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PROJECT COMPLETION REPORT

INDIA

NHAVA SHEVA PORT PROJECT
(LOAN 2387-IN)

JULY 14, 1993

MICROGRAPHICS

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Infrastructure Operations Division
Country Department II
South Asia Regional Office

CURRENCY EQUIVALENTS

Currency Unit	=	Rupees (Rs)
US$1.00	=	Rs 28.00
Rs 1,000,000	=	US$ 35,714

(as of January 1993)

ABBREVIATIONS

BPT	Bombay Port Trust
CFS	Container Freight Station
GOI	Government of India
JNP	Jawaharlal Nehru Port
MOST	Ministry of Surface Transport
PCR	Project Completion Report
PIY	Project Implementation Unit

FISCAL YEAR OF BORROWER

April 1 - March 31

THE WORLD BANK
Washington, D.C. 20433
U.S.A.

Office of Director-General
Operations Evaluation

July 22, 1993

MEMORANDUM TO THE EXECUTIVE DIRECTORS AND THE PRESIDENT

SUBJECT: Project Completion Report on India
Nhava Shiva Port Project
(Loan 2387-IND)

Attached is the "Project Completion Report on India - Nhava Shiva Port Project (Loan 2387-IND)" prepared by the Technical Infrastructure Division in collaboration with the Infrastructure Operations Division, Country Department 2, of the Asia Regional Office, with the Borrower providing Part II.

The project was implemented with considerable delay; the port authority's operational efficiency has been unsatisfactory: productivity of cargo handling is low and the maintenance of equipment is below standard. Improvement in operation and maintenance works are urgently needed to ensure that the physical results are sustained. Extensive administrative changes, including possible privatization of some activities, are necessary to accomplish any major improvements in operations and maintenance. The estimated economic rate of return is 11.5% compared with an estimate of 20% at appraisal. The financial rate of return for 1992 is 1.7% compared with an estimate of 13.5% at appraisal.

Overall the project's outcome is rated satisfactory--but barely so--its sustainability uncertain and its institution building impact negligible.

The PCR's quality is satisfactory. No audit is being planned.

Robert Picciotto

by H. Eberhard Köpp

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PREFACE

1. This is the Project Completion Report (PCR) for the Nhava Sheva Port Project, (India) for Loan 2387-IN in the amount of US$250 million, approved on March 13, 1984. The loan closed June 30, 1992, three years behind schedule. It was not fully disbursed due to several disputes about contract claims which were still unsettled as of October 31, 1992, four months after the closing date.

2. This PCR was prepared jointly by the Infrastructure Division of the Asia Technical Department (Preface, Evaluation Summary, Parts I and III), and the Borrower (Part II), in consultation with the Infrastructure Operations Division of Country Department II, South Asia Region.

3. Preparation of this PCR was started just after the project closing date of June 30, 1992. It is based, inter alia, on the Staff Appraisal Report, Loan Agreement, Guarantee Agreement, Project Agreement; supervision reports; correspondence between the Bank and the Borrower; and internal Bank memoranda.

PROJECT COMPLETION REPORT

INDIA

NHAVA SHEVA PORT PROJECT
(LOAN 2387-IN)

EVALUATION SUMMARY

1. Objectives. The Nhava Sheva Port Project (Loan 2387-IN) was intended to accommodate the projected growth of maritime traffic in the Bombay area from through 1992/93 by: (a) providing specialized facilities to handle both containerized and bulk cargo; and (b) providing modern high capacity cargo handling systems at the new port, so benefits from handling larger vessels could be realized.

2. Implementation Experience. The main items of civil works in the Project were: (a) construction at Nhava Sheva of a total of 1,180 m of offshore marginal wharves; (b) one service berth of 212 m length; (c) land reclamation; (d) dredging of an access channel; and (e) a container freight station (CFS) and township. The offshore marginal wharves were comprised of a 680 m wharf with four access bridges for container handling, and a 500 m wharf with one access bridge for handling bulk materials. The project also included procurement of advanced (automated) cargo handling equipment systems for both containerized and bulk cargo.

