REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA

UNION GOVERNMENT
NO. 7 (COMMERCIAL) OF 1992

MAZAGON DOCK LIMITED

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PREFACE

Audit Boards are set up under the supervision and control of the Comptroller & Auditor General. of India (CAG) to undertake comprehensive appraisal of the performance of the Companies and Corporations subject to audit by CAG.

2. The report on Mazagon Dock Limited was finalised by an Audit Board consisting of the following members :-

1. Shri N. Sivasubramanian	Deputy Comptroller & Auditor General-cum-Chairman, Audit Board.
2. Shri Ananda Shankar	Principal Director of Commercial Audit & Ex-Officio Member, Audit Board-I, Bombay.
3. Shri R.S. Prasad	Principal Director of Commercial Audit & Ex-Officio Member, Audit Board-II, Bombay.
4. Shri N.R. Rayalu	Principal Director of Audit (AirForce & Navy).
5. Rear Admiral. C.L. Bhandari	Chief Consultant, Marine & Industrial Consultancy Service, Delhi., - Part-time Member.
6. Commodore Satya Charan Bose	Formerly Managing Director, Hooghly Dock & Port Engineers Ltd., - Part-time Member.

The Part-time members are appointed by the Government of India (in the respective Ministry or Department controlling the Company or Corporation) with the concurrence of C & A.G. of India.

3. Audit Board held discussion with the representatives of Ministry of Defence, Department of Defence Production and Supplies.

4. The Comptroller and Auditor General of India wishes to place on record his appreciation of the work done by Audit Board.

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OVERVIEW

I. Government of India acquired Mazagon Dock Limited (MDL) in 1960 with a view to enlarge facilities in MDL for the production of Naval Vessels and to cater to the needs of the Merchant Fleet.In 1977 MDL diversified into the construction and installation of offshore platform for the Oil and Natural Gas Commission (ONGC).

(Para 1.1)

II. The paid up capital of the company as on 31st March 1992 was Rs.178.20 crores Accumulated losses of Rs.100.47 crores as on 31st March, 1992 have eroded, the paid up capital to that extent. Fabrication, transportation and installation of platforms, jack-up rigs and pipe coating work contributed mostly to the losses of the company.

(Paras 4 and 6.1)

III. The borrowings stood atRs.404.80 crores. Interest payments at Rs.29 crores formed a significant part of annual expenditure of Rs.323 crores in 1991-92 in which loss incurred was Rs.3.16 crores. The company was granted interest subsidy amounting to Rs.15.35 crores per annum from 1987-88 to 1990-91. and interest subsidy has been extended upto March 1995.

(Paras 4 and 6.2)

IV. Between 1976 and 1983 the company undertook various projects to augment its capacity in the areas of ship building and offshore structures. The investment on the various projects as on 31st march.1992 was Rs.196.42 crores.The company has not systematically assessed the savings in foreign exchange due to indigenisation. Foreign exchange earnings in ship building, ship repairs and offshore support services have steadily declined. MDL has been sub-contracting substantial portion of its work orders to foreign contractors. Utilisation of capacity for offshore structures was less than 54% from 1984-85 onwards and was as low as 7% in 1990-91. MDL incurred a loss of Rs.63.96 crores on 33 platforms / jackets delivered to ONGC from 1982-83 to 1990-91 and company was likely to incur further loss of Rs.46.27 crores.

(Paras 5.2 and 6.2 to 6.4)

V. The capacity utilisation of the pipe coating plant at Mangalore ranged between 9 to 62 percent of installed capacity due to non-receipt of orders from ONGC which found the rates of foreign contractors more attractive. MDL incurred a loss of Rs.13.04 crores on the plant.

(Para 6.4)

VI. In installing offshore structures MDL earned profit when the transportation and installation was done through foreign sub-contractors. But MDL accumulated a loss of Rs.78.39 crores upto 1991-92 on operating its pipe laying cum-derrick barge.

(Para 6.4)

VII. Against orders, received in 1982 for 8 offshore supply vessels, on 5 vessels delivered, the company incurred a loss of Rs.17.41 crores. On the remaining 3 vessels the company is likely to incur loss of Rs.8.86 crores.

(Para 6.7)

VIII. Successful completion of orders for 3 Godavari Class Frigates from the Indian Navy was a creditable achievement of MDL. On the 3 frigates, the cost exceeded the original estimate and excess consumption of steel was noticed even after allowing for the normal wastage of 25%. On supply of two submarines the original estimated cost was Rs.154.16 crores, while the actual cost upto July 1992 was around Rs.342.63 crores.

(Paras 6.8 and 6.9)

IX. Ship repair was the main activity of MDL at the time of its take over by Government. It has gone down to 3.49 percent of turn over in 1991-92 . The decline was attributed to recession in merchant shipping and the high rates quoted by MDL vis-a-vis small ship repairers. The Shipping Corporation of India is entrusting its major repair works to foreign yards.

(Para 6.12)

CHAPTER 1

INTRODUCTION

1.1 Mazagon Dock Limited (MDL), was under private management of Peninsular and Oriental Steam Navigation Company and British India Steam Navigation Company of United Kingdom. It was primarily a small ship repair yard. It was acquired by the Government of India in 1960. It was decided (September 1962) to enlarge facilities in MDL with a view to building warships and to cater to the increasing repair work of the Indian Navy and Merchant Fleet.

In 1977, MDL entered the area of construction of offshore platforms and equipments for Oil and Natural Gas Commission (ONGC) to help the country to achieve self-reliance in this area. MDL set up in 1983 a Pipe Coating Plant in Mangalore for coating sub-sea pipelines. MDL also undertook in 1980 a project for construction of submarines. The capital outlay on the various projects from 1978 amounted to Rs.277 crores.

The Company is under the administrative control of Department of Defence Production and supplies, Ministry of Defence.

1.2 In March 1975 MDL was entrusted by the Government with the management of Alcock Ashdown Company Limited, Bombay after it was taken over by Government under Alcock Ashdown (Acquisition of Undertaking) Act, 1973. The Government revested all assets, rights etc. of the Bombay unit of Alcock Ashdown undertaking with Mazagon Dock Ltd. The acquisition was challenged by a creditor of Alcock Ashdown and an appeal is pending in the Supreme Court.

1.3 A comprehensive appraisal of the working of MDL covering the period from 1968-69 to 1975-76 was included in the Report of the Comptroller & Auditor General of India, Union Government (Commercial) Part V, 1976. The Committee on Public Undertakings examined the ship building activities of the Company and their recommendations are contained in 74th Report of the Committee (Seventh Lok Sabha), 1983.

CHAPTER-II

OBJECTIVES

The main objectives of the Company are to carry on business of docks, wharves, jetties, piers, workshops, warehouses, ships, ship engineers, dredgers, tug and barges, ship breaking, ship repairing, freight contracting and carriage by land, sea and air. The corporate objectives formulated in June 1978 by MDL were;

- Diversification to offshore structurals, pressure vessels, equipment for petrochemicals, chemicals and fertilizer plants and turn-key jobs;

- Construction of fishing vessels;

- Earn foreign exchange with 5% growth per annum from 1982-83;

- Growth rate of 10% in production and profitability and production of Rs.100 crores per annum by 1984-85;

- Providing service support to the customers ;

- Raising rate of return on capital employed from 8.7% in 1974-75 to 12% by 1983-84.

CHAPTER-III

MANAGEMENT

The Chairman & Managing Director is the Chief Executive of the Company and is assisted by four full-time directors in charge of Finance, Shipbuilding, Offshore and Corporate Planning and Personnel. The Company maintains a liaison office in Moscow and a joint office in London with Hindustan Aeronautics Ltd.

CHAPTER-IV

CAPITAL STRUCTURE

The paid up capital of the Company as on 31st March 1992 was Rs.178.20 crores and Reserves and Surplus stood at Rs.13.35 crores. The borrowings as on 31st March 1992 stood at Rs.404.86 crores, as follows:

	(Rs. in crores)
From Government	125.83
From Banks (Cash credit)	9.46
From suppliers Deferred Credit (Foreign)	231.77
From Public (Deposits)	0.05
From others (including subsidiary)	31.50
From U.T.I (Debentures)	6.25
Total	404.86

The rates of interest paid on loans varied between 10.5% and 21.25%. The interest charges formed a significant part of total expenditure viz Rs.37.40 crores in 1988-89, Rs.36.06 crores in 1989-90, Rs.26.63 crores in 1990-91 and Rs.29.16 crores in 1991-92. The Government granted (March 1989) a subsidy towards payment of interest amounting to Rs.15.35 crores per annum for 4 years from 1987-88 to 1990-91 and waived payment of penal interest amounting to Rs.1.15 crores. The interest subsidy has been extended upto March 1995. The Government also deferred repayment of loans to it by 4 years. This has also been extended for a further period of 4 years upto March 1995.

CHAPTER-V

DEVELOPMENT AND PROJECTS

5.1 With a view to augment the capacity for ship construction and diversify into the fields of offshore structures, MDL undertook the following projects from 1976 onwards:

(Rupees in crores)

	Name of the Project (with month of sanction in brackets) 1	Original estimated cost. 2	Revised estimated cost. 3	Amount of Govt. Sanction 4	Actual cost as on 31st March 1992 5
1.	North Yard expansion Phase-II(November 1978)	3.5	7.24	3.50	7.00
2.	Setting up of facilities in Alcock Ashdown Yard for manufacture of offshore platforms	7.16	9.90	7.16	22.19
3.	Setting up of a Yard at Nhava for manufacture of offshore Platforms (October, 1980)	13.50	-	13.50	24.21
4.	Development of facilities for transportation and installation of platforms (March 1981)	29.75	39.61	29.75	39.61
5.	Augmentation of facilities for transportation and installation of platforms(September, 1982) (but foreclosed)	37.85	75.00	37.85	41.42
6.	Setting up of SSK Project(1980)	12.75	44.70	41.23*	41.23
7.	Pipe coating plant at Mangalore (February 1983)	8.58	-	8.58	8.27
8.	Setting up of facilities at Mangalore Yard for manufacture of offshore platforms		-	-	29.56
9.	Construction of Diving Support vessel	-	-	-	23.36
10.	Heavy Module Shop at Mangalore (year of sanction not available)	-	-	-	0.80
	Total	113.09	176.45	141.57	237.65

* Actual cost

5.2 North Yard Expansion Phase-II

The project for expansion was completed between 1979 and November 1981 at a cost of Rs.7 crores against estimate of Rs.3.5 crores. The increase in cost was on the crane because MDL decided (December 1979) to fabricate the crane using foreign technical know-how. Drawings were received after considerable delay. Still a major portion of the work was sub-contracted (January 1982) to a company in the Private Sector, at a cost of Rs.1.65 crores. Accidents occurred during the erection of the crane in 1987 due to defects and deficiencies in the work done by the sub-contractor which required extensive re-work, rectification and replacement. The crane was finally commissioned in March 1988 at a cost of Rs.3.74 crores.

