupted on account of—

1. non-availability of basic items like Oxygen/Acetylene gases and raw materials/forgings/castings etc.
2. Time lost in rejections of components during stages of production.
3. Breakdown of specialised machinery.
4. Unavoidable bunching up in the finishing stages.

5. Simultaneous proving-out of process wherever incentives are being introduced.
6. Frequent interruptions in power supply.
7. Heavy spurts in absenteeism of staff.

On account of the above reasons, the normal pattern of booking of OT is thrown out of gear and the OT has necessarily to be resorted to in various production and service shops in order to make up the arrears and to maintain continuity in productions."

4.11. During evidence the Member Mechanical stated:

"In the past two or three years, because of disturbed conditions—very heavy absenteeism and so on—it was not possible to get the optimum work. Now overtime is nil."

In the same context the Financial Commissioner for Railways stated:

"When the heavy incidence of overtime came to our notice, a decision was taken to control it. After that, the DLW have been controlling it. It was heavy at a certain stage. Then orders were issued from the Railway Board that the overtime allowance should never be more than 5 per cent of the wage bill. Under these orders, DLW have controlled the incidence of overtime. Also they have been helped by the fact that the incentive scheme has spread to all sections and has covered a large number of men."

4.12. Referring to the figures of incentive bonus, overtime payments and idle time, as given in the Annexure to the Audit paragraph, the Financial Commissioner for Railways stated:

"We accept those figures. . . . As I said earlier, at a certain stage the overtime incidence was rather high and in fact in 1972-73, there was a payment of Rs. 12,82,000 by way of overtime in DLW. Next year we took some action and it came down to Rs. 10,17,000. In the current year the maximum monthly bill of overtime has been Rs. 11,000 and the minimum Rs. 3,000*. Overall in the year it looks it may not be beyond Rs. 1 lakh."

4.13. The Railway Board had explained to Audit that the high incidence of overtime *inter alia* was due to the fact that overtime had to be

*In a note dated 23rd July, 1976, the Railway Board have informed that during 1973-74 and 1974-75 the overtime payments were Rs. 11,17,768 and Rs. 1,40,638, respectively.

resorted to in view of the need to make good the time lost in infructuous production of components which failed to pass in final inspection. Asked what steps had since been taken to improve the quality of these components, the Railway Board in a note stated:

“DLW has a particular problem in regard to components being rejected during stage of final inspection because of the rigid quality control which is enforced to ensure the end product going out of the works being of the required quality and standard of excellence. Most of the rejections are due to poor or defective material, and efforts are being made constantly with feed back reports to vendors and continuous development programme to improve the quality of supplies. In those cases where the rejected material can be used after rectification, the rectification work is done and the rejected material reclaimed for use.”

4.14. The Committee note that the incentive scheme introduced in June, 1969 had been established in 89 out of 92 sections of the DLW by November, 1973. However the analysis of the monthly expenditure on incentive bonus and overtime payments given in the Audit Paragraph reveals that the growth of the incentive bonus and overtime payments was not matched by a corresponding increase in production. It is seen that the targets of production laid down after introduction of incentive scheme for certain shops during 1971-72 have rarely been achieved. As a matter of fact in certain shops such as 03 Welding Shop and 23 Truck Machine Shop the production during certain months of 1971-72 was much below the targets set down prior to introduction of incentive scheme. This shows that the incentive scheme had really no impact on the productivity of different shops.

4.15. It is further seen that the idle time as a percentage of direct man hours in the whole factory was 3 per cent in 1970-71 and 2.7 per cent in 1971-72 against 1.1 per cent in 1969-70. Further during the twelve months of 1972-73, idle time ranged between 4.3 to 10 per cent of the direct manhours. The Financial Commissioner for Railways stated during evidence that the incentive scheme had been introduced in late 1969-70 and that the figures of idle time and overtime payments of 1971-72 as given in the Audit Paragraph were not representative as they related to the early stage of implementation of the incentive scheme. The Committee trust that by now the scheme had been well established and they would like to know the impact of the incentive scheme on the overall production in the DLW, during the last three years.

4.16. Another significant point to be noticed is that the payments on account of overtime in DLW had been rising from year to year after the

Introduction of the incentive scheme in 1969-70. The overtime payments in 1969-70 were of the order of Rs. 8.75 lakhs. This figure went upto Rs. 9.43 lakhs in 1970-71 and touched the figure of Rs. 11.84 lakhs in 1971-72. The Committee feel that overtime payments should normally be resorted to in some shops only for completing jobs to feed other shops during the normal shift hours and therefore, the overtime payments in some shops should be counter balanced by their total absence in other shops. However, the trend of overtime payments in DLW only indicates that the production time saved by the operation of incentive scheme had really been wasted away without being utilised for production purposes.

4.17. The Committee would like the Railway Board to make a precise review of the incentive scheme particularly in relation to overtime payments and idle time in shops. The result of such review should be intimated early to the Committee.

CHAPTER V
MATERIALS MANAGEMENT

Audit Paragraph

5.1. The values of stores issued for manufacture and held at the end of year in the last three years were as follows:—

Year	Issues	Balance at the close of the year
(Lakhs of rupees)		
1970-71	1385·23	540·53
1971-72	2030·42	594·68
1972-73	2788·68	754·42

5.2. Purchase of stores during the three years 1970-71, 1971-72 and 1972-73 were as follows:—

Year	Stores imported direct	Stores imported through agents in India	Total imported stores	Indi- genously purchas- ed*	Total indige- nously purchas- ed and imported stores	Per- cen- tage of in- dige- nously purchas- ed stores to total
1	2	3	4	5	6	7
(lakhs of rupees)						
1970-71	411·59	2·32	413·91	924·20	1338·11	68·31
1971-72	970·61	0·46	971·07	967·69	1938·76	50·00
1972-73	1315·95	0·54	1316·49	1537·92	2854·41	53·89

*These are purchases in India. Of these the electrical equipments accounting for about 44% of the value of each locomotive have substantial import contents.

It would be seen from the above that overseas purchases in 1971-72 and 1972-73 were about double and three times respectively of those in 1970-71. In 1972-73 indigenous purchases were also substantially more than in the previous years. The result has been that at the end of 1972-73 Diesel Locomotive Works was holding stores worth Rs. 7.54 crores, the highest level so far. In the absence of sufficient storage capacity considerable stores were lying in the open (September, 1973). The Railway Board considers the current level of inventory holding as reasonable in the light of difficulties in procurement of indigenous and imported stores.

5.3. Rupees 32.15 lakhs worth of locomotive items and Rs. 31.16 lakhs worth of other items have been lying in stock for two years and more. Tools worth Rs. 18 lakhs were also found surplus to requirements. It was stated (January, 1974) that tools valued at Rs. 11 lakhs have since been disposed of.

5.4. Computerisation of stores accounting and inventory control was planned in July, 1968 to be introduced in five phases. However, till November, 1973 only the first phase thereof was implemented and the second phase is expected to be completed by February, 1974.

Computers Utilisation

5.5. An I.C.T. computer was installed in 1965. In 1968 this was replaced by an IBM computer whose capacity was increased in May, 1972.

5.6. The monthly rental payable for the computer is Rs. 60,765 for a minimum utilisation of 176 meter hours of the central processor. The average monthly utilisation during 1968 to 1972 has been as follows:

Year	Meter hours
1968	54'01
1969	97'05
1970	157'07
1971	165'04
1972	174'00
March 1973	179'00

5.7. By October, 1973 the usage had gone up to 210 meter hours. It may be mentioned that the computer can be utilised upto 400 meter hours.

in a month, the usage beyond 176 meter hours charged on a concessional basis.

[Sub-paragraphs 9.20 to 9.23 and 9.31 to 9.33 of paragraph 9 of the Report of C&AG for the year 1972-73 on Railways].

5.8. It is seen from the Audit Paragraph that the stores balances at the close of the years 1970-71, 1971-72 and 1972-73 had been continuously going up. The figures extracted from the Appropriation Accounts of Railways in India for the year 1974-75 also reveal that stores balances during the years 1973-74 and 1974-75 recorded further substantial increases. At the close of 1973-74 the balance of stores on hand was Rs. 8.70 crores and by the end of 1974-75 this figure had gone up to Rs. 9.74 crores.

5.9. On being asked about the reasons why the balances of stores held at the close of each year had been increasing, the Railway Board have, in a note stated:

“The position at the end of 1973-74 is as under:—

(Figures in lakhs of Rs.)

I—Stores Balances :

Cap. 9310	Purchase Imported	701.59
Cap. 9320	Purchase Indigenous	546.16
Cap. 9400	Sales	(—)19.00
Cap. 9500	Stock	932.22
Cap. 9500	Stores in transit	7.25
Cap. 9500	Stock Adjustment A/c	(—)69.81
		<u>2098.41</u>

II—Manufacture Suspense :

Cap. 9600	W.M.S.	1883.74
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The increase in balance has been primarily due to lesser production of locomotives in the years 1972-73 and 1973-74 as compared to the anticipation of production based on which the procurement of material was made as also due to sharp increase in prices of electrical traction equipment supplied HEIL/Bhopal. According to the production plan stipulated in Railway Board's letter of 20th May, 1971, the production was to be 422 BG and 85 MG by March, 1972, 512 BG and 130 MG by March, 1973, 612 BG and 190 MG by March, 1974. The bulk orders received by June, 1971 were for 572 BG and 170 MG. The actual production was, however, 427 BG and 80 MG by March, 1972, 487 BG and 115 MG by March, 1973 and 541 BG and 148 MG by March, 1974. Thus there was

a drop in production of the order of 25 BG and 15 MG locomotives by March, 1973 and 71 BG and 42 MG by March, 1974. The scope for substantial reduction in quantity covered by purchase order is limited because:

- (a) Commitments have already been entered into for long lead items like traction equipment etc;
- (b) for many critical items of stores required for production, there are just one or two limited sources of supply in India; and
- (c) There is bunching of supplies/deliveries by certain major suppliers including public sector undertakings in the last quarter of financial year ending 31st March against which payments before that date fall due and get liquidated.
- (d) For the same quantity/number of materials/components, due to the impact of inflationary trends, value balances register increase.

Improvements in the position is expected by 1975-76 as a result of a series of action taken in 1973-74. It may be mentioned that lead time for material procurement is about two years."

5.10. Referring to the inventories position, the Financial Commissioner for Railways stated during evidence:

"The inventories are rather heavy. The position is not satisfactory. That is because while we were placing orders on the DLW to enable them to buy long lead items, in the actual production there was a shortfall leading to the accumulation of inventories. That in simple language is the position. Now, we could make use of the accumulated inventories to boost the production. At this time, a decision has been taken to slow down the production because of other constraints. Now, the only way to regulate the inventories now is that we do not place further orders till the inventories have come down to a reasonable level."

5.11. From the figures given in the Audit paragraph it is seen that percentages of total imported stores to total purchases in 1970-71 was 31.69 percent, in 1971-72 was 50 per cent and in 1972-73 was 46.11 percent. Further the overseas purchases in 1971-72 and 1972-73 were about double and three times respectively of those in 1970-71. Similarly, in 1972-73 indigenous purchases were also substantially more than in the previous year. The Committee enquired why should the increase be so high particularly in the light of the fact that production in 1972-73 and

1973-74 was much lower compared to 1971-72. In this connection, the Railway Board have, in a note, stated:

“The overseas purchases are determined some two years in advance of the physical outturn. As such the procurement of imported stores was related to projected production targets from which it will be clear that these targets over 1970-71 increased by 157 percent and 200 percent in the two successive years.