3. Progress on the civil works items was slow: all the civil works were behind schedule 1 to 2.5 years. This was mainly due to the slow preparation of documents and the lengthy evaluation process of bids (para 5.03, Part I). However, the quality of the completed civil works was satisfactory.

4. Progress on the procurement of equipment was also slow. In addition, performance of equipment was below expectation. This was due to the inappropriate provisions in the technical designs and specifications for highly sophisticated automated systems, the insufficient quality of the equipment supplied by the contractors and inappropriate maintenance/management by JNPT (paras 5.04, 6.02 and 6.03, Part I).

5. Jawaharlal Nehru Port Trust (JNPT)[1] (originally named Nhava Sheva Port Trust) has since decided the highly automated systems should be converted to partially manual ones, in order to have more flexibility and reliability of operation (para 6.04, Part I). Several contract disputes were experienced. These were caused by such things as: (a) time extensions; (b) customs clearance delays; (c) claims not paid by the employer; and (d) claims for liquidated damages due to unsatisfactory equipment performance (para 5.05, Part I).

6. JNPT hired consultants to undertake technical audits of contracts for equipment capability, reliability and maintenance requirements in accordance with tender designs. They were also to propose measures for improving operational efficiency for the bulk and container handling equipment. Further,

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[1] Henceforth, to avoid confusion, only the more recent title of the Port Trust, JNPT, and the Port, JNP, will be used in this report.

they identified possible inadequacies in technical designs and specifications as well as in the quality of parts and equipment supplied, and proposed means for improvements (para 5.06, Part I).

7. Results. With the exception of operational performance of the sophisticated automated cargo handling systems, the major objective of the project was achieved, viz. to provide modern, specialized additional port capacity in the Bombay area. Benefits from the project, in the form of savings, have been achieved: in (a) ship waiting time; (b) berthing time; (c) cargo handling cost; and (d) reduced loss of cargo. However, the actual productivity of the installations has been well below expectations and needs to be improved. The ERR on the project, as completed, is estimated at 11.5% (para 7.02, Part I) compared to 20% estimated at appraisal. This was due mainly to bulk traffic not materializing as expected and operational efficiency well below target.

8. The financial performance of JNPT is unsatisfactory due to financial repercussion from large cost overruns, inflation in terms of foreign exchange rates and lower productivity in operations. In order to secure JNPT's financial soundness, GOI action to restructure the capital base of JNPT plus efforts by JNPT to improve operational efficiency, would be required (paras 6.16 - 6.22).

9. Sustainability Short-term prospects are a major concern, because of lower than expected bulk traffic growth, slow containerization of general cargo, existence of competing container handling capacity in other Indian ports, and the heavy financial burden imposed on JNPT by cost overruns and inadequate financial structure. In the long-term, prospects for traffic growth are more encouraging. The capacity can be augmented with some limited investments and the project can be considered a sustainable investment, provided measures are taken to correct current low productivity and maintenance problems. Regarding port operational efficiency, JNPT should give more attention to staff training and contracting out some port activities to the private sector, thereby improving productivity and maintenance, while generating additional investment funds (para 7.03, Part I).

10. Findings and Lessons Learned. The following lessons can be learned from this project and may be of benefit in the future:

(a) the project technology should be appropriate to country conditions and overly sophisticated components may need to be avoided (paras 5.04 and 6.04, Part I);

(b) the project executing entity should be staffed with experienced and capable persons to handle potential problems during the preparation and implementation periods and afterwards to ensure efficient operations (para 9.01, Part I); and

(c) all the major project related components, in particular highway links, should be included in the project even though they may be financed by sources other than the Bank (para 3.02, Part I).