Thus, the crane which should have been available for operational use by August 1983 was commissioned, after 5 years delay, in March 1988.

5.3 Facilities for offshore platforms at Alcock Ashdown Yard.

The project for production of offshore platforms at Alcock Ashdown Yard, with capacity of 7500 tonnes per annum was approved by Government at capital cost of Rs.7.16 Crores in August 1976 This included Rs.80.25 lakhs of assets taken over by MDL from Alcock Ashdown's Bombay unit. Outlay incurred on the project upto end of March 1992 was Rs.22.19 crores for achieving annual capacity of 12000 tonnes. The project involved dredging, reclamation and civil works, setting up a fishing jetty and procurement of imported equipment and indigenous equipment.

The Management stated (September 1989) that the additional expenditure was on three cranes , welding rectifier and civil works.

5.4 Yard at Nhava for manufacture of offshore platforms.

Because of discovery of new offshore oil wells by ONGC,Government sanctioned in 1980 a second yard at Nhava Sheva with a capital outlay of Rs.13.50 crores. 12 hectares of developed land with 145 M load out quay wall were to be leased by ONGC. ONGC raised (July 1982) the share of cost of MDL to Rs.19.82 crores (against Rs.5 crores) due to escalations, payable to the contractor, additional dredging work carried out and modifications to caissons to suit loadout operations.

The work was stopped in June 1983 by the State Government for non-payment of royalty for quarrying operations, MDL took over the work from ONGC and incurred expenditure of Rs.18.01 crores. The amount payable by MDL to ONGC was settled (February 1988) at Rs.13.05 crores and the total expenditure incurred by MDL amounts to Rs.24.21 crores. The land that was fully developed covered 7 hectares only and another 8.5 hectares was developed partially. For all practical purposes the development of facilities was treated as completed.

The project was originally conceived to fabricate 6000 tonnes or 3.5 Platforms per annum. But the Nhava Yard is utilised mainly for production of heli-decks. The expenditure on the yard has yielded negligible returns.

5.5 Development of facilities for transportation and installation of platforms

A project for development of facilities for transportation and installation of offshore platforms was sanctioned by the Government of India in March 1981 with an outlay of Rs.33.75 crores including foreign exchange component of Rs.25.75 crores.

A second-hand Derrick Barge (built in 1976) having both lift and pipe laying facilities with a residual life of 12 to 15 years was acquired in August 1981 at a cost of Rs.19.51 crores. The Barge (renamed D.B. Mahavir), was chartered back to the seller by MDL from August 1981 to October 1982. The actual cost to MDL was Rs.26.26 crores.

A launch barge was constructed by MDL in its own yard and launched in December 1982 at a cost of Rs.5.97 crores. MDL constructed a tug-cum-supply vessel by July 1983 at a cost of Rs.7.11 crores. During the years 1984 to 1988, the vessel was utilised for an aggregate of 573 days only against planned use for 800 days (200 days per annum). Instead of constructing a second tug-cum-supply vessel, MDL constructed a Diving Support Vessel (DSV) at a cost of Rs.22.36 crores(see para 6.10). The requirement of a second tug-cum-supply vessel and other vessels were met by hiring at a cost of Rs.19.19 crores from 1982-83 to 1991-92 (10 years).

The project for above facilities cost finally Rs.39.61 crores against Rs.29.75 crores estimated (excluding Rs.4 crores for one tug-cum-supply vessel) involving foreign exchange of Rs.26.75 crores. The Company hired stinger during 1982-83 and 1983-84 and paid hire charges of Rs.20.81 lakhs and Rs.10.02 lakhs, respectively for pipelaying but D.B Mahavir was thereafter used only for the work of installation of platforms. The pipelaying work was done by engaging foreign sub-contractors. MDL constructed a stinger in its Mangalore Yard in March 1986 at a cost of Rs.110 lakhs and it was installed on D.B. Mahavir in March 1987. But, the stinger was defective and malfunctioned. No pipelaying was done using it. The Management stated (September 1989) that the vessel failed in pipelaying not only due to non-functioning of stinger but also due to malfunctioning of other equipments of the pipelaying system on board. This was due to the long time gap between pipelaying work in 1982-83 and next attempt in 1987-88. The stinger is lying unused in Mangalore Yard.

5.6 Augmentation of facilities for transportation and installation of platforms.

There was need for a Derrick Barge with capacity of 1600 T and above and also as an alternative to D.B. Mahavir. Government sanctioned (September 1982) a project at a cost of Rs.37.85 crores with a foreign exchange content of Rs.25.90 crores for construction of a Derrick Barge and Anchor Handling Tug by MDL in its yard. The work was to be completed in 18 to 20 months.

MDL procured material and equipment worth Rs.26.03 crores for the project. The total expenditure booked up to the end of December 1985 was Rs.37.02 crores and the revised cost estimate was placed at Rs.75 crores as the original sanctioned estimates did not cover a number of important items which accounted for the increase.

After de-novo assessment of all aspects of the project, the project was foreclosed with the approval of Government in December, 1988.

The project was delayed and keel of the Barge was laid only in January 1983, against completion in December, 1983. The Nhava Yard where the construction was undertaken lacked important facilities and infrastructure. That cost would be around Rs.63.25 crores was known to the Management as early as April 1983. The expenditure booked up to end of March 1988 aggregated Rs.41.68 crores. Value of materials, equipment which are to be disposed off would yield Rs.20.40 crores. The loss on foreclosing was thus estimated at Rs.21.28 crores which was written off in the accounts for 1988-89. Rs.1.86 crores more was written off during 1990-91. Due to revaluation of the inventories of the foreclosed projects in July 1992 an amount of Rs.9.18 crores was credited in the Profit and Loss account for the year ended 31.3.1992 reducing the loss on foreclosure of the project to

Rs.13.96 crores. Obviously the project was over ambitious and unrealistic. There was little sense of urgency and earnestness in execution of the project.

5.7 Setting up of facilities for SSK Project in East Yard.

Government sanctioned (July 1980) the project for construction of 4 submarines with an outlay of Rs.12.75 crores. On addition of more equipments and escalation, Government approved a revised cost outlay of Rs.38.89 crores in July 1984 and raised it again to Rs.41.99 crores in February 1986 and further to Rs.44.70 crores in December 1987.

The expenditure on the project upto March 1992 was Rs.41.23 crores. MDL stated that if only two submarines were to be produced machinery, jigs and fixtures valuing Rs.12.69 crores (including imported equipments : Rs.8.95 crores) would have no alternative application. The Ministry stated (August 1992) that apart from certain equipment meant for the submarine construction ,other infrasturcture could be used for construction of other vessels.

Delay in award of contracts resulted in extra cost of Rs.2.31 crores. Delay in civil work ranging between 13 months and 25 months led to increase in cost of Rs.6.27 crores consequent to change in design, extra items and cost escalation.

5.8 Pipe coating plant at Mangalore

Government sanctioned (February 1983) the project for setting up of pipe coating plant at New Mangalore Port at a cost of Rs.8.58 crores (Foreign Exchange component Rs.5.04 crores) The plant was set up and the trial runs were carried out successfully in June 1983 and regular production commenced in october 1983. The capital expenditure incurred on the project was Rs.8.27 crores.

MDL also incurred expenditure of Rs.2.20 crores towards foreign technical know-how and technical services rendered by foreign experts. The services of foreign technicians were availed of for 8077 mandays with an outgo of Rs.1.79 crores in foreign exchange instead of Rs.1.02 crores Liability towards Indian Income Tax plus interest thereon taken on by MDL aggregated to Rs.22.80 lakhs.

Orders from ONGC, the major potential user of the capacities set up by MDL, could not be secured by MDL, in competition against foreign firms. The management stated (August 1992) that the Company was planning to lease out its equipment to others, since no orders were forthcoming further.

5.9 Setting up of Fabrication facilities at Mangalore Yard.

After the sub-sea pipe coating plant in the new yard at Mangalore was installed in 1983, facilities for offshore fabrication were also developed in the same yard on 'as required' basis during the years 1983-86.The outlay on the facilities was Rs.29.56 crores upto March 1992.

5.10 Construction of Diving Support Vessel(DSV):

MDL undertook construction of a Diving Support Vessel at an estimated cost of Rs.23.36 crores againt approval of Government for tug-cum-supply vessel at a cost of Rs.4 crores. Till December 1986 the expenditure was Rs.16.87 crores. In 1987 a negative IRR was indicated with loss of Rs.12.03 crores in the first 8 years of its operation.

On a query (July 1987) from the Government, the Management stated (October 1987) that a DSV was required and not a Tug-cum-Supply Vessel. The Government did not approve construction of DSV but also did not give any countermanding orders to MDL.

The execution was tardy and delays were attributed to slow receipt of design and drawings from collaborator engaged by ONGC. The vessel was launched in January 1984 but suffered damage. The vessel was finally completed in March 1989 at a cost of Rs.22.30 Crores and hired to Indian Navy from 19.5.1989 on "bare boat charter" at Rs.3.45 crores per annum. MDL incurred a loss of Rs.4.16 crores upto March 1992. The vessel,it was stated, was likely to be sold to the Navy.

5.11 Heavy module shop at Mangalore:

A heavy module shop was to be set up at Mangalore yard to construct platforms in a covered area during inclement weather. Three cranes, one plate straightening machine, one 400 tonne Hydraulic Press and other equipment were purchased during 1985 at a cost of Rs.1.21 crores for this purpose. MDL abandoned the work on the project in April 1986. Many of the equipment had remained in open space for long periods and had deteriorated or rusted or got damaged. The plate straightening machine (procured in March 1985 at a cost of Rs.36.37 lakhs) was transferred (cost of transport : Rs.0.56 lakh) to Bombay and commissioned in the PPT Plant. Other equipments costing Rs.79.61 lakhs are awaiting disposal.