Purchase year	Production year	Projected Production Target	Percentage increase from 70-71 target	Actual Production
1968-69	1970-71	68	..	68
1969-70	1971-72	105	157%	105
1970-71	1972-73	135	200%	95
1971-72	1973-74	160	235%	95

Thus the actual production achieved by March, 1973 could not influence the decision for procurement for 1973-74 as these orders were placed some time in the third quarter of 1972. Thus only at the stage of further ordering in 1974-75 will it be possible to apply the necessary adjustments.

A further reason for the imported purchase increasing in 1972-73 was due to the continued shortfall in H.E.I. supplies ex-Bhopal necessitating the import of 54 loco sets of electric traction equipment from I.G.E.

The increase in indigenous purchases during 1972-73 was more due to retrospective increase in price of Traction equipment of HEIL/Bhopal for supplies on and from 1st June, 1971 by about 50 per cent (Rs. 3.45 lakhs to Rs. 12.70 lakhs) as also escalation payments to HEIL/Bhopal, on traction equipment now accounts for about 44 per cent of the loco cost. There were price increases in steel and other items stores as well.”

5.12. One of the results of the increased inventory holdings has been that because of insufficient storage capacity available, considerable stores were lying in the open. The Committee enquired why was non-availability of covered storage capacity not taken into account at the time of procurement of stores. The Committee also pointed out whether the accumula-

tion of stores was not indicative of over-indenting. In a note, the Railway Board have stated:

"In the initial factory lay-out, the Project Estimate prepared after the finalisation of the collaborator's recommendations certain specified covered storage areas were provided. These were based on certain assumption of growth, production schedule, inventory holding material procurement prospects, material flow etc. Stores were also to be stocked in the Production shops as well. Available Storage capacity is being utilised in the best manner possible. Sophisticated and costly items have since been get stored under sheltered and covered accommodation.

As a result of erratic trends of supply, and factors outside the control of management regulating the supply of imported and electrical equipment in the last few years, the earlier assumptions have gone away. The inadequacy of covered space has been further aggravated by shortfall in production in two successive years. The modified demand for covered accommodation for keeping the incoming materials according to the latest trends has been worked out and necessary estimates therefor *i.e.*, sheds for storage of Heavy Lift items, BG/MG components, Plates and sheets etc. got sanctioned. These works or in various stages of progress and construction at present. These works, when completed, will meet the requirements of covered accommodation, provided the present assumptions continue to be valid as a long term measures.

The fact that considerable stores were lying in the open is not indicative of over-indenting. Excessive holding of materials consequent on drop in production and unscheduled and erratic delivery, have accentuated the space problem. It may be mentioned that over the years, no significant losses have occurred of stores kept in the open due to theft or deterioration, because the security and other arrangements cover the entire factory area."

5.13. During evidence the Committee desired to know what was the value of the items which were lying in the open. The Member Mechanical stated: "Rough idea is about Rs. 5 crores." In a note subsequently furnished to the Committee, the Railway Board have stated:

"As this issue arose in the context of the import of electricals from ICF, USA, the figure of Rs. 5 crores was mentioned as the approximate value of that particular contract and not exactly

as the value of stores lying in the open. It is regretted that the sequence and context with reference to this figure of Rs. 5 crores, got mixed up during evidence."

5.14. The Committee called for the following details in regard to the stores left in open:

- (a) List of items left in the open.
- (b) Length of time for which these items were lying in the open.
- (c) The value of these items in terms of foreign exchange.
- (d) Extent of loss or damage to these items as a result of being left in the open.
- (e) Reasons why these items were allowed to lie in the open, and
- (f) The action taken, if any, against the persons responsible for this state of affairs.

5.15. In a note on the subject, the Railway Board have stated:—

- (a) Details of material lying in the different gantries in the open are given below:

(As on January 1975)

1. Crankshaft MG	. . . . .	30 Nos.
2. Do. BG	. . . . .	18 "
3. Traction Generators BG	. . . . .	23 "
4. Do. NG	. . . . .	20 "
5. Gear Boxes	. . . . .	45 "
6. Gear wheel	. . . . .	2 "
7. E.C. Clutch	. . . . .	29 "
8. Other Mic. (Machineries) Steel Plates, sheets, Billets, Rods etc.	. . . . .	8 Boxes
9. Wheels, Axles & Tyres	. . . . .	"

- (b) The maximum period for which any of the above items are allowed to lie in the open is about 3—6 months. This is approximately the period when materials are drawn and kept as buffer stock.

- (c) The value of items listed above in foreign exchange is estimated at Rs. 3 crores.

- (d) No significant loss or damage has been noticed as a result of items being kept in the open. This is because the packing is for Ocean transport in the case of imported for spares and is not interfered with till material is required, for production.
- (e) It may be mentioned that imported materials are generally received duly packed in wooden crates with inside polythene paper packing and also coated with rust preventive, to avoid damage or deterioration due to sea or rain water during the transit of the material from abroad until they are received and stored at D.L.W. However, items such as crankshafts, gear, wheels, steel plates, wheels and axles etc. are stored normally in the open and to prevent their being affected by the weather conditions, they are protected by frequent coating of oil or other rust preventives. It is only in regard to materials such as traction generators and motors that certain amount of extra care will be necessary for protection against weather if they have to be stored in the open longer than necessary. This aspect has always been ensured in the past and also will be ensured for the future but in regard to the above particular instance in view of generally heavy stocks held at an earlier point of time *vis-a-vis* lower production levels, etc. longer storage of these items in the open could not be altogether avoided. Accommodation has been found for the items which have hitherto been kept in the open except small numbers of items 3 and 4 *viz.*, traction Generators, which will also be taken under cover shortly.
- (f) As the contributory factors for excessive inventory build up were outside the control of the management the question of fixing of responsibility does not arise. Further ordering has been controlled and taken into account physical stocks."

5.16. During evidence before the Committee, the Member Mechanical stated that stores remained in the open for about a year and when the Railway Board came to know about, it, action taken "from the Board's angle." In this context he added:

"The trouble was that the total order of equipment was for 135 locomotives. When production fell down, the question of building up stores in the works came. If production had sustained to the level of the plan, this would not have arisen."

5.17. On being asked what was the loss suffered as a result of the stores lying in open, the Member Mechanical stated:

"No loss actually. These are very well packed and almost sealed."

In this connection the Chairman, Railway Board stated:

“They are in packing cases hermetically sealed and provided with silicon desiccators inside.”

He further added:

“There is no reason why it should be kept in the open.”

5.18. According to the Audit paragraph Rs. 32.15 lakhs worth of locomotive items and Rs. 31.16 lakhs worth of other items had been lying in stock for two years and more. Besides tools worth Rs. 18 lakhs were also found surplus to requirements. The Committee asked about the reasons for stores worth Rs. 63.31 lakhs lying in stock for more than two years. The Committee also enquired whether stores were lying unused because they had become obsolete or had deteriorated and what action had been taken to investigate into the procurement of such unnecessary stores as also for their disposal. In a note, the Railway Board have stated:

“The stores worth Rs. 63.31 lacs shown as non-moving for two-years comprise of—

	1972-73	As on 1-8-74	Reduction
	(Rs. lacs)	(Rs. lacs)	(R. lacs)
(a) Loco items	32.15	11.30	20.85
(b) Non-loco items	31.16	23.00	8.16
	63.31	34.30	29.01

As regards the Loco items, it is to be stated that none of these items is either obsolete or unusable or deteriorated in any manner.

The accumulation has occurred on account of advance procurement of materials keeping in view the original production schedules and the in-process lead items.

The Non-loco items include structural and other types of steels and tools which are left over from the construction phase and have either been disposed off by transfer to other Railways or are in the process of being used in the expansion phases of DLW. Of the tools, also, out of 18 lacs worth of tools originally surplus, 11 lacs worth of tools have been disposed off and the remaining 7 lacs worth of tools are under disposal.*

*In a note dated 23rd July, 1976 the Railway Board have stated that the accretion and disposal of surplus tools is a continuous process. The surplus tools at the end of 31-3-76 were approx. Rs. 11.2 lakhs. As on date (14-7-76) the position of tools lying surplus is Rs. 8.87 lakhs. With efforts now being made, the balance under surplus tools is expected to show an appreciable reduction.

There were some items rendered surplus mainly on account of certain discrepancies in the various numbering systems followed for stocking and also design changes rendering certain items of the assembly involved unavoidably surplus.

To avoid such accumulation of surplus stores, an integrated production-cum-inventory control system has been introduced at DLW on the computer for periodical check-ups and adjustments to be effected.

It may be mentioned that the total value of issues during the three years 1970-71, 1971-72 and 1972-73 was Rs. 60.3 crores and compared to this, the value of non-moving items of Rs. 34.63 lacs is not significant as it represents only about 0.58 per cent. This is under constant review."

5.19. The Committee were informed by the Railway Board that to avoid accumulation of surplus stores, an integrated production-cum-inventory control system had been introduced at DLW on the computer for periodical check-up and adjustments to be effected. During evidence, the Financial Commissioner stated:

"This system formally came into effect from April, 1974 for the current year; that is with the help of the computer, both the production and the stores are inter-linked and a watch is kept continuously."

5.20. In regard to the progress made in computerisation of stores and inventories, he added:

"The entire stores system has not been computerised*. Part of it has been computerised. We have five stages of computerisation of stores. Three phases have been completed and on the rest we are going on."

5.21. The Committee enquired how does the progress in computerisation of stores accounting and inventory control in DLW compare with progress in the two other Railway Production Units. In a note, the Railway Board have stated:

"Computerisation of Stores accounting and inventory control in Diesel Locomotive Works is progressing satisfactorily along with the other two Railway Production Units viz, CLW and

*In a note dated 23rd July, 1976, the Railway Board have informed that the work regarding computerisation of inventory holdings (taking over price ledger) has been completed.

ICF. The computerisation programme of Stores Accounting and Inventory control is still to be completed in DLW and other Production Units.”

5.22. The Committee note that the inventories held by DLW have constantly gone up from year to year. The inventory holdings at the close of the years 1970-71, 1971-72 and 1972-73 were respectively worth Rs. 5.40 crores, Rs. 5.94 crores and Rs. 7.54 crores. The inventory holdings further went up to Rs. 8.70 crores in 1973-74 and at the close of 1974-75 touched the all time record of Rs. 9.74 crores. A significant point to be noticed in this connection is that as much as 32 to 50 per cent of the total stores purchased by DLW each year consisted of imported stores.

5.23. According to the Railway Board the increase in stores balances had been primarily due to lesser production of locomotives in the years 1972-73 and 1973-74 as compared to the anticipation of production based on which the procurement of material was made as also due to sharp increase in prices of electrical traction equipment supplied by HEL/Bhopal. This only underscores the fact that production targets had not been realistically laid down and with the cutbacks in the projected production the availability of stores far exceeded the requirement. The Financial Commissioner for Railways in fact deposed before the Committee that the inventories were rather heavy and that the position was not satisfactory. He also informed the Committee that the only way to regulate the inventories was that further orders should not be placed till the stock balances had come down to a reasonable level.

5.24. The Committee learnt that in order to avoid accumulation of surplus stores, an integrated production-cum-inventory control system by computer had been introduced at DLW for periodical check-up and adjustments to be made. However, the entire stores system has not been yet computerised, only three out of the five phases of inventory control by computerisation having so far been completed. The Committee urge that this process which seems desirable should be expedited, keeping also in view Government's over-all policy of ensuring that computerisation does not affect the provision of employment opportunities. The precise progress made in eradicating the evils of over-stocking may be intimated to the Committee.