PROJECT COMPLETION REPORT

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NHAVA SHEVA PORT PROJECT
(LOAN 2387-IN)

PART I. PROJECT REVIEW FROM THE BANK'S PERSPECTIVE

1. Project Identity

Name:	Nhava Sheva Port Project
Loan Number:	2387-IN
RVP Unit:	South Asia Region
Country:	India
Sector:	Transport

2. Background

2.1 The original wharves at Bombay Port were built between 1894 and 1914, and designed for handling break-bulk cargo, then the principal form of cargo. The port was able to cope successfully with traffic growth for four decades. During the 1950s, however, Bombay's capacity became strained with the growth of bulk cargo; mainly crude oil, grain and fertilizer. To ease the problem, a new marine oil terminal was built in 1956 and in 1962 seven berths, partially financed by IDA, were added. The Government of India (GOI) believed these facilities represented the maximum increase possible at that site, and any future need for increased capacity would require new facilities at a different site. This view was held due to Bombay's draft and beam restrictions, inadequate staging areas and road and rail access to the docks. Accordingly, in 1964, the Bombay Port Trust (BPT) commissioned a master plan to develop alternative port facilities in the Bombay area. The consultant (Bertlin & Partners, UK) recommended Nhava Sheva as the best site for the development of a satellite port.

2.2 The fast growth of bulk and container cargo traffic in the 1970s resulted in heavy congestion. Ship waiting time averaged 40 days, due not only to shortage of infrastructure, but also to poor port operations and management practices such as: (a) low labor productivity; (b) mandatory stuffing and stripping of containers within the port area; (c) unsystematic handling procedures and slow clearance of goods; plus (d) high down-time for cargo handling equipment. GOI modernized and improved operational practices to increase productivity and agreed in principle to the development of a new port. In May 1982, GOI formed the Nhava Sheva Port Trust, later renamed the Jawaharlal Nehru Port Trust (JNPT). (JNPT and JNP will be used in the rest of this report to refer to the agency and the port respectively.) JNPT was created as an independent agency with its powers and responsibilities defined by the Major Ports Trust Act of 1963, and operating under the jurisdiction of the Ministry of Surface Transport (MOST).

3. Project Objectives and Description

3.1 Project Objectives. The project's objective was to accommodate the expected growth of maritime traffic in the Bombay area up to 1992/93 by: (a) providing specialized facilities to handle both

containerized and bulk cargo; and (b) changing from labor-intensive methods of cargo handling to modern high capacity systems, so benefits from handling larger vessels could be realized. The achievement of these objectives required the comprehensive training of otherwise inexperienced staff at all levels and extensive technical assistance in organization and management.

3.2 Project Description. The Nhava Sheva Port Project (Loan 2387-IN) provided for:

(a) a total of 1,180 m of offshore marginal wharving comprised of a 680 m wharf for handling containers (sufficient to berth one large and two medium-sized vessels simultaneously) with four access bridges, and a 500 m wharf for handling bulk materials (sufficient to berth two bulk carriers) with one access bridge, plus one service berth of 212 m, with its shoreward face designed for berthing port craft;

(b) land reclamation, paved areas for container and railway yards, storage buildings for bulk and bagged cargo, offices, other buildings, road and railway sidings;

(c) dredging of access channels;

(d) container handling: 3 wharf and 9 yard gantry cranes, 38 tractors, 136 trailers and 1 heavy-duty forklift;

(e) an integrated and complete conveyor belt system for bulk and bagged cargo, plus 2 continuous and 2 grab unloaders (650 m3/hour capacity each);

(f) an electrical distribution system, utilities, services and environmental protection;

(g) marine services: 3 tugs, 1 survey, 2 mooring and 3 pilot launches, plus navigational aids;

(h) a container freight station (CFS) and staff residential township; and

(i) technical assistance for staff training, port organization and management, in addition to engineering services for the supervision of contracts.

It should be mentioned that the railway and highway links to the port were scheduled to be completed by the start of port operations, but their implementation was outside the scope of this project and the delays in the completion of the highway link has affected port traffic negatively.

4. Project Organization

4.1 JNPT was newly established in 1982 to prepare, implement and supervise the project, and operate the new port. It is important to note that the project had to be implemented by a totally new organization with newly recruited management and staff who were not necessarily experienced with such a project. In this sense, this is a rare port project among those financed by the Bank. To oversee the early stages of project implementation, JNPT established a Project Implementation Unit (PIU) staffed with top level managers. To minimize administrative delays in executing the project, GOI appointed a special committee including ministerial secretaries representing finance, shipping, railways, commerce and planning.