The project resulted in locking up of funds amounting to Rs.79.61 lakhs, No responsibility was fixed on this overambitious and unjustified project also.

CHAPTER-VI

PERFORMANCE

6.1 Financial Performance:

The table below gives financial position of MDL for the eight years ended 31st March 1992.

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
	1	2	3	4	5	6	7	8
							(Rupees in lakhs)	
Liabilities								
(a) Paid up capital	6985	8785	10135	11435	13235	15170	16870	17820
(b) Reserves & Surplus	1968	1584	1584	1546	1481	1411	1371	1335
(c) Borrowings								
(i) From Govt. of India	10512	11266	11601	12751	12751	12751	12663	12574
(ii)From foreign banks	400	133	-	-	-	-	-	-
(iii)Fixed deposits from Public	2317	2024	1622	795	1044	951	400	3
(iv)Others	2933	3123	1711	501	2600	2743	600	1150
(v) Bank cash credit	3029	3440	5864	6494	3684	-	2	946
(vi)Bank deferred credit	15	9	-	-	-	-	-	-
(vii)Deferred payment liability	3231	4217	5395	9772	12533	15203	16999	23177
(viii)From subsidiary company(GSL)	200	-	500	650	1000	100	1250	2000
(d) Debentures	-	2500	2500	2500	2500	1875	1250	625
(e) Trade dues, other liabilities and provisions	67388	68669	73089	68649	74705	80839	72134	61673
Total	98978	105750	114001	115093	125533	131043	123539	121303
Assets:								
(f) Gross Block	14856	18746	20243	22160	22601	25676	26073	25753
(g) Less Depreciation	3642	4674	5864	7203	8395	9907	11224	12073
(h) Net fixed assets	11214	14072	14379	14957	14206	15769	14849	13677
(i) Capital jobs in progress/item in transit	7074	8131	7001	6130	3226	873	1155	1916
(i-1)Assets of fore-closed capital projects	-	-	-	-		1988	1943	1675
(j) Investments	172	172	439	439	439	439	439	439
(k) Current assets Loans & Advances	80328	79394	86402	84401	94926	101050	94835	94752
(l) Miscellaneous Expenditure	190	467	173	110	88	66	44	472
(m) Debit balance of Profit & Loss Account	-	3514	5607	9056	10659	10903	10542	10047
Total	98978	105750	114001	115093	125533	131043	123539	121303

Capital employed (h + k - e)	24154	24797	27691	30709	34427	35980	37549	46756
Net worth (a + b - l - m)	8763	6388	5939	3815	3969	7271	7655	8636

The accumulated losses of Rs.100.47 crores as on 31st March 1992 has eroded to that extent the paid up capital and reserve amounting to Rs.191.55 crores. The capital employed of Rs.467.56 crores are financed by loans from Government Rs.125.74 crores and deferred liability i.e. loans from suppliers Rs.231.77 crores.

Working Results (Rupees in lakhs)

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Income								
Sale including excise duty	11664	31668	25296	33621	21065	33590	39899	41889
Internal capital jobs	2459	1266	623	481	414	487	542	632
Other Income	809	5871	966	816	978	984	1157	1627
Interest subsidy from Govt. of India	-	-	-	-	3069	1535	1535	1535
Decretion/Acretion of work in progress	24172	1598	2483	(-)8947	13715	6313	(-)9583	(-)13967
Accretion to inventory of foreclosed project	-	-	-	-	-	-	-	918
Total	39103.60	35120	29368	25971	39241	42909	33444	32634
Expenditure:								
Consumption of raw materials, stores equipments, spares etc.	22747	16481	9225	9606	18422	16720	11681	13096
Subcontract and facility hire	6615	7624	7667	5829	5389	9118	5777	2691
Salaries and Wages	3845	4941	4396	5006	5607	6552	6760	7988
Interest	3318	4106	3965	4037	3740	3606	2663	2916
Depreciation	950	1108	1191	1319	1314	1454	1330	1214
Others	2921	2797	5012	3463	6452	5839	4930	4413
Total	40397	37056	31456	29260	40924	43289	33141	32318
Loss for the year	(-)1294	(-)1936	(-)2088	(-)3289	(-)1683	(-)380	303	316
Add/Deduct past years adjustment	(+)61	(-)1961	(-)5	(-)198	(+)15	(+)66	(+)8	(+)144
Net Loss/Profit	(-)1233	(-)3898	(-)2093	(-)3487	(-)1669	(-)314	321	460

The Management attributed the losses to capital investment not used to generate commensurate revenue; unremunerative prices contracted for; non revision of prices to remunerative level; provision made for losses and liquidated damages paid for delays in delivery.

Activitywise Profit/Loss:

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
	(Loss(-) (Rupees in lakhs)							
A. Ship Construction:								
Defence	208	359	775	693	1200	1628	1536	1697
Others	(-)508	(-)373	(-)116	(-)585	(-)147	173	(-)26	(-)587
	(-)300	(-)14	659	108	1053	1801	1510	1110
B. Offshore Activities:								
Fabrication of wall platforms	(-)319	(-)1373	(-)1341	(-)740	(-)1555	(-)702	(-)1119	(-)1683
Offshore operations including diving and vessel management	(-)952	(-)496	(-)909	(-)823	(-)805	(-)1165	(-)578	(-)94
Turnkey Projects	417	1448	3696	403	-	-	-	-
Jack-up-Rigs	-	(-)690	(-)1192	(-)1864	(-)418	(-)994	72	-
Pipe-coating	(-)209	106	(-)99	(-)139	(-)86	(-)336	(-)189	26
Total	(-)1063	(-)1005	155	(-)3163	(-)2864	(-)3197	(-)1814	(-)1751
C. Shiprepair and General Engineering	188	(-)52	15	95	17	130	131	52
Total A+B+C	(-)1175	(-)1071	829	(-)2960	(-)1794	(-)1266	(-)173	(-)589
Provisions	(-)12	(-)866	(-)2917	(-)330	(-)2957	(-)649	(-)1908	(-)630
Interest subsidy from Govt. of India	-	-	-	-	3069	1535	1535	1535
Total	(-)1187	(-)1937	(-)2088	(-)3290	(-)1682	(-)380	(-)304	316

All the works undertaken by MDL have resulted in losses except turnkey projects for ONGC, Ship building work for the Navy on cost plus basis and shiprepairs and general engineering (excluding 1985-86). Fabrication of offshore platforms transportation and installation of platforms, jack-up-rigs and pipe coating work were main contributors to the losses of the Company.

6.2 FOREIGN EXCHANGE SAVINGS:

Apart from self-reliance in strategic fields MDL is expected to reduce outgo of foreign exchange. In February 1979 the net outflow of foreign exchange on an imported platform would have been Rs.7 to 8 crores. The foreign exchange content of the indigenously built platforms averaged Rs.2.5 to Rs.3 crores. The foreign exchange outgo for work of transportation and installation of one platform by a foreign firm would be Rs.4.82 crores. Indigenisation of pipe coating work was expected to save foreign exchange of Rs.27 crores in the second year and over Rs.5 crores every year thereafter.

MDL, did not keep account of details of expenditure in foreign exchange. Savings in foreign exchange due to indigenisation is not being systematically assessed by MDL.

In ship building, ship repairs, offshore support services and other activities the foreign exchange earned has been steadily declining and became 'nil' in 1988-89, though it increased thereafter:

Foreign Exchange Earned

	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
(Rupees in lakhs)										
Ship construction (Sales of export vessels delivered)	223.23	-	423.60	-	-	-	nil	-	-	-
Ship-repairs(earnings by way of repairs to foreign ships)	152.34	127.86	83.84	2.65	-	-	nil	-	-	-
Offshore Support Services	405.48	17.99	58.23	14.29	45.87	4.37	nil	6.41	16.87	-
Other activities	-	-	0.53	0.35	1.67	2.02	nil	-	-	30.23
Total:	781.05	145.85	566.20	17.29	47.54	6.39	nil	6.41	16.87	30.23

The Management stated (September 1989) that because of world wide slump and surplus capacities in Korean Yards for shipbuilding, shiprepair and offshore platforms, MDL was not able to secure orders from foreign customers. The Ministry stated (August 1992) that the Company expected turnover of Rs.192 Crores on Ship building and Rs.10 Crores on Ship repairs during 1992-93.

The value of raw materials consumed and percentage of imported raw materials are given below:

Year	Value of raw material consumed	Value of imported raw material	Percentage of imported raw material
		(Rupees in lakhs)	
1983-84	14882	8287	56
1984-85	22833	16911	74
1985-86	16481	11106	67
1986-87	9225	5633	61
1987-88	9606	4900	52
1988-89	18422	12784	69
1989-90	16720	11441	68
1990-91	11681	8823	76
1991-92	13096	11064	84

Imported raw material was around 56% and has been increasing from 1984-85. MDL has been receiving large orders from ONGC for transportation and installation of platforms and allied activities with a view to save foreign exchange. But, MDL has been sub-contracting substantial portion of its work orders to foreign Countries.

(Rupees in crores)

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Total value of work of transportation, installation and allied activities undertaken by the Company	28.69	38.42	25.14	36.21	49.05	78.76	51.22	14.85
Value of work sub-contracted to foreign contractors	18.34	20.45	11.25	20.22	40.87	40.23	34.52	1.99
Percentage of value of work sub-contracted	64	53	44	56	83	51	67	13

The percentage of work sub-contracted in 1988-89 was as high as 83% even though the Company has been in the business since 1983-84. The activities of MDL are not contributing adequately to self reliance or reduction in outgo of foreign exchange.

6.3 Overall Production Performance:

(i) MDL has developed facilities and skills to build defence ships, submarines, offshore structures, diving support vessels and transport and install offshore structures.

In the last ten years MDL delivered the following:

(a) 3 Godavari Class Frigates.

(b) 2 Corvettes.

(c) 2 SSK Submarines.

(d) 7 Offshore Patrol Vessels.

(e) 3 Missile Boats

(f) 3 Project 15 vessels

(g) 1 Cadet Training Ship.

(h) 1 Multi-purpose Support Vessel.

(i) 8 Offshore Supply Vessels.

(j) 46 Sundry Vessels.