5.25. The Committee further note that one of the results of the increased inventory holdings has been that because of the storage capacity being insufficient, considerable quantities of such stores were even lying in the open. It was learnt that at one time stores worth Rs. 3 crores in foreign exchange has been lying in such precarious condition. Though it

was pleaded in extenuation that the goods lying in the open had somehow not suffered any damage, the Committee cannot be persuaded to accept the plea and would reprobate what is clearly a kind of laxity on the part of the railway administration. The Chairman, Railway Board, was himself good enough to concede that there was no reason for the stores to have been kept in the open. The Committee would like to be reassured on this point and to be informed about the action, if any, taken to obviate recurrence of such unfortunate happenings.

CHAPTER VI

COSTS AND PRICES

Audit Paragraph

6.1. The Table in Appendix III shows the trend of costs, cost by main components and return on gross block from 1963-64 to 1971-72.

6.2. The selling price was initially fixed on the basis of base price of a complete locomotive as given in the contract with ALCO. From the base price of components given in the contract in dollars, the present day landed cost of the imported portion is worked out applying the current rate of exchange; in addition, the value of indigenous components, suitably escalated, is taken into account and the selling price revised from time to time.

6.3. During 1963-64 to 1967-68 the costs of production exceeded the selling prices; thereafter the selling prices have been higher.

6.4. The costs of production per locomotive are shown below:—

Year	Direct costs*		Proforma charges† (i.e. indirect charges)		Total cost including proforma charges †	
	broad gauge locomotive	metre gauge locomotive	broad gauge locomotive	metre gauge locomotive	broad gauge locomotive	metre gauge locomotive
1963-64	1449	..	143	..	1592	..
1964-65	1572	..	382	..	1954	..
1965-66	1718	..	306	..	2024	..
1966-67	1724	..	350	..	2074	..
1967-68	2121	..	361	..	2482	..
1968-69	2252	1954	359	319	2611	2273
1969-70	2228	1736	329	318	2557	2054
1970-71	2230	1727	342	312	2572	2039
1971-72	2259@	1790	249	198	2508@	1988

* (Direct cost is prime cost plus shop on-cost plus general on-cost plus freight charges)

† (Proforma charges include expenditure on administrative departments, general administration, contribution to provident fund, interest on capital outlay, depreciation on plants, buildings, etc. and other indirect charges).

@ (The cost does not include the effect of the escalation payment of Rs. 129.66 lakhs made to Heavy Electricals (I) Limited during 1972-73 for supply of traction equipment upto 31st May, 1971. It also excludes the effect of increase of Rs. 4.95 lakhs in the price of traction equipment for each locomotive supplied after 31st May 1971, agreed in June 1972, to be paid to that undertaking.)

6.5. With increased production and consequent better utilisation of installed capacity the unit cost declines. It would be seen from the above that during 1968-69 to 1971-72, the production cost of a metre gauge locomotive declined by about 13 per cent. This was because of reduction of both direct costs and proforma charges. During those four years, the unit cost of production of broad gauge locomotives declined by only 4 per cent. This decline was solely due to reduction in the proforma charges per locomotive. The direct cost of production of a broad gauge locomotive did not decline although that of a metre gauge had declined by about 8 per cent.

[Sub. Paragraph 9.24 to 9.28 of Paragraph 9 of the Report of C&AO for the year 1972-73 on Railways]

6.6 The Committee were informed by Audit that the average cost of production (excluding proforma charges) and the selling price per diesel locomotive at DLW for the years 1970-71 to 1972-73 were as follows:

(in lakhs of rupees)

Year	Average cost of production		Selling prices	
	B.G.	M.G.	B.G.	M.G.
1970-71	22.30	17.27	24.00	18.64
1971-72	22.59	17.90	27.54	18.64
1972-73	27.13	17.93	27.54	18.64

6.7. During evidence the Committee enquired whether the formula for the fixation of the selling price of DLW locomotives, which was initially fixed on the basis of basic prices of a complete locomotive as given in the contract with ALCO, still held good. The Financial Commissioner for Railways stated:

"Yes, it does. When the project started it was then justified that the locomotive produced here would be cheaper than the imported one, and that is the formula which is still being applied from year to year. Whenever the prices of D.L.W. locomotives are revised, that is a very important consideration which is borne in mind. Having done that, for some years we found that the D.L.W. had a credit balance in the Development Suspense Account, which means that the cost of production was lower than the transfer or sale price to the railways, and"

this is where, broadly speaking, we can say that we have made an economic use of our assets in D.L.W."

He added:—

"In the initial stages the selling price was lower than the cost of production, with the result that we held back some money in the Development Suspense Account of D.L.W. When production went up and also price revision took place, we started getting credit balances in the account. In 1971-72 our production went up from 57 broad gauge locomotives to 70, whereas the selling price had been revised, taking into account the landed cost of the locomotive, which gave us a very large amount of money as credit balance. I find that the average cost of production was Rs. 22.59 lakhs in 1971-72, but the selling price was Rs. 27.54 lakhs, with the result that the D.L.W. that year had a credit balance after wiping out the earlier debits, that had a profit of Rs. 28.71 lakhs in terms of the broad gauge locomotives, and this figure went on till such time as we received additional escalation claims from BHEL, and after paying that, we have, at the end of March, 1973, a credit balance of Rs. 159 lakhs. We have taken advantage of that credit and not increased the price of D.L.W. locomotives while all the other import prices are increasing, so as to wipe out this credit. The objective is that the benefit should go to the consumer railways."

6.8. The Committee enquired whether any system of performance audit had been instituted to determine whether the assets of D.L.W. had been put to the best economic use. The financial Commissioner for Railways stated in evidence:—

"We have this mechanism of the Development Suspense Account where the variation between the sale price and the cost of production is held, and that gives us a fair idea."

He added:—

"As a management we are doing that, in addition to the function of the Production Manager on the mechanical side, to see that the maximum and most efficient use of the assets is made."

6.9. In a note subsequently furnished to the Committee, the Railway Board have stated:—

"In regard to the utilisation of assets and their optimum economic use based on the actual performance, reviews are conducted

every month. These reviews which are conducted in accordance with the various Code provisions and subsidiary instructions issued by the Railway Board, *inter alia* cover:—

- (i) deployment of the man-power (earmarked for production of locomotives) on jobs connected directly with locomotive production and other jobs;
- (ii) non-availability of man-power due to absenteeism, whose time etc. and the causes therefor;
- (iii) utilisation of selected and critical machines whose performance has a crucial bearing on production; and
- (iv) availability of material, more particularly of the high valued and critical items.

However, there is at present no integrated system of "performance audit obtaining at DLW."

6.10. The Committee desired to know how precisely the prices of DLW products were determined and whether the commercial practice of pricing of products had been thought of at any stage. In a note, the Railway Board have stated:—

"The work done in DLW can be categorised under three types:—

- (i) Miscellaneous work done for other Railways.
- (ii) Work done for private parties commonly referred as to "Deposit Works."
- (iii) Locomotive production.

While in regard to miscellaneous work done for other Railways, the actual cost is recovered from them by adjustment in the accounts, in respect of private parties, not only the actual cost but also the proforma charges and the portions of charges for interest and dividend and profit are also recovered. In so far as locomotive production is concerned, the locomotives are handed over to the various Zonal Railways and the transfer price fixed by the Board is realised from them.

The prices of products of DLW are thus determined consistent with the system of costing followed. However, as pointed out above, an element of profit etc., over and above the basic cost is taken into account only for the purpose of work done for parties other than the Indian Railways. The 'Transfer Price' of diesel locomotives is, however, fixed from time to time by the Railway Board."

6.11. A detailed note on the Costing System followed in D.L.W. furnished by the Railway Board, is reproduced in Appendix IV.

6.12. The Committee find that the selling prices or the transfer prices at which DLW locomotives are handed over to the various Zonal Railways are fixed by the Railway Board from time to time. These prices are determined in accordance with a formula under which the base price of a complete locomotive as given in the contract with ALCO is taken as the basis for fixation of the selling price of a locomotive. From the base price of components given in the contract in dollars, the present day landed cost of the imported portion is worked out, by applying the current rate of exchange, and the value of indigenous components is also suitably escalated. The commercial practice of pricing of products which inter alia takes into account an element of profit etc. over and above the basic cost is not followed for determining the transfer price of diesel locomotive even though this practice is being followed in DLW in determining the price of works done for private parties.

6.13. The Committee feel that in view of the fact that DLW is a captive plant, the prices of whose products are determined by the same agency which requires them, it is necessary that a more scientific system for evaluating costs is instituted. Such a system should enable the management to know whether the resources deployed are being properly utilised and also whether an adequate return is accruing on the capital invested. The Committee desire that the costing methods followed in the DLW may be re-examined with the requisite expert assistance and in cooperation with the Cost Accounts Branch of the Ministry of Finance.

CHAPTER VII

IMPORT SUBSTITUTION

Audit Paragraph

7.1. The basis on which the Diesel Locomotive Works Administration works out the level of indigenisation is "the percentage of cost of components partly/fully deleted from import in relation to cost of complete locomotive in dollars as incorporated in the collaboration agreement with ALCO". A more appropriate method would seem to be to take the import content in a locomotives as reported through each batch cost and assess the extent of indigenisation attained. The percentage of indigenous content on the above two bases are shown below:—

Year	As determined by Administration		From batch cost reports	
	broad gauge locomotive	metre gauge locomotive	broad gauge locomotive	metre gauge locomotive
1968-69	80	..	49.5	26.5
1969-70	Over 80	About 60	69.1	46.1
1970-71	Over 80	Over 80	70.5	61.4
1971-72	86	Almost 86	71.6	77.4

7.2. It is also to be pointed out that the above percentages are on the assumption that purchases in India are wholly indigenous in content. The contribution of Diesel Locomotive Works to a diesel locomotive is only about one-third. The rest are bought-out items. Heavy Electricals (India) Limited, Bhopal, and Bharat Heavy Electricals, Hardwar, which supply traction motors, generators, control panels etc. account for about 44 per cent of the cost of a locomotive. To the extent purchases in India have import contents, the actual extent of indigenisation would be less than that shown above. For example, the electrical equipments purchased from Heavy Electricals (India) Limited, Bhopal, and Bharat Heavy Electricals Limited, Hardwar, have substantial import contents. Amongst others, crank shafts, pistons, piston rings are still imported by Diesel Locomotive Works.

[Sub-paragraphs 9.29 and 9.30 of paragraph 9 of the Report of C&AG for the year 1972-73 on Railways].

7.3. The Committee called for details of the total imports made by the DLW during the last 3 years and desired to know the total value of the imported components and the reasons for importing them. In a note, the Railway Board have stated:—

“The imports made by DLW during the years 1971-72 to 1973-74 of components for DLW’s production and requirements of tools and machines spares was about \$15.95 million (\$1.51 million for Tools and machine spares). The figures are based on foreign exchange releases made during these 3 years and are inclusive of cost, insurance and freight.

These components etc. had to be imported because they had not been developed indigenously. The major items which comprise of value of over 90% of the import cost are crankshafts, turbo-super-charger items, cylinder heads cylinder liners, pistons and rings, air exhaust valves, tri-metal bearings, exhaust manifold and governors etc.

In addition, we will have to import a number of small low value items such as special steel hardwares, special high pressure fittings etc. as well as small quantities of special alloy steel because they could not be developed indigenously for various reasons such as highly specialised technology and low off-take etc. For the same reasons we have had to import certain special purpose-machinery spares and toolings.”