Primary objective of MDL was to progressively indigenise the manufacture of warships and other vessels. Despite the above impressive achievements the large financial investment made in MDL without adequate returns indicate need for strengthening the managerial and other capabilities, lack of which strength led to underutilisation of capacity and incurring of losses. Delay in delivery of Multipurpose Support Vessel ranged upto 39 months; 9 to 17 months was delayed in delivery of Offshore Supply Vessels, and 46 to 59 months in delivery of jack-up-rigs. Liquidated damages accrued from April 1989 to March 1992 to ONGC amounted to Rs.42.09 crores (amount withheld by ONGC Rs.35.40 crores), which was reduced by negotiation at government level. The Company made a provision of Rs.14.48 crores. Liquidated damages accrued upto March,1989 in respect of other orders amounted to Rs.6.40 Crores against which the Company made a provision of Rs.2.39 Crores. A Task Force had observed that planning and production control process was highly unsatisfactory in MDL.

(ii) The actual production fell short of planned production in many years as shown below:

		Ship construction	Offshore activities	Ship repairs & General Engineering	Production (figures in brackets are percentage of category to total production) Defence	Other	Total
1982-83	Planned	66.19	65.10	13.50	-	-	144.79
	Actual	106.60	102.76	17.41	61.59 (27)	165.18 (73)	226.77
1983-84	Planned	96.35	104.00	7.50	-	196.09	207.85
	Actual	144.11	132.73	12.99	91.17 (31)	198.66 (69)	289.83
1984-85	Planned	201.50	198.25	13.00	-	-	412.75
	Actual	161.76	211.27	11.42	96.48 (25)	287.97 (75)	384.45
1985-86	Planned	200.92	213.82	11.00	-	-	425.74
	Actual	159.65	161.74	7.10	129.83 (40)	198.66 (60)	328.49
1986-87	Planned	96.42	158.05	2.52	-	-	256.99
	Actual	133.25	152.33	3.94	108.62 (38)	180.90 (62)	289.52
1987-88	Planned	119.40	137.18	5.10	-	-	261.68
	Actual	143.01	105.78	3.89	138.22 (55)	114.46 (45)	252.68
1988-89	Planned	185.10	146.16	4.85	-	-	336.11
	Actual	183.77	163.05	5.12	182.39 (52)	169.55 (48)	351.94
1989-90	Planned	175.75	189.96	4.96	-	-	370.67
	Actual	203.88	189.91	10.10	205.71 (51)	198.18 (49)	403.89
1990-91	Planned	171.56	104.60	6.42	-	-	282.58
	Actual	187.07	111.65	9.87	181.16 (59)	127.43 (41)	308.59
1991-92	Planned	189.12	101.18	6.37	-	-	296.67
	Actual	189.28	85.86	10.40	175.92 (62)	109.62 (38)	285.54

(iii) The shipyard's capacity and physical performance used to be measured in terms of "Tonnage". MDL made an attempt in 1986 to measure in terms of mandays required for construction . The measure in mandays is referred to as 'shipunit'. In 1986, the capacity of MDL was 11.76 shipunits per annum. Achievement is given below:

Year	Ship units achievable	Ship units achieved	Normative mandays required	Actuals mandays	Capacity utilisation %
1	2	3.	4	5	6 (4 / 5)
1984-85	11.76	11.80	11,80,000	13,26,440	89
1985-86	11.76	11.71	11,71,000	16,29,868	72
1986-87	11.76	11.79	11,79,000	9,95,119	118
1987-88	11.76	11.15	11,15,000	10,05,151	111
1988-89	11.76	11.38	11,38,000	11,35,469	100
1989-90	11.76	9.70	9,70,000	10,23,000	95
1990-91	11.76	6.98	6,98,000	9,52,000	73
1991-92	11.76	8.40	8,40,000	10,61,818	79

Mandays put in were more in 1984-85, 1985-86 and 1989-90 to 1991-92 and lower in 1986-87 to 1988-89. To the extent actual mandays were more than normative mandays, the capacity utilisation of the shipbuilding infrastructure has fallen below 100%. The capacity utilisation as percentage of normative shipunit mandays to actual mandays is given in the last column.

Management stated (April 1989) that by adopting better work scheduling and monitoring procedures and judicious use of overtime, an increase in the capacity of MDL above 11.76 Ship-units was possible.

For hull construction capacity is expressed also in terms of steel that can be fabricated. This was fixed at 7550 tonnes of steel throughput of 10 mm thick plates. The table below indicates the capacity, the target and actual production.

Year	Assessed capacity	Planned production	Actual production	Percentage of actual to Assessed capacity	Percentage of actual to Planned production
			(Quantity in tonnes)		
1984-85	7550	7550	7567	100	100
1985-86	7550	7550	6250	82	83
1986-87	7550	2330	2506	33	108
1987-88	7550	3000	2050	27	68
1988-89	7550	1831	1818	25	99
1989-90	7550	1674	1555	21	93
1990-91	7550	3330	3028	40	91
1991-92	7550	2295	2139	28	93

Tonnage of steel fabricated, declined from year to year. The planned targets were far below capacity.

Management stated (September 1989) that capacity assessed was based on the class of vessels and therefore cannot be uniformly applied to different types of vessels under production.

In assembly shop capacity utilisation was as given below:

	Capacity of Assembly shop	Output	Percentage utilisation
1984-85	5000	3284	66
1985-86	5000	2320	46
1986-87	5000	1556	31
1987-88	5000	1711	34
1988-89	5000	2150	43
1989-90	5000	1490	30
1990-91	5000	1771	35
1991-92	5000	2091	42

Percentage utilisation in the Assembly shop can be seen declining.

In the three slipways, three drydocks and a wet basin for the construction and repair of ships the percentage utilisation was as follows.

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Slipways	100	95	98	87	68	69	91	70
Drydocks	98	94	83	91	89	65	57	47
Wet basin	100	100	87	93	67	73	56	87

There was marked reduction in the capacity utilisation in 1988-89 compared to 1987-88 and earlier years in all these facilities. This was attributed to lack of orders. But delays in delivery also added to poor capacity utilisation.

The following table indicates the value of production, cost of materials and components consumed, value added and ratio of value of production to capital employed.

(Rupees in crores)

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
(1) Value of production	384.45	328.49	289.52	252.68	351.94	403.89	308.59	285.54
(2) Materials consumed, sub-contracts, facility hire and excise duty	298.54	241.57	168.92	158.72	242.14	281.72	180.07	158.22
(3) Value added (1 - 2)	85.91	86.92	120.60	93.96	109.80	122.17	126.52	127.32
(4) Percentage of value added to value of production	22	26	42	37	31	30	41	45
(5) Loss(-)/Profit for the year	(-)12.33	(-)38.98	(-)20.98	(-)34.87	(-)16.69	(-)3.13	(+)3.21	(+)4.60
(6) Percentage of loss/profit to value added	14.4	44.8	17.4	37.1	15.2	2.6	2.5	3.6
(7) Capital employed	241.54	247.97	276.91	307.09	344.27	359.80	375.49	467.56
(8) Ratio of value of production to capital employed	1.6	1.3	1	0.8	1	1.1	0.8	0.6

During the years 1984-85 to 1991-1992, the capital employed in the Company went up from Rs.241.54 crores to Rs.467.56 crores but the value of production decreased by 26 per cent.

6.4 Delays in delivery and loss on offshore activitites

(i) As per a Government directive MDL diversified into the field of fabrication of offshore platforms for ONGC from February 1977 at its Alcock Yard and later in its Nhava Yard and Mangalore Yard.

The table below give the capacity, targetted production and actual production during the years 1984-85 to 1991-92.

	Capacity	Targetted production	Actual production	Percentage of Production to Capacity	Percentage of Production to Targetted production.
		(Qty.in tonnes)			
Alcock Yard, Bombay					
1984-85	12,000	9,600	5688	47	59
1985-86	12,000	9,600	4098	34	43
1986-87	12,000	9,600	1675	14	17
1987-88	12,000	3,841	4396	37	114
1988-89	12,000	5,090	5870	49	115
1989-90	12,000	4,255	4091	34	96
1990-91	12,000	3,113	936	8	23
1991-92	12,000	6,804	4654	39	68

Nhava Yard, Bombay					
1984-85	9,800	7,840	4474	46	57
1985-86	9,800	7,840	2502	26	32
1986-87	9,800	7,840	1087	11	14
1987-88	9,800	2,925	2765	28	95
1988-89	9,800	4,470	5525	56	121
1989-90	9,800	3,230	1743	18	54
1990-91	9,800	1,957	130	1	7
1991-92	9,800	4,589	3139	32	68
Mangalore Yard					
1984-85	7,000	5,600	5224	75	93
1985-86	12,000	9,600	8713	73	91
1986-87	12,000	9,600	5266	44	55
1987-88	12,000	7,661	6690	56	87
1988-89	12,000	6,229	5877	49	94
1989-90	12,000	4,635	3825	32	83
1990-91	12,000	4,576	1163	10	25
1991-92	12,000	3,412	2334	19	68
Total					
1984-85	28,800	23,040	15386	53	67
1985-86	33,800	27,040	15313	45	57
1986-87	33,800	27,040	8028	24	30
1987-88	33,800	14,427	13851	41	96
1988-89	33,800	15,789	17272	52	109
1989-90	33,800	12,120	9659	29	80
1990-91	33,800	9,646	2229	7	23
1991-92	33,800	14,805	10127	30	68

The utilisation of capacity was less than 54 percent in all the years and was as low as 7 percent in 1990-91. The Management stated (August 1992) that the Company was hopeful of raising the capacity utilisation in the offshore division to around 83% by 1992-93.

(ii) Orders

During the years 1979-81, the ONGC placed orders for 13 wellhead platforms equivalent to 39000 tonnes of fabrication work. During 1981-82 orders totalled 53700 tonnes. The actual fabrication achieved vis-a-vis order position at the end of each year is given below:

	Order Tonnage (Approx)	Execution Production (Tonnes)	Backlog (Tonnes)
1979-81	39,000	18,610	20,390
1981-82	53,700	13,490	60,600
1982-83	9,000	14,300	55,300
1983-84	4,700	16,539	32,461
1984-85	6,000	15,386	23,075
1985-86	Nil	15,313	7,762
1986-87	12,000	8,028	11,734
1987-88	5,100	13,851	2,983
1988-89	16,735	17,272	2,446
1989-90	3,600	9,659	Nil
1990-91	Nil	2,229	Nil
1991-92	29,160	10,127	19,033

The Ministry stated (August 1989) that due to delay in the fabrication of platforms by MDL, ONGC resorted to installation of temporary decks (instead of permanent decks with production facilities) to accelerate oil production. Since MDL could not meet the delivery schedules, global tenders were floated by ONGC during 1984 for wellhead platforms and process platforms. Clearly under-utilisation of capacity in MDL was not on account of lack of orders from ONGC.

The Ministry of Defence also stated (October 1989) that Mangalore Yard was not ready till 1985-86 while the flow of orders fell between 1982 and 1986. This resulted in under utilisation of capacity in MDL.

(iii) Delivery at loss

During the years 1979 to 1982, MDL delivered 8 platforms valued Rs.55.20 crores and earned a profit of Rs.2.86 crores. During 1982-83 to 1990-91 on 33 platforms/jackets delivered to ONGC, (value Rs.380.88 crores) MDL incurred a loss of Rs.63.56 crores. As on 31.3.1992 8 platforms were under construction on which MDL is likely to incur a loss of Rs.46.27 crores (value Rs.273.16 crores). Details of platforms delivered, cost incurred, and value realised on platforms produced upto March 1992 are given in Appendix. The losses suffered by MDL were attributed to weakening of managerial control over production, non-setting-up of norms for operation, steep decline in productivity, lack of cost and financial discipline and delays. Inspite of extended period of delivery, the platforms installed were seldom 100 percent complete and deficiencies were made good at considerable extra cost.

(iv) Wastages

A Task Force had observed that as against the norm of 4 percent , the wastage in MDL was as high as 12 percent. Against the estimated requirement of 33 mandays per tonne for fabrication, the actual mandays utilised averaged 48 mandays. Ministry stated (September 1991) the mandays has been brought down to 42 per ton for jacket. Compared with six months for jackets and piles and eight months for main decks and heli decks taken by a foreign firm, time taken by MDL was around 30 months.

(v) MDL attributed (September 1989) losses to:

(a) unrealistic delivery schedule insisted upon by ONGC,

(b) frequent and last minute changes made by EIL (consultants of ONGC),

(c) delay in deliveries by indigenous suppliers,

(d) labour problems faced by sub-contractors at Nhava and Mangalore.

These reasons only reflect on incapacity of MDL to compete at international standards.

MDL stated that ONGC was paying approximately Rs.25 crores for a standard wellhead platform to foreign contractors whereas the amount paid to MDL was only Rs.14.27 crores. ONGC thus had saved about Rs.250 crores on 25 platforms supplied by MDL. Indigenous competition had also contributed as a major factor for reduction in prices by foreign contractors after 1984. Indigenisation achieved by MDL was over 50 percent resulting in savings in foreign exchange. ONGC did not comply with the understanding between the Ministries of Petroleum and Defence that the facilities created by MDL would be fully utilised.

(vi) Liquidated damages

In respect of 39 platform structures delivered between April 1984 and December 1987, the delays ranged between 34 days and 200 days in respect of 12 structures, 201 days and 400 days in respect of 14 structures and 400 days and 647 days in respect of 13 structures. Liquidated damages of Rs.6.65 crores that became payable by MDL was settled at Rs.3.46 crores by Government.Further, in respect of 12 platforms delivered subsequently delay ranged between 8 to 22 months and had already attracted liquidated damages of Rs.36 crores.

(vii) Process Platforms & Water Injection System

Between 1981 and 1988 MDL executed 4 major projects for supply and installation of process platforms and Water Injection System (WIS) at a cost of Rs.280.01 crores yielding a profit of Rs.62.46 crores. MDL paid liquidated damages amounting to Rs.5.26 crores (after waiver of Rs.19.10 crores).

The main deck for the Water Injection System (WIS) was sub-contracted and MDL granted extension of time to subcontractor because of incomplete facilities at Mangalore and inability of MDL to supply drawings and materials to the sub-contractor in time.

(viii) Piping

For the work 'Process piping and equipments installation on WIS decks' a lumpsum sub contract was given for Rs.51.65 lakhs. There was delay in receipt of drawings/specifications from ONGC and the work was split between 2 subcontractors to make up for lost time. The original sub contractor demanded revision in its rates on the ground that with reduced quantum of work their original rates were unremunerative. This resulted in increase in cost of work to Rs.91.67lakhs resulting in extra expenditure of Rs.40.02 lakhs which was not claimed by MDL from ONGC.

(ix) Deck Cranes:

In May, 1981 MDL ordered two deck cranes (cost Rs.31.72 lakhs) required to be installed on two platforms. The first crane was installed in August, 1982 on some other platform which was then under construction for ONGC and MDL ordered a third crane at a cost of Rs.27.08 lakhs. ONGC found the performance of the first crane to be unsatisfactory. ONGC informed MDL (August 1985) that because of operational deficiencies in the first crane, they did not require the second crane. In view of this, MDL did not deliver the second crane though it has been ready since 1982. MDL also asked supplier not to go ahead with the construction of the third crane. As a result, MDL is saddled with imported material valued Rs.11.04 lakhs meant for the third crane. Also advance amounting to Rs.14.75 lakhs are recoverable from supplier on the second and third cranes and cost of imported spares issued to supplier valuing Rs.6.52 lakhs aggregating in all to Rs.21.37 lakhs. Against a total expenditure of Rs.50.39 lakhs incurred by MDL on the three cranes MDL collected only Rs.19.80 lakhs from ONGC leaving a balance of Rs.30.59 lakhs as a loss or unusable material.

(x) Two jack-up rigs.

MDL received an order in November, 1983 for construction and delivery of two jack-up rigs at a firm price of Rs.41.80 crores each for delivery by January, 1985 and May, 1985 respectively. The first rig was delivered in November 1988 (delay of 46 months). The second rig was delivered in April 1990 (delay 59 months) and MDL suffered a loss of Rs.68.37 crores.

The reasons for the loss of Rs.68.37 crores are detailed below:

(a) The MDL was new to the line of manufacture.

(b) Original plan was to construct the rig at Nhava, but location was shifted to Mangalore.

enough orders by ONGC which found rates of foreign contractors more attractive after 1983.

Department of Petroleum had informed (October 1982) the Ministry of Defence Production that ONGC would not assure sufficient orders to MDL for full capacity utilisation as in their opinion orders would depend on timely delivery and competitiveness of price quoted by MDL.

The number of days the plant worked and the idle days on account of monsoon or for want of work are given below:

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
1. No.of days the plant worked in a year	91	176	124	39	59	60	88	Nil	Nil
2. No. of days the plant did not work in a year due to:									
(a) Monsoon	-	62	95	103	103	103	110	103	1.3
(b) Want of work	-	-	81	144	143	136	105	200.	2.0
(c) Total	-	62	176	247	246	239	215	303	3.3

The results of operation of the pipe coating plant are given below:

(Rupees in lakhs)

Year	Value of Production	Profit/(Loss)
1983-84	785.17	(95.60)
1984-85	1939.48	(209.00)
1985-86	1594.44	106.10
1986-87	422.12	(98.63)
1987-88	743.27	(138.74)
1988-89	1959.05	(85.79)
1989-90	2093.85	(335.62)
1990-91	--	189.12
1991-92	--	--
Total		(1046.40)

MDL billed ONGC at cost plus 7.5 per cent but ONGC paid at Rs.320.32 per meter for pipelines below 12" and Rs.424 per meter for 12" and above which were the rates quoted by foreign contractors. The difference between the credit billed by MDL and paid by ONGC amounted to Rs.2.58 crores for which provision for doubtful debts has been made in the accounts during 1991-92. MDL incurred loss of Rs.13.04 crores in the operation of the plant. The cost of the plant was Rs.8.27 crores and this investment is hardly yielding any return to MDL.

(xv) Installation

MDL entered into the area of offshore installation in 1982 by acquiring a second-hand pipelay-cum-derrick barge named D.B. Mahavir and commenced operations in December 1982. Against plan of six platforms per annum MDL achieved capacity of less than 4 platforms per annum. A sample platform comprises one jacket, one maindeck and one helideck, MDL stated (September 1988) that in normal circumstances the derrick barge "Mahavir" could transport and install only 4 jackets, 4 main decks and 4 helidecks and 34 kms of pipeline laying in a year. Still, the capacity achieved during the years 1983-84 to 1988-89 was still lower as given below:

	Work done			Value of work done	Loss sustained
	Jackets	Heli decks	Main decks		
				(Rupees in lakhs)	
1983-84	3	1	1	1654.97	265.37
1984-85	1	1	1	1035.13	1055.54
1985-86	4	2	3	1797.23	460.51
1986-87	3	3	2	1389.26	908.22
1987-88	1	5	5	1599.25	761.72
1988-89	3	-	-	818.15	1449.14
1989-90	5	-	-	1565.50	722.99
1990-91	3	-	-	1688.08	1073.01
1991-92	7	-	-	2014.80	826.05
Total				13562.37	7522.55

MDL operated D.B.Mahavir at a loss from 1981-82 when it was acquired. The cumulative loss up to end of 1991-92 amounted to Rs.78.39 crores against a projected profit of Rs.1.77 crores per annum. Besides, the vessel was not deployed for pipelaying work after 1983-84.

MDL attributed the loss to excessive downtime for repairs etc; excessive time taken for transportation and installation; high incidence of repairs and maintenance; excessive utilisation of foreign technicians; escalation of cost, and competition at dumping prices by foreign firms.

MDL earned profits when the transportation and installation work was done through foreign sub-contractors as given below:

	Value realised	Cost incurred	Profit(+)/ Loss(-)
		(Rupees in lakhs)	
1. When entire transportation and installation work was sub-contracted (5 platforms)	1969.68	1724.81	(+) 244.87
2. When the work was undertaken either wholly by the MDL (deploying D.B. Mahavir) or partially by Mahavir and partially by sub-contracting (17 platforms)	6537.35	9431.70	(-) 2894.35

The Management stated (September 1989) that the learning process was one reason for higher cost incurred. As for unremunerative prices, it was noticed that higher rate of Rs.527 lakhs per platform was allowed by ONGC when the work was done by the MDL against Rs.482 lakhs per platform allowed by ONGC to MDL when the work was got done by MDL through sub-contractors.