7.4. The Committee desired to know the steps being taken to develop indigenously the items still being imported viz. crankshafts, pistons, piston rings etc. A note furnished by the Railway Board in this connection is reproduced below:

“Status of indigenous development of hard-core items is as under:—

1. *Crankshaft (BG \$8450 per loco)*

(MG \$ 6000 per loco approx.)

This item is under development with HEC/Ranchi. They have indicated that about 10 pieces of BG Crankshaft will be delivered by March, 1975. They have also advised that during 1975-76 every effort will be made to deliver 66 crankshafts.

2. *Cylinder Head (BG \$3360 per loco)*

M/s. Shivaji Works have so far supplied 32 Cylinder heads in all but only one number has passed the final water test. No supply has been received from the firm after April, 1974. All the 6 Cylinder heads received

from M/s. SLM-Maneklal failed in hydraulic test. No supply has been received from the firm since March, 1974. From CLW 130 nos. Cylinder heads have been received of which only 15 nos. have been finally accepted. The item is not likely to be deleted before 1975-76.

3. Cylinder Liners: (BG \$ 1300 per loco)

Some indigenous supplies have been received but they are not sufficient to meet our requirements. The position of supplies for this is as under:

- (i) *SLM-Maneklal*—of the 74 Liners received 14 were finally accepted. The last supply of 10 nos. was received in October, 1974.
- (ii) *Shivaji Works*—45 liners were received in November, 1974 and were not accepted. Out of total supplies of 101 Cylinder liners, only 24 have been accepted.
- (iii) *Burn & Co.*—Out of 28 Cylinder Liners supplied only 9 have been accepted. No supply has been received since July, 1973.
- (iv) *Binney & Co.*—So far the firm has supplied two samples. Both of these have been rejected.
- (v) *Paranjpe*—The firm has so far supplied 60 liners which were accepted. No supply has been received from the firm since December, 1973.
- (vi) *C.L.W.*—Out of 9091 liners received so far 81 have been rejected due to mis-matching of the two halves of the casting and porosity and a total of 5 nos. have been accepted so far.

The item is expected to be partly deleted from 1975-76.

4. Bimetal and Trimetal bearings (\$ 1735 per loco)

Indigenous supply of bimetal bearings have commenced and they are being deleted from import.

For Trimetal bearings there has been no further development and M/s. Kirloskar Oil Engines have yet to develop the know-how to manufacture trimetal bearings with the lead tincopper overlay required by DLW. These are expected to be developed during 1975-76.

5. Governors (BG \$ 3204 per loco)

Indigenous development is expected to materialise during 1975-76.

6. Turbo Super charger 720A1 (BG \$ 6000 per loco)

Development with HAL Bangalore is in process. The position of development through other sources is as under:—

(A) *Alloy Grey Iron Casings*

- (i) *Best & Co., Bangalore*—Samples of intermediate casings have been rejected. No samples for Turbine casings been received since April, 1973.
- (ii) *C.L.W.*—Turbine casings—So far 15 casings have been received from C.L.W. Of these, 11 were rejected, two have been fitted and two more are under processing.
- (iii) *SLM-Maneklal*
 - (a) *Intermediate casing*—Against an order of 100 nos. placed in March, 1973, the firm has yet to cast an acceptable sample.
 - (b) *Turbine casing*—an order for 100 nos. was placed in June, 1973 but no sample has been received from the firm so far.

(B) *Water cooled gas inlet casing (BG)*

- (i) An improved sample of water cooled gas inlet casing was received from Western Railway, Ajmer in December, 1974 and the same has been taken up for machining.

(C) *Special forgings and casings:*

- (i) HAL supplied 8 impellers and these are under fitment on broad gauge turbosuper charger.

(ii) *Turbine discs and buckets:*

Recommendations of High Level tender committee are under finalisation for placement of alternative order on BFC or WG Forge.

- (iii) *Nozzle Rings*—This is still being developed by HAL. In the meantime M/s. Kanthal/Poona and M/s. Perfect Engineering Products Pvt. Ltd. Thana have evinced interest to cast Nozzle rings for BG and MG turbosuper charges.

7. *Turbo Super charger 350C (MG)*

Alloy Grey Iron castings (Main casing)—

The position of development is as under:—

- (i) *SLM—Maneklal*—No samples have been received from the firm even though an order for 100 nos. was placed in March, 1975.

The firm has been requested to expedite the development of this item.

- (ii) *C.L.W.*—Prototype samples are yet to be received from *C.L.W.*, with whom the pattern for the main casing is available.

8. *Exhaust—Manifold* (BG \$2854 per loco)

- (A) *B.G.* The manufacture is being undertaken by *BHPV*, Visakhapatnam. Supplies of imported expansion bellows required for the manufacture of broad gauge exhaust manifold has been received at Calcutta Port and are under clearance. Meanwhile *BHPV* has already manufactured one section of main pipe as well as the bent branch pipe out of mild steel sheets to prove out their bending lies and fixtures. They are awaiting supply of bellows before manufacturing a prototype exhaust manifold out of stainless steel.
- (B) *M.G.* One of the two pipes of *M.G.* exhaust manifold has already been developed indigenously. The other pipe is yet to be cleared from bulk production. Samples received from *M/s. Mukund Iron and Nittin*, Bombay were found to have some dimensional errors. These have been explained to the firms and fresh samples are expected soon.

9. *Pistons* (\$ 2880 per loco)

The development is being pursued with *M/s. Escorts* who are to set up a Plant in the country in collaboration with *M/s. Mahle*, West Germany. The Capital Goods Committee has already cleared their application for import of machinery. Their application for import licence has been awaiting release of German Credit. *M/s. Escorts* have indicated that they will take two years from the date of issue of import licence to come up with a prototype sample.

10. *Woodward Governor—MG* (\$ 2000 per loco)

There are no immediate prospects for indigenous development of this item in the near future.

11. *Air and Exhaust Valves* ((\$ 700 per loco)

Machining capacity has been established in India for finishing imported forgings. *M/s. Inex Valves* have been licenced to manufacture valve forgings as well as machine them in India. However, the firm is yet to import capital goods. *DLW* is in close liaison with the firm to expedite development of the item.

M/s. Shama Engine Valves had advised that they would be supplying prototype sample in December. These have not been received as yet. The firm has been reminded to expedite submission of the samples.

12. *Valve Seat Inserts (\$ 680 per loco)*

Prototype samples have been received and it is expected that valve seat inserts will be partly deleted from import during 1975-76.

13. *Radiator Fan.*

M/s. Keymer Bagshaw, Calcutta have now informed that they have now been able to rig up the spin test bed. Test results of their prototype are awaited.

M/s. Suburban Engg. Works, Calcutta have submitted another sample. The same has been found to conform to our requirements. They have been requested to improve their samples.

14. *Snubber Assembly*

M/s. Bharat Udyog/Varanasi have supplied samples components of Snubber Assembly submitted by the firm were found to be not conforming to DLW's requirements. The firm has assured that improved samples will be submitted by January, 1975.

Detailed position of indigenisation of the major items has been given above.

The items which are still being imported belong to the category of hard-core items which require special facilities to be set up by indigenous manufacturers before they can undertake their development.

A Reviewing Committee has been set up by Railway Board which meets regularly to check the progress made in indigenous development."

7.5. Sub-paragraph 9.29 of the Audit Paragraph brings out disparities between the percentages of indigenous content as determined by DLW and as computed by Audit from batch cost reports. According to Audit, the later figures, which are based on actual documents were more realistic than the figures worked out by DLW administration with reference only to components deleted from import. The Committee asked why could not the DLW Administration also follow the procedure of assessing indigenous content from batch cost reports. In a note, the Railway Board have stated:—

"The target set for indigenisation at the time of undertaking the manufacture of Diesel Electric Locomotive in DLW was on the basis of the imported cost of a locomotive as appearing in the DLW's collaboration agreement with Alco Products Ind.,

U.S.A. The total value of the imported components expressed as a percentage to the total cost of the locomotive then represented the 100 per cent import. As and when the individual components get indigenised the deletion from import of the value of such components indigenised expressed as a percentage of the total value of loco indicate the percentage of the indigenisation of the components, as the value of components still on the import list expressed as percentage of total value of the locomotive represented percentage of imported content in locomotive. Once all the components going into a locomotive get indigenised the value of all such components will get deleted from the import list thus reflecting 100 per cent indigenisation like the 100 per cent import indicated above. 100 per cent of indigenisation will thus be achieved irrespective of the changes in the value of individual components as also total cost of the locomotive from time to time resulting from price escalation etc.

The percentage of import content reflected in the loco cost is with reference to the total cost of the locomotives as determined by DLW and the landed cost inclusive of importation charges for the components in the import list. Accordingly the percentage of indigenisation to be expressed with reference to the figures so reflected in the loco cost will not represent the true picture as the lesser cost of manufacture of the locomotive at DLW taken as the basis for working out the percentage of the imported components at the landed cost at present day price will be on unequal base date. If the landed cost of the components going into a locomotive manufactured by DLW is taken for determining the import content, the landed cost of the complete locomotive should also be worked out taking the price escalation from time to time at which payment for the individual components is made and in that case, the percentage of imported content will not be dimensionally different from the percentage of imported content worked out with reference to the original cost of the components and the total locomotive. Further, the variations in the cost of indigenised components including DLW's efforts will cause variation in the percentage of import content even though there may be no variation in the value and volume of imported contents going into these locos produced by DLW.

For the limited purpose of appraising the progress of indigenisation, the system in vogue at DLW is satisfactory and needs no modification."

7.6. The Committee find that the percentage of indigenous content in a diesel locomotive as determined by the DLW administration works out to 86 in 1971-72 in the case of a BG locomotive and almost 86 in the same year in the case of a MG locomotive. If this were so, it does not explain why the value of the stores imported is of the order of 32 to 50 per cent of the total purchases during 1970-71 to 1972-73. It is also presumed that the import contents of the bought out items such as the electricals supplied by the HEIL/BHEL and which account for about 44 per cent of the cost of a locomotive, have not been taken into account while arriving at the percentage of achieved indigenisation.

7.7. The Committee desire that the figures worked out by Audit and by the Administration be reconciled and a more scientific method which truly reports our progress in indigenisation be worked out. The Committee would very much like to know clearly the latest position in regard to the indigenisation in DLW.

7.8. During the years 1971-72 to 1973-74, DLW is reported to have imported components and spares worth about \$ 15.95 millions. These components etc., it is learnt, had to be imported for entirely unavoidable reasons, since they were not indigenously available. The major items which comprise over 90 per cent of the import cost are crankshafts, turbo-super-charger items, cylinder heads, cylinder liners, pistons and piston rings etc. The Committee were informed that necessary steps had since been taken for the development of these items indigenously. A study of the status of indigenous development of these items, however, reveals that the development efforts have been tardy and the rates of rejections too heavy. The Committee would like the Reviewing Committee set up by the Railway Board in this behalf continuously to monitor the progress achieved in this field. They would also emphasize that sustained efforts must be made to help indigenous manufacturers develop a technical base for the manufacture of these hard-core items.