6.5 Diving Support Services

Diving support is essential for repair and maintenance of offshore installation which was mostly done by foreign firms till MDL entered the area in 1980. Between 1982-83 and 1987-88 MDL trained 65 divers abroad at a cost of Rs.68.05 lakhs.

Of the 95 divers recruited by MDL till 1984-85, the strength of divers at the end of 1991-92 stood at 20.

The following table indicates that percentage utilisation of diving mandays available in MDL was only 35 to 84 during the years 1983-84 to 1991-92

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
No.of diving mandays available	14375	21500	21875	20750	18375	17375	10000	10400	3400
Mandays utilised	6184	9940	7685	7407	9581	9693	8366	6810	1695
Percentage utilisation	43	46	35	37	52	56	84	65	50
Mandays utilised for									
MDL's work	2450	2157	3285	3521	2274	2960	2828	1580	1186
Percentage utilisation	40	22	43	48	24	31	28	15	35

MDL stated (April 1989) that where D.B. Mahavir did not undertake any pipelay work which required extensive diving operations, the utilisation was also low because MDL's own vessel DSV Nireekshak was not commissioned in time.Diving personnel were hired out to outside agencies and utilised for management of ONGC's vessel.

For its vessel DSV Nireekshak, MDL commissioned in March 1989 a diving system at a cost of Rs.32.97 lakhs. For its vessel D.B. Mahavir, MDL commissioned in August 1989 a 6 man diving system at a cost of Rs.114.45 lakhs. Due to delay in putting the system in operation it incurred expenditure of Rs.272.56 lakhs from 1983-84 to 1987-88 in hiring other system.

6.6 Multipurpose Support Vessel:

In August 1983, ONGC ordered on MDL one Multipurpose Support Vessel (MSV) to a foreign design at a price of Rs.36.55 crores. Cash subsidy of Rs.6.65 crores was also admissible from the Government of India. Estimated cost was Rs.40.99 crores and profit Rs.2.21 crores. Construction commenced in November 1983 for scheduled delivery in May 1985, which was however made only in August 1988 after incurring cost of Rs.58.24 crores.

After initial despatch of documents and drawings, the foreign firm engaged by ONGC ceased to operate. The drawings supplied by them were only preliminary drawings and a lot of experimentation had to be done by MDL. Delay was also due to welding defects, lack of quality control and mis-handling and improper storage of equipments. Further, officers trained abroad for transfer of technology were deployed elsewhere. There were three fire acidents during construction due to lack of safety measures. There were limitations in availability of cranes in the yard. Other reasons were Work-to-rule and non-co-operation agitation in MDL. Eight pumps and associate pipe fitting had to be re-ordered and were received only in December 1985. On 21st May 1987 just prior to sea trials there was burn out in propulsion due to mismatch of capacity. New auto transformers were ordered for import for delivery in October 1987.

MDL realised onlyRs.44.29 crores including cash subsidy resulting in a loss of Rs.13.94 crores. The Company also paid liquidated damages of Rs.1.83 crores for late delivery of the vessel.

The increase in cost was also due to excessive mandays of labour engaged (6.53 lakhs instead of 4.97 lakhs), on rectification and re-work and increase in cost of purchases.

ONGC incurred technology and know-how transfer fee of Rs.1.06 crores in foreign exchange but no further orders for such vessel was placed by ONGC on MDL.

6.7 Offshore Supply Vessels:

In February 1982 and October 1982 ONGC ordered 8 Offshore Supply Vessels (OSV) on MDL . Contracts were drawn up in February 1984 and July 1986 for price to be determined on the basis of International Parity Price (IPP) to be fixed by the Government. For the first 4 vessels, this worked out to Rs.521 lakhs each in addition to subsidy of 30% (10% from ONGC and 20% from Government). For the other 4, the price was still to be determined by Government.

Five vessels were constructed and delivered to ONGC upto 1987. The construction of the sixth vessel was started in September 1983 but was suspended in November 1986 on the ground that the expenditure already incurred and to be incurred in future would be far higher than the price payable by ONGC. Of the expenditure of Rs.451.01 lakhs incurred, material that could be salvaged was valued at Rs.200 lakhs. The balance amount of Rs.251.01 lakhs has been written off in 1988-89 by MDL as loss. ONGC also recovered Rs.115.65 lakhs as interest on advance paid by ONGC to MDL for the vessel. MDL received orders for confirmation of 3 OSVs using the material lying with MDL of the cancelled orders. These three vessels were under construction as on 31.3.1992 and MDL is likely to incur a loss of Rs.8.86 crores.

The performance on first 5 vessels are summed up below:

Offshore Supply Vessels:

	First	Second	Third	Fourth	Fifth
Estimated cost (Rs. in lakhs)	681.98	681.98	681.98	681.98	681.98
Realisable value (Rs.in lakhs)	677.30@	677.30@	677.30@	677.30@	756.10*
Actual cost (Rs.in lakhs)	924.79	1008.35	1034.55	1079.90	1158.85
Loss (Rs.in lakhs)	247.49	331.05	357.25	402.60	402.75
Mandays					
Estimated	71887	71887	71887	71887	71887
Actual	117389	138061	115082	140355	163623
Excess	45512	66184	43205	68478	91746
Material					
Estimated cost (Rs. in lakhs)	292.32	292.32	292.32	292.32	292.32
Actual cost (Rs. in lakhs)					
Steel	464.45	455.96	474.01	454.39	396.10
Steel Consumption					
Estimated (tonnes)	900.00	900.00	900.00	900.00	900.00
Actual (tonnes)	960.00	908.00	895.00	985.00	954.00
Excess(+)/ Saving(-)	(+)60.00	(+)8.00	(-)5.00	(+)85.00	(+)54.00
Delivery Schedule					
Contracted date	16.2.84	1.7.84	1.9.84	1.11.84	30.11.86

Actual date	16.2.84	21.3.85	28.9.85	20.03.86	5.10.87
Delay	Nil	9 months	13 months	17months	10months

MDL incurred a loss of Rs.17.41 crores on the five vessels. In the case of the third vessel the hull was constructed at Goa Shipyard Limited. Liquidated damages amounting to Rs.84 lakhs was also paid.

The reasons for delays were modifications, work to rule, delay by sub-contractor, diversion of equipment, failure of cement tank and faulty material.

6.8 Frigates:

The Godavari Class Frigates were indigenously designed and three frigates were delivered in December 1983, December 1985 and March 1988. This was a creditable achievement for MDL.

However, there was slippage in sea trials by 19 months on the third frigate. On all the three frigates the cost exceeded the original estimate. The Management stated (September 1989) that the increase was partly due to cost escalation, exchange rate variation and increase in labour cost. The cost also went up because of improvements and additions required by the customers. Further, the excess consumption of steel was 47.96 per cent; 73.07 per cent and 42.63 per cent on the first, second and third frigates respectively. This was after reckoning normal wastage of 25 per cent of the estimated consumption.

The Management stated (September 1989) that the estimated steel requirement was only for construction of hull but the actuals included steel used for outfitting, modifications, re-work etc. The Management, however, did not assess the quantity of steel consumed on other than hull work.

6.9 Submarines:

The construction of the first submarine in MDL commenced in January 1984 and the second in September 1984. Estimated construction time was 42 months. The collaborators was also to construct two more submarines with the same period of 42 months. He could complete and deliver the two submarines only after delay of 7 and 3 months respectively. But MDL, revised its estimate time to 60 months in June 1985 and to 81 months in April 1986. The delivery dates were again revised to December 1990 and September 1991 respectively. The first submarine was commissioned in February 1992 and the second is expected to be completed by August 1993. The main causes for the delay were; (a) Delay of 13 months in completion of civil works for workshops, buildings and drydock (b) Inadequacy of training given to MDL personnel at collaborators' yard which was limited to observation training, (c) Malfunctioning of automatic welding stations attributed to climate of Bombay. (d) Delay in finishing items supplied by the collaborator in semi-finished condition, (e) Riots, communal violence and work-to-rule agitations in the yard in 1984 and 1985, etc..

Against the original estimated cost of Rs.154.16 crores, sanctioned by Government in March 1982, cost upto July 1992 was around Rs.342.63 crores and was expected to go upto Rs.392 crores. The increase was due to delay and increase in labour and labour overheads, escalation in cost of materials and exchange rate variations. Also in the original estimate, cost of specialists' services for Rs.8.88 crores was not included. Extension of specialists' services cost Rs.7.53 crores and additional cost of Rs.62.86 lakhs incurred by MDL on semifinished items supplied by collaborators.

For extension of warranty period for the equipments, collaborator wanted Rs.36 crores and it was decided not to seek extension.

6.10 Offshore Patrol Vessels:

Indian Coast Guard ordered on MDL in January 1981 and April 1984 six offshore patrol vessels.

The delivery, price, and cost of construction, mandays utilised and consumption of steel are given below:

	First	Second	Third	Fourth	Fifth	Sixth
(i) Delivery:						
(a) Scheduled	June 1983	December 1983	May 1984	May 1986	March 1987	July 1987
b. Actual	Dec. 1983	March 1985	May 1986	February 1988	December 1988	July 1989
Delay (in months)	6	15	24	21	21	24
(ii) Value (Rs. in lakhs):						
(a) Cost	1630.77	1611.89	1890.36	2284.74	2403.38	2423.43
(b) Price	1698.27	1681.89	1962.86	2448.23	2563.96	2606.14
(c) Profit	67.50	70.00	72.50	163.49	160.58	182.71
(iii) Mandays:						
(a) Estimated	240,734	240,734	240,734	240,734	240,734	240,734
(b) Actual	289,390	256,812	291,604	298,955	296,634	264,910
(c) Excess	48,656	16,078	50,870	58,221	55,900	24,176
(iv) Steel Consumption:						
(a) Estimated (tonnes)	620	620	620	620	644	644
(b) Actual (tonnes)	646	680	744	749	701	757
(c) Excess (tonnes)	26	60	124	105	57	113

On the first three vessels, profit was only 4.90% of cost and on the next 3 it was 7.13%. Out of the profit of Rs.210 lakhs on the first series, MDL was ordered (April

1992) to pay liquidated damages amounting to Rs.200 lakhs. Liquidated damages aggregating to Rs.3.88 crores was not claimed by the Coast Guard for the second series.

The delay were attributed to modifications, component, failure, non-availability of foreign technicians, port-strike, and non-availability of dry docks.