NEW DELHI:

August 2, 1976

Pravara 11, 1898 (S)

H. N. MUKERJEE,

Chairman,

Public Accounts Committee

APPENDIX I

(See paragraph 2.2)

Capital-at-Charge of Diesel Locomotive Works

(Thousand of rupees)

Description	At the end of							
	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72
Township	3,06,29	3,41,87	3,39,11	3,48,03	3,60,81	3,72,80	3,75,83	3,80,38
Workshop including machinery etc.	10,22,45	13,28,85	13,96,78	14,73,19	15,07,83	15,15,23	15,33,19	15,16,07
(A) TOTAL	13,28,74	16,70,72	17,35,89	18,21,22	18,68,64	18,88,03	19,09,02	18,96,45 (P)
Floating Assets								
Stores Suspense	2,33,66	3,66,33	11,12,93	13,56,87	10,83,81	8,53,27	10,72,43	11,91,70
Workshop Manufacture Suspense	2,38,71	7,10,00	7,95,55	8,33,75	9,62,35	6,67,49	9,19,07	8,27,57
Miscellaneous Advance	1,13	5,51	10,56	35,13	56,33	49,28	45,29	1,31,68
(B) Total Floating Assets	4,73,50	10,81,84	19,19,04	22,25,75	21,02,49	15,70,04	20,36,79	21,50,35
TOTAL CAPITAL (A + B)	18,02,24	27,52,56	36,54,93	40,46,97	39,71,13	34,58,07	39,45,81	40,46,80

(P)—Reduction in 1971-72 was due to adjustments.

APPENDIX II

(See paragraph 4.2)

Working of Incentive Scheme in Certain Shops During 1971-72.

Month	Shop No. 03 Welding shop				Shop No. 6 Light Machine shop*				Shop No. 23 Truck Machine shop			
	Target. Before incentive scheme-6	Incentive Bonus	Over-time	Idle time	Target. Before incentive Scheme-7.32	Incentive Bonus	Over-time	Idle time	Target. Before incentive scheme-7.33	Incentive Bonus	Over-time	Idle time
	After incentive scheme-10. Actual production (in locomotive sets).	Rs.	Rs.	hours	After incentive scheme-10.23. Actual production (in locomotive sets).	Rs.	Rs.	hours	After incentive scheme-10. Actual production (in locomotive sets).	Rs.	Rs.	hours
April	4.95	379	3289	375	5.92	2838	4068	1994	6.17	3100	3397	2393
May	5.23	601	3718	396	7.22	2990	7188	1850	7.37	3725	4856	1659
June	5.04	605	3408	1092	7.06	3089	6788	2074	8.41	4857	3763	1473
July	3.53	451	3040	1757	8.00	4066	7774	2448	7.37	4474	5399	2906
August	5.66	637	3552	1518	8.53	4378	7366	2015	7.47	4716	5857	2593
September	5.86	710	4283	1008	7.79	3953	9164	2439	8.16	5123	5589	1227
October	4.63	602	4293	956	6.98	3391	9420	57	7.60	4611	2466	1119
November	5.43	659	4258	793	8.11	4328	8937	1597	9.22	5810	4118	528
December	7.56	1048	4975	806	9.86	5102	10612	34	10.80	7148	7669	448
January	6.10	943	7379	697	8.20	5608	15517	1138	7.71	6908	9148	823
February	4.36	1235	4437	1195	7.53	5550	13403	1506	8.17	7346	6729	745
March	6.58	2180	4920	1691	7.74	6049	12593	1532	8.89	8018	10306	1558

*There are two major shops. The light machine shop is one of them. Its staff complement is 275 artisans, 22 chargemen, 6 assistant shop superintendents and 1 shop supervisor.

APPENDIX III

(See paragraph 6·1)

Trends of costs, cost by main components and return on gross block

(Thousand of Rupees)

Year	No. of locomotives produced	Percentage of capacity utilisation	Direct labour costs		Direct material costs		Overhead costs		Costs of jigs and fixtures		Total cost, (excluding proforma-charges)	Profit/Loss(—)		
			Amount	Percentage of total costs	Amount	Percentage of total costs	Amount	Percentage of total costs	Amount	Percentage of total costs		Amount	Return on gross block (percentage)	
			Rs.		Rs.		Rs.		Rs.			Rs.		
1963-64	4	—	45	0·8	56,02	96·6	1,33	2·3	20	0·3	58,00	(—)1,20	2·0	Nil
1964-65	18	12	2,59	0·9	249,50	88·1	29,95	10·6	1,10	0·4	2,83,14	(—)27,54	9·7	Nil
1965-66	39	26	8,43	1·3	547,06	81·6	1,11,35	16·6	3,33	0·5	6,70,17	(—)24,78	3·7	Nil
1966-67	55	37	11,49	1·2	770,86	81·3	1,52,66	16·1	13,72	1·4	9,48,73	(—)13,72	1·4	Nil
1967-68	66	44	21,28	1·5	1085,41	77·6	2,66,84	19·0	26,26	1·9	13,99,79	(—)13,79	1·0	Nil
1968-69	70	44	25,38	1·6	12,08,13	78·2	2,86,65	18·5	26,50	1·7	15,46,66	19,74	1·28	1·06
1969-70	82	51	28,14	1·6	13,45,54	78·8	3,06,24	17·9	29,20	1·7	17,09,12	72,26	4·2	3·83
1970-71	86	42·5	26,61	1·8	11,15,84	76·4	2,93,08	20·1	25,55	1·7	14,61,08	54,96	3·8	2·88
1971-72	105	65·5	34,54	1·6	17,10,57	77·4	4,25,76	19·3	36,75	1·7	22,07,62	89,79	4·1	4·73

APPENDIX IV

(See paragraph 6.11)

Note on costing system in D.L.W.

Costing of Locomotives at D.L.W.

Introduction:—The costing of locomotives at DLW is done, as a rule, on the basis of the provisions in the Manual of Cost Accounting introduced at these Works in June, 1964.

The cost of production of locomotives etc. not only includes the expenditure incurred on material and staff directly involved in production activities but also expenditure incurred towards the maintenance and service shops and departments, including the Administrative Departments. Accordingly, all items of expenditure in Diesel Locomotive Works for materials, staff, consumables and maintenance and service charges are charged to production either as direct charges or indirect charges except for the following items:—

- (a) Expenditure connected with the various construction activities including cost of plant and machinery which are allocable to Capital final heads or to Depreciation Reserve Fund (in case of replacement of assets).
- (b) Expenditure incurred on Deposit Works, *i.e.* expenditure which is recoverable from some other party.
- (c) Expenditure incurred on procurement of stores held in stock suspense for issues to various Shops and Departments and when required.
- (d) Expenditure incurred on procurement of any item for which allocation is not available at the time of account of such expenditure and which is accordingly charged to Suspense heads pending final allocation to the proper head.

The expenditure charged to production *viz.*, expenditure on material, staff, consumables and other maintenance and service charges are collected on one place, the Head of account operated being "IX-9600-Workshop Manufacture Suspence Account". All items of receipts/credits are also allocation to this Head of Account.

Object of Cost Accounting:—The object and scope of Cost Accounting in D.L.W. are as under:—

- (a) To ascertain the cost of components, assemblies, complete engines and complete locomotives and other special jobs undertaken by D.L.W.
- (b) To ensure an effective control over expenditure on different elements of cost namely, material, labour and overheads.
- (c) To analyse and interpret cost data, highlight special features and present the same through Managerial Reports for information, guidance and necessary action at different levels.

In order to achieve the above objectives, it is necessary, *inter alia*, to collect and classify expenditure by shops and departments which constitute various units or cost centres for the purpose of administrative technical, budgetary and cost control. Each of these Shops and Departments (*i.e.* Cost Centres) have been allotted a specific Code number, so as to distinguish it from other Cost Centres, and to ensure that expenditure incurred in regard to that particular Cost Centre can be collected and consolidated under a specific Head.

The expenditure incurred in various shops or departments (*i.e.*, Cost Centres) is under two main categories, *i.e.*, Direct expenditure and Indirect expenditure. The Direct Expenditure is that which can be identified directly with the product, both material and labour, while all other items of expenditure constitute Indirect expenditure.

Ascertaining Cost of Production:—With a view to collecting Cost data under different elements of cost *viz.*, Labour, Material and Overheads, a Work order system has been designed at D.L.W. This Work order system is an extension of the departmentalisation referred to above wherein the Shops/Departments (*i.e.* Cost Centres) in D.L.W. have been given distinct Code numbers under this system.

Standing Work Orders are issued for further classification of expenditure incurred by Shops and Departments by various types, *i.e.*, direct expenses for manufacture of locomotives, indirect expenses of shops, expenses on works chargeable to Capital etc.

Work Orders are of two kinds: Production Work Orders including Special Work Orders for collection of cost of works or jobs in the shops, and non-production Work Orders, for collection of Indirect expenses which constitute Overheads.

Production Work Orders are designed to collect costs under various elements of cost, viz., direct material, direct labour and overheads and non-production Works Orders under various expense/receipt Nos. by different Shops and Departments.

For collection of various items of Indirect expenditure, Expense Nos. have been allotted to record and collect such different items. Expense Nos. have been issued keeping in view the various items of expenditure likely to be incurred and their relative importance.

Similarly, Receipt Nos. are intended for record and collection of different items of receipts and credits which are taken in reduction of overheads. Receipt Nos. have been issued keeping in view the various items of receipts and credits as also their relative importance.

The Work Order system at D.L.W. therefore provides for the booking of the entire range of expenditure.

Allocation of Production of Locomotives:—So far as production of locomotives is concerned, the Railway Board places the Bulk Orders on D.L.W. for different types of locomotives with reference to the Rolling Stock Programme of the Railways. On receipt of these Bulk orders from the Railway Board, these are split up into convenient groups known as Batch Orders, each batch order comprising the number of locomotives generally conforming to a month's production. The batch order now in operation in D.L.W. comprises of about 10 locomotives each generally. The advantage of this arrangement is that the manufacture of batches is completed in gaps of approximately a month and the cost thereof is also available in successive months.

Each Bulk Order received from the Railway Board is given a specific number. Similarly, a separate specific number is given to each of the batches that together constitute the Board's bulk order. Under this arrangement, as mentioned earlier, appropriate Standing Work orders are released and booking of expenditure thereon consolidated which eventually forms the basis for completion of cost Report.

The Diesel Locomotive being manufactured at D.L.W. is further split into three major categories—Engine, Chassis and auxiliaries. These three categories are allotted separate numbers for identification so that the expenditure on each of these categories can be collected separately. By adding the expenditure on these three categories, we get the total for the complete locomotive in the batch.

As regards the indirect expenses, the same is distributed over the various production works undertaken in the workshops at a predetermined percentage and this rate is reviewed from time to time, to ensure that the

amount so charged to the various jobs is as close to the actual expenditure consisting Indirect expenditure. The total cost of the locomotive thus comprises the Direct expenditure plus the share of the Indirect expenditure as overheads.

In D.L.W. at present, a system of Batch Costing backed up by computerization of important documents/tabulations is being followed. Through the Work Order system referred to above, collection of expenditure under different elements of Cost viz. Direct Labour, Direct Stores and overheads is done batch-wise for which purpose the Workshop General Register is maintained work order-wise. The Workshop General Register provides the collection of expenditure on Direct Labour, Direct Stores and Overheads with reference to a particular batch/work order from month to month.

To facilitate work on computer, the various batch orders and expense Nos. are expressed in figures consisting of three barrels as under:—

Batch No. Say, 04/011/06; /05/011/06;

The first barrel represents the nature of the job. 04 represents work on manufacture of engine while 05, the work on the manufacture of Chassis. The second barrel, i.e., 011 represents the bulk order No. placed by the Railway Board. The third barrel i.e. 06 represents the batch order No. of the bulk order 011.

Expense No. say, 01/002/01; 02/002/81;

01, i.e., the first barrel represents the indirect expenditure on production Shops. The second barrel i.e. 002, represents the expenditure on pay and allowances of supervisors. The third barrel represents a particular shop. In this case, 01 represents the Engine Shop.

The first barrel i.e. 02 represents the Indirect expenditure of shops and departments which are not directly concerned with production. The second barrel 002 represents expenditure on pay and allowances of supervisors of such Shops and Departments. The third barrel, i.e. 81 represents the Departments, i.e. Electrical Department.

Various factory forms have been standardised for use in Shops in connection with production of locomotives to suit *inter alia*, release of production documental punching on Time Recorder Clocks and Mechanisation of Accounts on the Computer, completion of Managerial Reports and other cost data considered necessary.

*Compilation of Production Cost:—*The various elements of cost are compiled briefly as under:—

(a) *Materials.*—The procurement of raw material, semi-finished and finished materials required for the locomotives under various specifications

is based on Cost and Detail Book for the particular type of locomotive. The total quantities of raw materials required under various specifications are determined by relating the quantity per loco with the number of locomotives on order and making an allowance for wastage. With regard to other item viz., rough, semi-finished and finished, the quantities are determined with reference to the number of pieces required per locomotive as prescribed in the Cost and Detail Book, the number of locomotive on order and the surplus quantity of stock if any, the consumption of materials for the production of various items is regulated strictly according to the quantity prescribed in the Cost and Detail Book. This prescribed quantity is printed in the Production documents.

With regard to consumables and other indirect materials, the production office fixes the monthly quota for the different shops for each item. The shops are authorised to draw such stores within the prescribed quota. Any excess over the quota has to be countersigned by the Production Engineer as a special case.

The vouchers on which the stock items are drawn show the batch order or the expense No. as the case may be similarly, for non-stock items, which are accounted for through the Receipt Notes, the allocation is available by batch or expense No. on such Receipt Notes. The Stocked items are priced at book average rates, average rates being struck at the time of every fresh receipt. Non-stocked items of stores are priced at the actual cost of the purchases.

As regard the shop manufactured items, these are priced at estimated rates of manufacture. These rates are worked out by the estimating section on the basis of actual cost of components in respect of a few latest batches or by evaluating the quantities of raw materials prescribed and hours of various operations laid down in the process sheets as may be considered more suitable. These rates are generally reviewed once every year.

It will thus be seen that Direct stores for a particular batch order are booked through vouchers (*i.e.* Material Requisitions for raw and basic materials and Workshop Issue slips for finished Stores). These vouchers duly priced are posted in the Priced Ledgers which have been computerised. Thereafter a summary is made from these vouchers and this constitutes the Direct Stores charges for this particular batch order.

(b) *Labour Cost.*—The production or manufacture of components and assembly of locomotives is normally undertaken in Production Shops, Service Shops are generally responsible for providing facilities and services to various production Shops and other departments, and do not usually undertake production jobs. The time spent each day by the workers on

various production shops is booked through job cards and is allocated to the batch order or Work order concerned in case they are engaged on production activities or to Expense No. in case of essential Indirect workers. For allocation of wage for paid holidays, L.A.P. etc., the time is booked not on job Cards but through Time Sheets.

The valuation of the time so allocated is done on an average rate which is worked out on a quarterly basis. As regards Workshops Supervisors and other than workshop staff, the expenditure in such cases being not identifiable with any particular production work, is chargeable to overheads as indirect expenditure and is accordingly charged at the rate of actual payment.

Since the evaluation of time spent by workshop labour is made on an average rate, small difference occur between the amount of actual payment and the amount allocated to various work Orders/Expense Nos. Such differences are calculated at one place and are taken note of at the time of revision of the average rate applicable for the following quarter, differences at the end of the year being taken as overheads.

The Labour force in shops comprises of (i) Direct Labour and (ii) Indirect Labour. Direct Labour is that which can be identified with an allocated to Production Work Orders straightaway. The Indirect labour is that which cannot be identified with any particular production job. The cost of such indirect labour, together with other indirect expenses are required to be adjusted over production jobs, by a levy at pre-determined overhead rates.

The amounts of all wages and allowances passed in respect of workshop staff are noted down in a manuscript Register maintained by the workshop Establishment Section. The total labour charges for each Shop as recorded in this register are compared with the total labour charges, allocated to various Production and Non-Production Work Orders and variations, if any, noted are adjusted.

(c) *Indirect expenses or Overheads*:—In addition to expenses on labour and materials which are allocated direct to jobs as explained above, there are expenses termed 'indirect', which cannot be charged direct to jobs but which are included in the cost on certain equitable basis. Indirect expenses comprise both variable and fixed charges. Variable charges are expenses that fluctuate in amount though not exactly in direct proportion to the volume of production but largely so and in sympathy with it. Fixed charges are expenses that do not vary significantly or at all with the volume of production.

The aggregate of all indirect expenses is termed 'overhead'. The overhead has been classified in the following groups at D.L.W. for facility

of control and distribution over production:—

- (i) **Factory Overhead**; this comprises indirect expenses of production and Service shops;
- (ii) **Administrative Overheads**; this comprise expenses of Administrative Offices etc.;
- (iii) **Township overhead**; This comprises expenses of Civil Engineering, Water Supply etc.;
- (iv) **Stores Overhead**; This comprises expenses on the Office of Controller of Stores etc.

The Factory, Administrative and Township overheads are levied on production jobs at a predetermined percentage on the basis of direct wages excluding Incentive bonus. The percentages for factory overhead are worked out for each Production Shop separately, while a common percentage is worked out for the Administrative and Township overheads each for the workshop as a whole. A single percentage rate is also worked out for Stores overhead for levy on Direct stores. The pre-determined overhead rates referred to above are reviewed periodically with reference to actual expenditure in order to ensure that the recovery of overhead is made in a manner which would leave as small an amount as possible as under or over absorbed overheads at the end of the financial year.

Cost of Manufacture:—It will thus be seen from the above that the cost of manufacture of locomotives, including assemblies and components going into them, is classified as under:—

- (a) **Direct Labour**, comprising—
 - (i) Incentive bonus; and
 - (ii) Other labour;
- (b) **Direct Stores**; and
- (c) **Overheads**, comprising—
 - (i) **Factory Overhead**;
 - (ii) **Administrative Overhead**;
 - (iii) **Township Overhead**; and
 - (iv) **Stores overhead**.

The total of direct labour, direct stores and share of Indirect Expenditure or overheads thereon indicates the total expenditure incurred on the batch during the month. The totals of all the months during which work was done on that batch would show the total expenditure on the manu-

facture of locomotives in that Batch. This total divided by the number of locomotives in that batch gives the average cost per locomotive in that batch.

Jigs & Fixtures

Besides the above items of cost, the cost of jigs and fixtures which are purchased/manufactured to cater to production of a large number of locomotives are booked under a separate Special Work Order. A technical estimate of the total cost and the number of locomotives over which the cost should be distributed is made by the Production Office and as and when batches are completed, a proportionate cost for jigs and fixtures is allocated to them.

Proforma Charges:

There are certain charges which are termed as Proforma charges, which are only shown proforma in the Cost Report. These are:

- (i) Dividend.
- (ii) Special Contribution to P.F. or Gratuity.
- (iii) Share of cost of Railway Board, ADAI (Railways) etc.

(i) *Dividend*.—Dividend charges are payable to general revenues at rates applicable from time to time on the capital-at-charge. Dividend accruing on the investment in D.L.W. is not debited to the Accounts of D.L.W. but is paid from overall Railway Revenues. The amount of dividend charges for a year, calculated on the capital-at-charge to end of the previous year plus half the (anticipated) capital outlay for the year, however is distributed over the number of locomotives expected to be produced during the year and shown proforma in the Cost Report.

(ii) *Special Contribution to P.F. or Gratuity*.—Liability for special contribution to Provident Fund and Gratuity is calculated at 1/24th of the total salary and wages for the year less the Estimated amount of payment during the year and distributed over the total number of locomotives expected to be produced during the year and shown proforma in the cost report. This is a contingent liability for which due allowance is made proforma.

(iii) *Share of Cost of Railway Board, A.D.A.I. (Railways) etc.*—The share of the cost of the Railway Board, A.D.A.I. (Railways) etc., as advised by the Railway Board every year, is also distributed over the total number of locomotives expected to be produced during the year and shown proforma in the cost report. This expenditure, as in the case of Dividend, is also not charged to the Accounts of D.L.W.

As mentioned earlier, the charges for all the three items referred to above are not adjusted in the books of Accounts.

Cost of Assemblies and Components.—The costs of locomotives as determined above is however not further broken down into cost of Assemblies and cost of components. The system of costing of assemblies has not yet been introduced in D.L.W. As a trial measure, however, a beginning has been made recently with the costing of two assemblies. A complete system of Assembly Costing can however be achieved only when the Incentive system is operative in all the Production shops in a full scale, which is expected by the end of this year. For successful costing of assemblies, the direct labour must be allocated only through job Cards and vouchers for material should invariably contain Cost of Detail Nos.

Accuracy of costing.—As explained there are three constituents of the cost of production of loss and these are:—

- (i) Direct Labour,
- (ii) Direct Stores,
- (iii) Overheads.

(i) As described above, the direct labour charges are booked through Job Cards etc.

The time recorded on individual cards is evaluated at average hourly rates applicable to different categories of workmen.

The summary of labour charges under various Production Work Orders as culled from these documents constitute the direct labour charges.

Similarly, the summary of Incentive bonus paid on individual cards constitutes the Incentive bonus allocable to various Work Orders.

From the above it will be appreciated that so far as labour charges are concerned, there is hardly any scope for inaccuracy.

Further whether the total labour charges allocated to various Production work orders etc. are accurate and correct or not is also ascertained by comparing the same with the actual labour charges for each shop as recorded in the register maintained in the Workshop Establishment Section. Wherever significant variations are noticed, the same are investigated and rectified while minor variations are adjusted to relevant Expense No. of the Shops concerned.

The main reason for whatever variations is that the labour cost booked to the Work orders is evaluated at average hourly rates. But these rates are also reviewed every quarter and the unabsorbed difference between the actual amount of wages paid and the amount allocated to Work orders for one quarter is taken into account in working out the rates for the following quarter. Only the unabsorbed amount for the last quarter is adjusted to Under and Over charges—overheads. Thus in spite of the fact that average hourly rates are worked out for evaluating the time booked to jobs, the expenditure on Direct labour can be deemed to be fairly accurate.

(ii) In regard to Direct Stores, as described above, the charges are booked through Material Requisitions for raw or basic materials and Workshop issue Slips for finished Stores. These vouchers duly evaluated at the weighted average rates are posted in Priced Ledgers and later a summary is taken out from these vouchers which constitute 'direct stores' charges for various Production Work orders etc.

Thus if the vouchers have been prepared correctly there is hardly any possibility of any inaccuracy creeping in the account of Direct stores. However since a few thousand components etc. go into the manufacture of a locomotive and these are transacted through thousands of vouchers, there is always a chance of some discrepancy arising on account of wrong drawals of materials, wrong allocation or mistakes in price. However, in order to obviate the above contingency, there is provision for a check being made on the quantity of stores drawn before finalisation of the Cost Report for a particular batch. This check is known as Numerical-cum-Financial Tally. Numerical-cum-Financial tally is made in respect of a few major items selected for each group of the locomotive to ensure that the debit for the major items has been correctly reflected into the cost of batch. The Tally sheets contain the following details:—

- (a) No. of sets for which orders were released;
- (b) Quantity rejected and returned to stock;
- (c) Quantity drawn from stock for final Assembly;
- (d) Reference to Stores vouchers under which these materials were drawn/returned.