The vessels were identical but consumption of steel and mandays varied widely. The reason given by MDL that estimated mandays did not include over-time mandays is not convincing. The excess consumption of steel was attributed to modifications, re-work and wastage arising out of non-availability of plates of right dimensions.

6.11 Other Vessels:

Between 1982-83 and 1988-89 MDL constructed and delivered 46 vessels of various types to Port Trusts, Andaman and Nicobar Administration, Central Inland & Water Transport Corporation and others. MDL earned a profit of Rs.6.57 crores on fortyfour of them and sustained loss of Rs.38.45 lakhs on the remaining two.

On two ships constructed for the Andaman and Nicobar Administration the contract provided for wage escalation. Ambiguity in the contract was overlooked by MDL and work was undertaken on the wrong understanding that escalation would be admissible on a certain basis. But MDL was able to get reimbursement of Rs.2.35 crores (Rs.2.10 crores by arbitration award in August 1992) against its claim of Rs.3.96 crores. The balance of Rs.1.61 crores was a loss.

6.12 Shiprepair:

MDL is equipped to carry out major repairs to tankers, passenger and cargo vessels of any size including repairs to engines. Repairs of the vessels belonging to Navy and Coast Guard are undertaken on a cost plus basis and repairs to vessels owned by others on charges based on quotations and negotiations. A good part of the production, fabrication and dry dock facilities are common to ship-building and ship-repairing. The table below gives the shiprepair turnover.

(Rupees in lakhs)

Year	No.of ships repaired	Profit/Loss on ship repair and general engineering
1	2	3
1982-83	278	+4.09
1983-84	171	+1.52
1984-85	88	+1.88
1985-86	49	-0.52
1986-87	39	+0.15
1987-88	15	+0.95
1988-89	19	+0.16
1989-90	28	(+)1.30
1990-91	35	(+)1.31
1991-92	31	(+)0.52

The achievements had steadily declined from year to year. The decline in ship-repair turnover has been attributed by the Mangement to the recession in merchant shipping, very high and competitive rates of MDL as also mushrooming of a large number of small ship-repairers, whose charges were far lower.

Ship-repairs the main activity of MDL at the time of takeover of company in 1960 now represents only 3.49 percentage of its turn over in 1991-92.

The Shipping Corporation of India (SCI), the largest Indian Shipping Line (owning about 4.91 million DWT tonnage and 126 vessels in June 1992, is not entrusting ship-repair jobs to MDL but a substantial portion of its repair jobs are got done abroad as given below:

SCI's repairs

Year	In India	Abroad	Total	Value of repair work given to MDL
(Rupees in lakhs)				
1982-83	2947	2881	5828	1.57
1983-84	2251	3036	5287	0.10
1984-85	2487	2316	4803	Nil
1985-86	2400	3200	5600	Nil
1986-87	2300	2600	4900	Nil
1987-88	2465	3094	5559	Nil
1988-89	1796.64	1680.26	3476.90	Nil
1989-90	2280.34	1996.53	4276.87	Nil
1990-91	3204.78	3463.97	6668.75	Nil

MDL stated (March 1988) that ship-repair business from SCI was not coming to MDL from 1983-84 as its rates were not competitive.

For a modern yard for repairing naval ships, 128 acres of land was acquired (1982-83) by MDL at Dighi and expenditure of Rs.101.88 lakhs was incurred. But work was stopped in 1984 at the instance of Government of Maharashtra because environmental clearance was not obtained from Government of India. Government of India prohibited (September 1988) the setting up of industry in Dighi area. Management stated that the question of setting up the yard at Dighi is still under examination (August 1992) by Government. Meanwhile the expenditure incurred has remained a blocked investment which is unproductive. There is need for an approval or rejection of the proposal, from the commercial point of view of productive use of the blocked investment.

6.13 Production Planning and Co-ordination

The Production, Planning and Co-ordination Department of MDL is separate from departments for Submarine Project, shiprepair work and offshore work. Delays ranging from four to forty months in use of major equipments procured by MDL have occured. Lack of unified planning and control had pronounced impact in the area of procurement of material and equipment. Receipt of Material and Equipment required for projects committed to earlier delivery was delayed while equipment and material required for the projects with later delivery schedules arrived in advance.

6.14 Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM) Systems.

MDL had identified as early as in 1981 the need for implementation of a shipbuilding CAD/CAM system and the

Board had approved (September 1981) in principle a capital investment of Rs.75 lakhs in that regard.

The following advantages were expected to accrue from the use of the CAD/CAM system procured in 1989 at a cost of Rs.141.33 lakhs (as on 31.3.1992).

(i) advanced methods e.g. pre-outfitting.

(ii) changes as design progresses.

(iii) Increased accuracy and repeatability .

(iv) Induction of modifications and speeder re-generation of drawings.

(v) Savings in construction mandays.

(vi) Need based issue of drawings.

(vii) Reduction in steel wastage from 30% to between 13% and 14%.

There is no significant Research and Development in MDL.

CHAPTER-VII

MARKETING AND PRICING

7.1 Costing is very important for correct pricing and to improve Management's capability to compete on slender margins, when necessary. A job costing system is followed in MDL and labour, material and overheads, are recovered at predetermined standard rates. The actual costs incurred are compared with the estimates at the end of each month. The differences are rolled back to the respective works on a pro-rata basis. The Estimates were lower than actual cost in many years as shown below:

(Rupees in lakhs)	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
Actual expenditure incurred	6929.00	7918.50	9828.91	8455.97	8782.59	9474.30	10481.06	9056.85	10449.66
Recoveries on the basis of standard rates	7023.68	7630.40	9109.66	5461.47	6715.61	10596.57	11023.33	9414.43	10539.72
Amount adjusted	(+)94.68	(-)288.10	(-)719.25	(-)2994.50	(-)2066.98	(+)1122.27	(+)542.27	(+)357.58	(+)90.06

Management stated that standard rates for labour and overheads were not revised between 1.3.1985 and 16.8.1987. Management also stated that some of the operations are not identical from ship to ship For ship repair work, time factor is very important. It is therefore difficult to fix and revise all standard rates frequently.

7.2 It was noticed in audit that while estimates are made for quoting prices to customers in fixed price contracts, under various elements of cost like labour, material, etc. the costs are not always assessed with reference to uptodate norms or standards. There have been wide variations between the estimated cost and actual expenditure While manpower requirement per tonne is estimated, the actual utilisation of manpower is not monitored against the estimates. Labour hours paid for and the labour hours booked are not reconciled.

The Management stated (September 1989) that action was being taken to streamline the standard costing of labour, material and overheads and update them by refrence to actuals.

7.3 Sundry Debtors:

The volume of sundry debts is high compared to sales:

(Rupees in lakhs)

As on 31st March	Debts Considered Good by MDL	Considered doubtful by MDL	Sales	Percentage of total debts to sales	Debts in terms of No.of months sales
1985	4286	712	14396	35	4
1986	7868	1187	33246	27	3
1987	7075	1293	26362	31	4
1988	12500	1550	34416	42	5
1989	8630	1546	21979	46	6
1990	11043	1531	34162	37	4
1991	12677	2112	40234	37	4
1992	16569	2384	42334	45	5

Some of the debts are outstanding for more than one year as on 31st March 1992.

(Rupees in lakhs)

		As on 31.3.1992	
		Public Sector Unit	Others
1.	Debts outstanding for over one year but less than two years.	4033	0.01
2.	Debts outstanding for over two years but less than three years.	2201	-
3.	Debts outstanding for over three years and above.	2486	294

Debts amounting to Rs.2.94 crores are due from private parties for over three years and mostly relate to ship repair work. The Company has filed suits for recovery of Rs.2.39 crores from 25 parties.

Other dues are from Navy/Coast Guard (Rs.91.76 crores), ONGC (Rs.73.37 crores), and Government Departments, and Public Sector (Rs.21.46 crores).

7.4 There is urgent need for MDL to prepare detailed commercial and contractual agreements with Government departments and Public Sector Undertakings in future in the same manner as the international yards do and to reduce the incidence of disputed claims The urgency of the need would seem to be borne out by the following cases

(i) **Dues from Navy**

Yard 579 was delivered to Navy in March 1986. The cost of MDL is still tobe audited by Navy before releasing

Rs.48.05 lakhs out of which Rs.23.76 lakhs in respect of Kasara Basin charges has been disputed by the Navy.

(ii) **Dues from ONGC**

Out of the total amount of Rs.73.37 crores receivable from ONGC as on 31.3.1992, an amount of Rs.16.42 crores has been treated as doubtful for recovery

(a) Structural fabrication:

Rs.126.02 lakhs have not been paid by the ONGC pending agreement on price of imported steel items.

b) D.B.Mahavir stand by charges:

Out of standby charges amounting to Rs.100 lakhs claimed by MDL in December 1987, ONGC have not accepted the claim and provision has been made for the full amount.

(c) Top side equipment:

Cost of Top side equipments has not been reconciled by MDL and ONGC has not admitted the claim (Rs.22.31 lakhs)

(d) Transportation & Installation of platforms

Rs.51.35 lakhs were withheld by ONGC pending works still to be completed by MDL.

(e) Pipe coating : Rs.257.72 lakhs

Rs.2.58 crores on pipe coating work for ONGC is outstanding since 1983-84 as the rates for different items of work were not agreed upon with ONGC. Billing the ONGC by MDL on the basis of cost plus 7.5% profit is disputed by ONGC. The amount has been treated as doubtful for recovery by MDL.

(f) Mooring System:

In the price payable for Single Point Mooring System installed in 1983-84 ONGC has disputed MDL's claim for Rs.64.68 lakhs. On another claim of Rs.57.55 lakhs for testing of pipeline and mud-mat cutting, clarifications sought by ONGC have not been furnished by MDL.

(g) Samudra Prabha :

Out of the total amount of Rs.422.99 lakhs, provision for disallowance has been made for Rs.200 lakhs on various grounds like deficiencies in documentation, want of approval, etc.

(h) 'Sagar Samrat' :

Out of the total claim of Rs.2.56 crores due from ONGC for the special survey of the rig Sagar Samrat in 1984-85, an amount of Rs.51.90 lakhs has been written off in 1991-92

(i) Sales Tax:

Towards Sales Tax on mooring delivered to ONGC in 1983-84, MDL billed ONGC for Rs.59.92 lakhs, ONGC disallowed Rs.37.87 lakhs. On 13 platforms Rs.1.83 crores were disallowed by ONGC because ONGC paid sales tax only on the portion of the bill accepted by it. But MDL had remitted the full tax to the authorities.