The Costing Section scrutinises these tally sheets with reference to Route Cards, Stores vouchers etc., and ensures that the debits for the total quantities have been reflected into the cost of the batch. These tally sheets generally account for 70 per cent to 75 per cent of the mate-

rial cost of a locomotive. In spite of this there can be occasions when some vouchers pertaining to a batch are transacted even after the Completion Certificate for batch has issued or some adjustments are advised due to pricing of stores. But such cases are infrequent and also the amounts are not generally appreciable so as to vitiate the debits for direct stores to the batch order.

Another instrument of check in ensuring correct debits for direct stores operating on D.L.W. is the maintenance of Drawal Books by Shop Progressmen for all items that go into a locomotive. This book shows the voucher Nos. and dates on which materials were drawn. This ensures that all items are transacted for the correct quantities required for a batch.

Thus it will be appreciated that it can be safely assumed that so far as Direct stores are concerned, the cost accounting procedure at D.L.W. ensures maximum accuracy.

(iii) *Overheads*:—As explained earlier, the Factory, Administrative and Township overheads are levied on direct labour, and stores Overhead on direct stores at predetermined rates.

The only factor which can lead to some inaccuracy in costing in this context is the application of predetermined percentages and not the actuals of indirect expenditure booked in accounts from time to time.

But the overall effect of this procedure is to counter balance any inaccuracy that might have occurred because any over/under charges under overhead at the end of the financial year are distributed prorata over the batches then current.

(iv) Another factor which may be reckoned as leading to inaccuracy is that the cost of manufacture of locos is based on the average cost per batch of locomotives and is not determined separately for each loco.

Apart from the fact that Law of averages would operate in the procedure operating now, allocating all expenditure locowise will create difficulty in undertaking of jobs in the shops working on Incentive as preparatory allowance in that case will be required to be given for each piece of job instead of for a batch of locomotives as is the practice now. Besides there will be manifold increase in the work in Accounts Office without any corresponding gain.

Conclusion:—In view of what is explained above, it can be safely assumed that the costing of locomotives at D.L.W. is as realistic as possible.

ANNEXURE

Year-wise average cost per Locomotive

(In thousands of Rs.)

Year	No. of Locos	Direct Labour	Direct material	Over-head	Jigs & Fixtures	Total	Proforma charges	G. Total
B.G. LOCOS								
1963-64	4	11	1400	33	5	1449	153	1592
1964-65	18	14	1386	166	6	1572	382	1954
1965-66	39	22	1403	285	8	1718	306	2024
1966-67	55	21	1401	277	25	1724	350	2074
1967-68	66	32	1645	404	40	2121	361	2482
1968-69	60	37	1757	418	40	2252	359	2611
1969-70	58	38	1730	420	40	2228	329	2557
1970-71	57	42	1693	455	40	2230	342	2572
1971-72	70	38	1693	465	40	2236	257	2493*
M.G. LOCOS								
1968-69	10	34	1541	354	25	1954	319	2273
1969-70	24	25	1426	260	25	1736	318	2054
1970-71	11	25	1368	309	25	1727	312	2039
1971-72	35	27	1396	333	25	1781	250	2031‡

Note :

*The cost for the year (1971-72) is based on the cost of 54 BG WDM2 Locos finalised so far out of WDM-2 Locos turned out during 1971-72.

‡The cost for the year (1971-72) is based on the cost 15 MG YDM-4 Locos finalised so far out of 35 MG YDM-4 locos turned out during 1971-72.

APPENDIX V

Main conclusions/recommendations

S. No.	Page No.	Ministry concerned	Recommendation/conclusion:
1	2	3	4
1	1-13	Railways	<p>The main motivation for establishing indigenous capacity for production of diesel locomotives at DLW, Varanasi, was that the increasing tempo and pattern of traffic made it imperative to replace and/or re-inforce steam traction by electric or diesel traction. At that time, taking into account the capital expenditure involved in the setting up of an electric traction system, the time factor in construction and the availability of power, the balance of advantage was found to lie in going in for large-scale dieselisation. However, in the context of the recent steep increases in prices of petroleum crude and the non-materialisation of the traffic targets visualised earlier, rethinking on the traction system and a reassessment of the requirement of diesel locomotives has been urgently called for. In fact, as will be seen later in this report, a process of diversification has already been started at DLW with a view to utilising the capacity rendered spare because of the scaling down of the targets of diesel locomotives production. The Committee wish that this diversification should not be attempted as a somewhat desperate <i>ad hoc</i> measure, but should form an integral part of a</p>

1

2

3

4

well-thought-out perspective plan for the utilisation of the infra-structure already created. The Committee would like to be apprised of the action taken in this behalf.

2.

1-14

Railways

The Committee observe that the choice of a collaborator for the manufacture of diesel locomotives was limited to the U.S.A. as funds for payment of technical fees and royalties in foreign exchange were reported to have been available only from the U.S.A. *i.e.* loan from the Development Loan Fund (later known as AID) and the loans from the U.S. Export Import Bank. The choice was further restricted as no tenders were invited from the then available established manufacturers of diesel locomotives and the collaborator was selected on the basis of discussion held in USA in 1961 with American parties by the Chairman and the Financial Commissioner of the Railway Board. This appears to be an unusual and unbusiness like practice which, in the absence of special justification which has not been forthcoming, the Committee cannot but deprecate, even though final decision in the matter appears to have been taken at the highest level. Curiously, when the collaboration agreements were renewed after 10 years, the same parties *viz.*, Montreal Locomotive Works, Alco White and Overseas Diesel Corporation, were again, almost automatically, selected. The Committee would like to know if better terms could not be from elsewhere, and an elucidation of the entire position.

3.

1-15

Railways

It appears to the Committee that no design modifications have been specifically made for better performance by the diesel locomotives produced

at DLW in the context of the recent steep increase in the price of petroleum products. At the same time it is learnt that there is scope for further improvement in this regard but a major development task of this sort can be carried out only with the aid of a strong Research and Development team backed by a properly equipped diesel engine testing laboratory, which the Railways lack. The Committee would have thought that during the last 15 years or so of its existence the DLW had developed sufficient expertise to undertake vital R & D activities. After all, the DLW cannot afford to look for all time to come towards their foreign collaborators for technical services and advice. The Committee feel that the difficult ways and means position of our Railways should not come in the way of developing a strong research and development team.

4. 2.9 Railways

The Committee note that the DLW Project Abstract Estimate sanctioned in 1963 had been only notionally closed with effect from 31-3-74 and as on January, 1975, out of a total of 484 sub-detailed estimates constituting the Project Abstract Estimates, 13 sub-detailed estimates were yet to be closed. It is further seen that although the abstract estimate for Rs. 19,57,33,000 sanctioned in 1963 underwent two revisions, first in 1968 and subsequently in 1969, the overall cost of the project remained the same. That the overall figure of Rs. 19.57 crores sanctioned for the project in 1963 remained unaltered even after twelve years during which there was a phenomenal rise in the general price structure, gives the impression that *ab initio* there must have been over-estimation of high magnitude. No tangible reason for this lack of variation between the abstract estimates

and the revised estimates of the project as a whole appears to have been forthcoming. It is difficult to credit the proposition that in the conditions that have prevailed in India, an estimate could be resilient enough to absorb the shock of changes in the price structure over a period of more than a decade.

5. 2·10 Railways

The DLW Project Abstract Estimate comprised of provisions under 3 heads viz. Civil Engineering, Mechanical Engineering and Electrical Engineering. The Railway Board have explained that as the construction progressed it became evident that the Mechanical Department would require extra funds. With a view to avoiding such extra expenditure, the requirements for the Civil and Electrical Engineering Departments were then reviewed and certain savings effected. Such savings were facilitated by appropriate changes in the design and also on account of more competitive rates obtained in tenders.

6. 2·11 Railways

The Committee fail to see why the savings effected in the provision for Civil Engineering and Electrical Engineering Departments in subsequent years to make additional provisions for Mechanical Engineering Department could not be visualised at the time of formulation of estimates. This only reinforces the Committee's impression that the estimates were not critically examined with reference to the Plans and programmes and that there was, for some apparently unfathomable reason, over-estimation of the provisions particularly in respect of Civil Engineering and Electrical Engineering Departments. The Committee regret to have to reach this unpalatable

conclusion and can only ask that there should be a more careful and realistic estimation so that the limited resources of the nation are laid out in such a manner that the maximum benefit accrues.

7. 2-12 Railways

The Committee find that about Rs. 84.69 lakhs comprising, Rs. 41.38 lakhs of imported equipment and Rs. 43.31 lakhs indigenous machines have been laid out on facilities for manufacture of spares at DLW. The explanation offered for the establishment of this capacity for spares is that the spares for diesel locomotives were sophisticated items, with accurate finish and close tolerances and such items were not available as finished products from the trade. It has been further stated that depending upon suitable offers, some finished items were also purchased directly by Railways from sources developed in trade. While the Committee agree that the requirements of specialised equipment have to be met without failure and delay they feel that efforts should have been directed towards encouragement of more ancillary industries by placing orders on them for the manufacture and supply of sophisticated spare parts. This would not only have subserved the national interest by giving a fillip to the growth of industry but at the same time could have enabled the DLW to concentrate more on important activities. For example, the outlay of about a crore of rupees on the facilities for spares could have perhaps been more profitably utilised for Research and Development had the industry been encouraged to meet the requirements of spares for DLW. This aspect of the matter may be born in mind for future planning.

8. 3-33 Railways

The Committee note that the first locomotive, wholly assembled at DLW came out in 1964. The original project report of DLW had en-

visaged the attainment of an outturn rate of 150 BG diesel locomotives per annum by 1967-68. This was based on the expectation of full incentive working on double shift, adequate installation of machinery and plant as well as the availability of the required jigs and fixtures. However, full production targets have not yet been attained though some twelve years have elapsed since the commencement of production at DLW. During the period 1963-64 to 1968-69, against a target of 491 BG locomotives, only 242 BG locomotives and 10 MG locomotives were produced. The shortfall during this period involved nearly 50 per cent of the installed capacity. Further, during the Fourth Plan period (1969-70 to 1973-74) the initial target of 648 locomotives (430 BG and 218 MG) was scaled down to 550 locomotives (370 BG and 180 MG), and against the revised target of 550 locomotives the actual production was only 445 locomotives (307 BG and 138 MG).

9. 3.34 Railways

According to the Railway Board the principal factors responsible for original production programme not materialising, were stated to have been as follows:—

- (i) Production targets incorporated in the Collaboration's project Report were intended for purpose of long range resources provisioning but actual production had to be regulated in accordance with the orders for diesel locomotives placed by the Board on DLW and the quantum and timing of foreign exchange released for the purpose of importation of compo-

nents and raw-material etc. Placement of orders for diesel locomotives by the Board was done annually with due regard to anticipated increase in traffic and replacement programme for steam locomotives. As regards foreign exchange, its scale and period of availability depend to a large extent upon the availability of foreign loans/credits and its distribution by the Central Government to different departments/sectors.

- (ii) In the production of diesel-electric locomotive, DLW's own contribution is only about one-third in value. Another 44 per cent has to be contributed by BHEL/HEIL. The remaining, about half is from a large number of indigenous vendors and the balances by imports. Thus, locomotive production at DLW is heavily dependent on regular supplies of purchased material.
- (iii) The programme for introduction of incentive working had to be deferred till 1969 because with locomotive orders placed on DLW, it could not be ensured that it would be possible to sustain the higher rates of production in different production centres that would be generated through incentive working. However, with formulation of the Fourth Plan locomotive production targets, the picture became clear and work connected with introduction of incentive working was intensified.

It has also been claimed that "locomotive production at DLW was conditioned by several factors outside DLW's control and a judicious compromise had also to be made between the interest of locomotive production

and indigenous development. In the circumstances the practical course of action was to maintain a close watch on developments arising from the various factors and continuously make adjustments to yield the optimum overall results. Till such time as the maximum rated level of production at DLW is achieved and indigenous supplies planned regularly are materialised, both DLW and its vendors would remain on a rising curve of production. This makes future planning difficult and in such an environment set-backs become unavoidable."

10. 3.35 Railways

The Committee are not impressed by these elaborate explanations. They are constrained to observe that there has been little, if any, justification for the under-utilisation of the production capacity installed at huge cost to the country. Occasional set-backs in production on account of factors beyond the control of the DLW administration are understandable. However, the continuous shortfall in production which in some years was of the order of about 50 per cent of the installed capacity can only lead the Committee to conclude that the project was not planned as well and carefully as it should have been. This is corroborated by the fact that when in 1965, *i.e.* about a year after the first locomotive rolled out from the DLW, the need was felt for diversifying production so that the manufacture of metre gauge locomotives could also be undertaken. It is significant also that the introduction of incentive working had to be deferred till 1969, because "with locomotive orders placed on DLW it could not be ensured that it would be possible to sustain the higher rates of production that would be generated through incentive working."

11. 3.36 —do—

As the Audit Paragraph points out, the initial Fourth Plan target of 648 locomotives was in 1971 scaled down to 550 locomotives. This target appears to have been further lowered in February, 1973, when the Railway Minister stated in his budget speech that against the earlier target of 160 locomotives planned for 1973-74, only 140 locomotives would be produced in that year. Against the targeted production of 530 locomotives, that is to say, only 445 locomotives were actually produced at DLW during the fourth plan period. According to the Railway Board the shortfall in production in the last 2 years *i.e.* 1972-73 and 1973-74 of the Fourth Plan had been mainly due to labour troubles and to power supply problems. Pending final determination of the issue, the Committee would like to know whether the production targets in the subsequent years had been achieved and all the orders placed on DLW by the Railway Board were now being cleared according to schedule.

12. 3.37 —do—

The Railway Board have sought further to emphasize that the shortfall in the attainment of overall targets: of DLW was mainly attributable to restricted availability of foreign exchange as also serious constraints on resources. The Committee feel that had the targets been realistically laid down and the requirements of diesel locomotives assessed on a more careful basis, the production at DLW would have proceeded more smoothly. With adequate advance planning, the problems now pleaded for failure in performance could have been better tackled.

13. 3.38 —do—

The Committee also find that as noted in a later section of this report, large quantities of imported stores were lying unused at DLW. A huge accumulation of inventories, of which about 32 to 50 per cent were im-

ported items, has been reported. Perhaps, therefore, the dearth of foreign exchange was not the real problem that prevented the attainment of production targets.

14. 3.39 Railways

The Committee were informed that the Railways have given serious thought to the adjustments needed to meet the situation created by the sharp hike in the crude oil prices and have examined the measures that would be initiated to curtail requirements of diesel oil and the extent to which electric or steam traction could therefore be developed to meet the growth of traffic in coming years. It is seen, however, that after taking into account all relevant factors the Railways have reached the conclusion that there can be no going back on the dieselisation programme and the policy of traction modernisation through dieselisation and electrification is to be continued. In view of this decision, the Committee would urge the Railway Board to draw up the production schedules of DLW in a more effective manner than hitherto and with an eye to our future requirements, particularly in the context of the decision to lay greater emphasis on electrification. The Committee would also like a proper perspective plan to be drawn up for the optimum utilisation of the installed capacity at DLW and closer coordination with the indigenous sources of supply like BHEL. The Committee are of the view that after more than a decade of its functioning, DLW should now be in a position to fulfil substantially the country's expectations from it. However, in view of the critical situation emerging in recent years over oil and oil prices, Government would

do well to get the entire issue of dieselisation examined by a high power and expert Committee.

15. 4.14 —do—

The Committee note that the incentive scheme introduced in June, 1969 had been established in 89 out of 92 sections of the DLW by November, 1973. However the analysis of the monthly expenditure on incentive bonus and overtime payments given in the Audit Paragraph reveals that the growth of the incentive bonus and overtime payments was not matched by a corresponding increase in production. It is seen that the targets of production laid down after introduction of incentive scheme for certain shops during 1971-72 have rarely been achieved. As a matter of fact in certain shops such as 03 Welding Shop and 23 Truck Machine Shop the production during certain months of 1971-72 was much below the targets set down prior to introduction of incentive scheme. This shows that the incentive scheme had really no impact on the productivity of different shops.

16. 4.15 —do—

It is further seen that the idle time as percentage of direct man-hours in the whole factory was 3 per cent in 1970-71 and 2.7 per cent in 1971-72 against 1.1 per cent in 1969-70. Further during the twelve months of 1972-73, idle time ranged between 4.3 to 10 per cent of the direct manhours. The Financial Commissioner for Railways stated during evidence that the incentive scheme had been introduced in late 1969-70 and that the figures of idle time and overtime payments of 1971-72 as given in the Audit Paragraph were not representative as they related to the early stage of implementation of the incentive scheme. The Committee trust that

1	2	3	4
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by now the scheme had been well established and they would like to know the impact of the incentive scheme on the overall production in the DLW, during the last three years.

17. 4.16 Railways

Another significant point to be noticed is that the payments on account of overtime in DLW had been rising from year to year after the introduction of the incentive scheme in 1969-70. The overtime payments in 1969-70 were of the order of Rs. 8.75 lakhs. This figure went up to Rs. 9.43 lakhs in 1970-71 and touched the figure of Rs. 11.84 lakhs in 1971-72. The Committee feel that overtime payments should normally be resorted to in some shops only for completing jobs to feed other shops during the normal shift hours and therefore, the overtime payments in some shops should be counter balanced by their total absence in other shops. However, the trend of overtime payments in DLW only indicates that the production time saved by the operation of incentive scheme had really been wasted away without being utilised for production purposes.

18. 4.17 —do—

The Committee would like the Railway Board to make a precise review of the incentive scheme particularly in relation to overtime payments and idle time in shops. The result of such a review should be intimated early to the Committee.

19. 5.22 —do—

The Committee note that the inventories held by DLW have constantly gone up from year to year. The inventory holdings at the close of the years 1970-71, 1971-72 and 1972-73 were respectively worth

Rs. 5.40 crores, Rs. 5.94 crores and Rs. 7.54 crores. The inventory holdings further went up to Rs. 8.70 crores in 1973-74 and at the close of 1974-75 touched the all time record of Rs. 9.74 crores. A significant point to be noticed in this connection is that as much as 32 to 50 per cent of the total stores purchased by DLW each year consisted of imported stores.

20. 5.23 —do—

According to the Railway Board the increase in stores balances had been primarily due to lesser production of locomotives in the years 1972-73 and 1973-74 as compared to the anticipation of production based on which the procurement of material was made as also due to sharp increase in prices of electrical traction equipment supplied by HEL/Bhopal. This only underscores the fact that production targets had not been realistically laid down and with the cutbacks in the projected production the availability of stores far exceeded the requirement. The Financial Commissioner for Railways in fact deposed before the Committee that the inventories were rather heavy and that the position was not satisfactory. He also informed the Committee that the only way to regulate the inventories was that further orders should not be placed till the stock balances had come down to a reasonable level.

21. 5.24 —do—

The Committee learnt that in order to avoid accumulation of surplus stores, an integrated production-cum-inventory control system by computer had been introduced at D.L.W. for periodical check-up and adjustments to be made. However, the entire stores system has not been yet computerised, only three out of the five phases of inventory control by computerisation having so far been completed. The Committee urge that

this process which seems desirable should be expedited, keeping also in view Government's over-all policy of ensuring that computerisation does not affect the provision of employment opportunities. The precise progress made in eradicating the evils of over-stocking may be intimated to the Committee.

22. 5.25 Railways

The Committee further note that one of the results of the increased inventory holdings has been that because of the storage capacity being insufficient, considerable quantities of such stores were even lying in the open. It was learnt that at one time stores worth Rs. 3 crores in foreign exchange had been lying in such precarious condition. Though it was pleaded in extenuation that the goods lying in the open had somehow not suffered any damage, the Committee cannot be persuaded to accept the plea and would reprobate what is clearly a kind of laxity on the part of the railway administration. The Chairman Railway Board, was himself good enough to concede that there was no reason for the stores to have been kept in the open. The Committee would like to be reassured on this point and to be informed about the action, if any, taken to obviate recurrence of such unfortunate happenings.

23. 6.12 —do—

The Committee find that the selling prices or the transfer prices at which D.L.W. locomotives are handed over to the various Zonal Railways are fixed by the Railway Board from time to time. These prices are determined in accordance with a formula under which the base price of a complete locomotive as given in the contract with ALCO is taken as

the basis for the fixation of the selling price of a locomotive. From the base price of components given in the contract in dollars the present day landed cost of the imported portion is worked out, by applying the current rate of exchange, and the value of indigenous components is also suitably escalated. The commercial practice of pricing of products which *inter alia* takes into account an element of profit etc. over and above the basic cost is not followed for determining the transfer price of diesel locomotive even though this practice is being followed in D.L.W. in determining the price of works done for private parties.

24. 6-13 —do—

The Committee feel that in view of the fact that D.L.W. is a captive plant, the prices of whose products are determined by the same agency which requires them, it is necessary that a more scientific system for evaluating costs is instituted. Such a system should enable the management to know whether the resources deployed are being properly utilised and also whether an adequate return is accruing on the capital invested. The Committee desire that the costing methods followed in the D.L.W. may be re-examined with the requisite expert assistance and in cooperation with the Cost Accounts Branch of the Ministry of Finance.

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25. 7-6 —do—

The Committee find that the percentage of indigenous content in a diesel locomotive as determined by the D.L.W. administration works out to 86 in 1971-72 in the case of a BG locomotive and almost 86 in the same year in the case of a M.G. locomotive. If this were so, it does not explain why the value of the stores imported is of the order of 32 to 50 per cent of the total purchases during 1970-71 to 1971-72. It is also presumed that the import contents of the bought out items such as the

26. 7·7 Railways

electricals supplied by the HEIL/BHEL and which account for about 44 per cent of the cost of a locomotive, have not been taken into account while arriving at the percentage of achieved indigenisation.

The Committee desire that the figures worked out by Audit and by the Administration be reconciled and a more scientific method which truly reports our progress in indigenisation be worked out. The Committee would very much like to know clearly the latest position in regard to the indigenisation in D.L.W.

27. 7·8 —do—

During the years 1971-72 to 1973-74, D.L.W. is reported to have imported components and spares worth about \$15.95 millions. These components etc., it is learnt, had to be imported for entirely unavoidable reasons, since they were not indigenously available. The major items which comprise over 90 per cent of the import cost are crankshafts, turbo super-charger items, cylinder heads, cylinder liners, pistons and piston rings etc. The Committee were informed that necessary steps had since been taken for the development of these items indigenously. A study of the status of indigenous development of these items, however reveals that the development efforts have been tardy and the rates of rejections too heavy. The Committee would like the Reviewing Committee set up by the Railway Board in this behalf continuously to monitor the progress achieved in this field. They would also emphasize that sustained efforts must be made to help indigenous manufacturers develop a technical base for the manufacture of these hard-core items.

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31.	The English Book Store, 7-L, Connaught Circus, New Delhi.		

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