(j) Offshore Supply Vessels:

MDL made provision for Rs.3.56 crores in its accounts for 1988-89 towards lower price fixed on International parity that what MDL had claimed and taken as sales price. The amount has been written off.

k) Supplies and services:

Rs.39.34 lakhs towards supplies made and work carried out for ONGC were disallowed by ONGC because there were no supply orders or written agreements for the amounts billed. MDL could not realise amount for want of primary documents such as work done certificates, delivery challans etc.

(l) Samudra Suraksha:

An amount of Rs.110.60 lakhs has been treated as doubtful for non-approval for divers, unsatisfactory performance of the contract, non-availability of project co-ordination, etc.

CHAPTER VIII

MATERIAL MANAGEMENT

8.1 The inventory holding vis-a-vis value of production are given below.

	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
(Rupees in lakhs)									
1.Stores and Spare parts	6888	7744	6657	6436	5109	4930	4523	4333	4367
2.Stores in transit	2266	1584	775	489	439	288	322	91	1161
3.Equipments/ Stores for construction ships	89	1843	1141	7166	13551	11799	9376	6278	9715
	9243	11172	8576	14092.84	19100.75	17018.22	14221	10702	15243
4.Work-in-progress	27260	51431	51393	53982	44943	58207	64519	54937	40970
5.Stores/equipments consumed during the year	14882	22746	16480	9224	9605	18421	16720	11681	13096
6.Value of production	28983	38445	32849	28952	25268	35194	40389	30859	28554
7.Inventory (Sr.No. 1+2+3) in terms of number of months consumption	7	5	6	18	23	11	10	11	14
8.Work-in-progress in terms of number of months value of production	11	16	19	22	21	20	19	21	17

Work-in-progress in terms of number of months production registered an increase from 11 in 1983-84 to 22 in 1986-87 and was marginally lower at 21 in 1987-88 and 17 in 1991-92. The inventory in terms of number of months consumption was changed in 1986-87 by the policy of treating direct purchase items as stock instead of consumption, as hitherto.

8.2 Management stated (September 1989) that the high inventory was due to receipt of Russian Equipment which were received out of step with construction schedule and also due to slippages of construction schedules. The accumulation of inventory was also the result of abandonment of a few major projects and cancellation of orders by ONGC, as indicated below:

Sr. No.	Item	Value of inventory	Remarks
1	2	3	4
		(Rupees in crores)	
(i)	Equipment, relating to DB II	22.46	Construction was abandoned Items worth Rs.20.15 crores sold in April 1992.
(ii)	Steel tubulars	14.00	Due to cancellation of orders by ONGC.
(iii)	Steel plates and sections (Offshore)	4.65	- do -
(iv)	Steel for shipbuilding	3.20	Materials procured for certain projects without getting orders.
(v)	Imported spares at Mangalore	1.52	The plant is not operated for the last two years.
(vi)	Leftover items	1.85	The works for which they have been purchased have already been completed.
(vii)	Coated pipes	1.90	Pipes coated in excess of order placed by ONGC.

Item No.(vi) and (vii) have not been included in the valuation of inventory. MDL is also holding items worth

Rs.3.47 crores procured on behalf of Coast Guard/Navy and paid by them but inventory was not taken over by them even after the delivery of concerned vessels and Rs.0.72 crores procured on behalf of ONGC and paid by them.

8.3 Improper Storage :

Imported material stored in open suffered damage and cost Rs.12.22 lakhs on rectification and Rs.13.50 lakhs on transport.

An amount of Rs.88 lakhs was paid to a pipe coating sub-contractor as per arbitration award due to failure of MDL to keep proper records of receipts and issues.

CHAPTER IX

MANPOWER

9.1 The total strength of employees in MDL rose from 12286 at the end of 1982-83 to 15614 by end of 1985-86. In March 1987, Bombay Productivity Council (BPC) suggested reducing the large spread of trades in divisive disciplines into multi-trade concept and reduction in manpower. The strength of employees was, gradually brought down and it was 12321 by the end of 1991-92.

There was also marked increase in overtime payment which reached 22 per cent of wages in the year 1985-86. This was controlled and brought down to around 6 to 9 per cent in the subsequent years.

The value added per employee, earnings per employee and the overtime per employee are given below:

	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90	1990-91	1991-92
							(Amount Rs. in lakhs)	
1. Value of production	38,445	32,849	28,952	25,268	35,194	43,089	30,859	28,554
2. Value added	8,591	8,692	12,060	9,396	10,980	12,217	12,652	12,732
3. No. of employees	14,340	15,614	13,937	13,402	13,795	13,147	13,049	12,321
4. Total salaries and wages	4,076	5,276	4,741	5,006	5,607	6.552	6,760	7,988
5. Total overtime	650	1,163	289	325	341	570	429	674
6. Per employee: (in Rs.)								
(a) Value added	59,909	55,668	86,532	70,109	79,594	92,926	96,958	1,03,336
(b) Earnings	28,424	33,790	34,017	37,353	40,645	49,836	53,430	64,832
(c) Overtime	4,533	7,448	2,074	2,425	2,474	4,336	3,288	5,470
7. Percentage of:								
(a) Earnings to value added	48	61	39	53	51	54	55	63
(b) O.T. to salaries and wages	16	22	6	6	6	9	6	8

9.2 MDL paid Rs 94.19 lakhs during 1984-85 as production incentive bonus though it actually sustained a loss of Rs.1232.76 lakhs in the year.

CHAPTER X

INTERNAL AUDIT

Upto September 1987, the work of internal audit was mainly limited to stock verification, and valuation of stores.

From October 1987, Internal Audit Department stopped conducting stock verification and valuation of stores and started reviewing existing accounting policies and procedures in selected areas such as sub-contracting, capital expenditure, direct purchases and billing. Reviews were also conducted in areas like profitability of diving business, capital works, like offshore yards at Alcock, Nhava and Mangalore and advising on appointment of sub-contractors vis-a-vis undertaking work Departmentally.

N. Sivasubramanian

(N.SIVASUBRAMANIAN)
Deputy Comptroller and Auditor General
-cum-Chairman, Audit Board

New Delhi
The 1 FEB 1993

Countersigned

(C.G. SOMIAH)
Comptroller and Auditor General of India

New Delhi FEB 1993
The

APPENDIX

(Referred to in Para 6.4(iii)

Statement showing the details of platforms

(Rupees in lakhs)

Sr. No.	Year of Delivery	Platform No.	Realised value	Cost incurred	Profit(+)/ Loss(-)
1	2	3	4	5	6
1.	1979-80	N1	664	641	(+) 23
2.	1979-80	NK	663	580	(+) 83
3.	1980-81	NJ	623	583	(+) 40
4.	1980-81	ND	661	574	(+) 87
5.	1980-81	SI	769	723	(+) 46
6.	1980-81	SF	766	766	
7.	1981-82	NU	699	695	(+) 4
8.	1981-82	SJ	675	672	(+) 3
Total			5520	5234	(+)286
9.	1982-83	SN	869	962	(-) 93
10.	1982-83	SG	802	871	(-) 69
11.	1982-83	SU	828	971	(-)143
12.	1983-84	SW	765	892	(-)127
13.	1983-84	SV	908	884	(+) 24
14.	1983-84	HAI	930	958	(-) 28
15.	1983-84	SCI	1029	1074	(-) 45
16.	1984-85	HC	800	985	(-)185
17.	1985-86	HB	1004	1121	(-)117
18.	1985-86	NO	908	880	(+) 28
19.	1986-87	NS	806	974	(-)168
20.	1986-87	NH	320	500	(-)180
21.	1986-87	NT	998	1152	(-)154
22.	1986-87	NW	864	889	(-) 25
23.	1986-87	N1	874	1073	(-)199
24.	1986-87	N2	826	1260	(-)434
25.	1986-87	SU	248	404	(-)156
26.	1987-88	NR	351	528	(-)177
27.	1987-88	WI 7	778	1411	(-)633
28.	1987-88	WI 6	900	1268	(-)368
29.	1987-88	WI II	827	971	(-)144
30.	1987-88	SY	1152	1483	(-)331
31.	1988-89	B57(Jacket)	598	622	(-) 24
32.	1988-89	B131(Jacket)	589	906	(-)317
33.	1989-90	N4	1705	2302	(-)597
34.	1989-90	N5	1626	1993	(-)367
35.	1989-90	N6	795	2076	(-)281
36.	1989-90	N7	1808	2463	(-)655
37.	1990-91	HQ	2047	2144	(-) 97
38.	1990-91	HR	2306	2150	(+)156
39.	1990-91	HS	2213	2565	(-)352
40.	1990-91	HT	2279	2160	(+)119
41.	1990-91	HF	2681	2398	(-)217
	Total		37434	43290	(-)6356

Platforms under Construction

Sr. No.	Platform No.	Realisable value	Cost incurred	Profit(+)/ Loss(-)
1	2	3	4	5
1.	WN1	2696	3137	(-) 441
2.	WN2	2758	2754	4
3.	N8	2899	3034	(-) 135
4.	NLM	3743	4512	(-) 769
5.	NLM4	3684	4694	(-)1010
6.	NLM7	3745	4304	(-) 559
7.	NLM10	3930	4727	(-) 797
8.	NLM11	3861	4781	(-) 920
		27316	31943	(-)4627

ERRATA

Page No.	Reference	For	Read
Table of Contents	Chapter 6	Development & Project	Development & Projects
(viii)	4th line of para iv	Rs.196.42 crores	Rs.237.65 crores
(viii)	15th line of para iv	Paras 5.2	Paras 5.1
9	2nd line from the bottom	Rs. 22.36 crores (see para 6.10)	Rs.23.36 crores (see para 5.10)
14	Para 5.10 2nd line	againt	against
15	8th line	Rs.36:37 lakhs	Rs.36.37 lakhs
18	Table (12th line)	Acretion	Accretion
41	Table-1990-91	189.12	(189.12)
46	Ist line	fire acidents	fire accidents
66	Table 3rd column	Value of Remarks Inventory	Value of Inventory
66	Table 4th column	- -	"Remarks" above 4th column.