4.2 The consultants responsible for the project's feasibility study and final engineering were retained to prepare bid documents, assist in bid evaluation, supervise contractors and generally assist JNPT.

4.3 To control JNPT's payroll costs and avoid much of the labor unrest and consequent operating inefficiencies which have plagued India's other major ports, MOST decided that JNPT should operate only those facilities and equipment within the port's immediate confines, and contractors and concessionaires should be retained to operate many of the port's ancillary facilities.

5. Project Implementation

5.1 Loan Effectiveness and Project Start-up. Loan 2387-IN was approved on March 13, 1984, signed on May 25, 1984, and became effective on August 23, 1984.

5.2 Implementation Schedule. The project was originally scheduled to be completed by June 30, 1989, but it was not until December 1991 that most of the project components were actually substantially complete. The port, however, was officially opened in May 1989 and became partially operational even before the physical completion of all of its facilities. It should be noted that the delays experienced in this project's completion were minimal, compared to other Bank projects in India. The main reasons for the delays were:

(a) slow procurement process, in particular, the lengthy evaluation of bids (discussed in paras 5.03 and 5.04 below);

(b) inadequate performance of cargo handling equipment due to the incorporation in their design of overly sophisticated and advanced automation now being modified to provide a greater degree of manual handling (described in paras 6.02 to 6.04 below); and

(c) many contract disagreements delayed disbursements, with some contracts still under arbitration/review.

5.3 Procurement. The procurement process as a whole was slow, particularly the evaluation process. The evaluation period (from bid opening to award) for the 8 Bank financed contracts, where the contract amount exceeded US$5 million, varied between 6 and 13 months averaging 8.1 months as shown in Part III, para 9. The longest evaluation period (13 months), for Contract 1 for the main civil works, was due to procurement under the two envelope system: the first envelope was for technical and the second for financial aspects. However, the Bank insisted that for future contracts GOI change to the one envelope system and GOI followed the Bank's recommendation beginning with the second contract. The evaluation period was then shortened to an average of 7.4 months.

5.4 The performance of cargo handling equipment (for containers and bulk cargo) has been unsatisfactory. This possibly is due to the inappropriate provision in the bid documents (technical specifications) for highly advanced and sophisticated automation, the deficiency in the quality of equipment supplied by the contractors and the lack of proper maintenance/management by JNPT. Some aspects of the equipment system are a world-first application (i.e. the bagged fertilizer wagon side-loading system) requiring careful preparation of technical specifications to ensure optimum performance of the automated handling system. JNPT decided to start operating the system even before final completion of the installation. This made it difficult to identify the party responsible for the mechanical problems which arose.

5.5 Contract Disputes. Many contract disputes have been experienced due to several reasons in addition to the low operational performance mentioned above: (a) extensions of time granted by the engineer were disputed by the employer; (b) Customs clearance was not obtained promptly by the employer; (c) claims signed by the engineer were not paid by the employer because of inadequate performance of the equipment; and (d) there were liquidated damage claims caused by unsatisfactory equipment performance plus interest claims for delayed payments. Within the bulk system, although each of the components of the system passed acceptance tests in accordance with the provision of the contract, the function level of the total system did not pass these tests. As of this date these disputes have not been settled.

5.6 To assess the capability, reliability and maintenance requirements of the equipment in accordance with tender specifications, and to propose corrective action to improve operational efficiency, JNPT requested Bank agreement for acquiring consulting services. Independent consulting companies performed technical audits of two contracts for procurement of bulk handling and container handling equipment. Their audit reports have been submitted and final decisions by JNPT on dispute resolutions are still pending.

5.7 Coordination of the Project Components. Coordination during the implementation of each component of the project, except for the construction of the highway to the port, was generally satisfactory. The unit train marshalling yard (railway transportation for containers) and CFS were completed in time for operation of the container terminal, and other components such as dredging, power distribution system, building and township construction have been completed satisfactorily. The National Highway (NH-4), which would improve the port's links to the hinterland, is expected to be completed by 1994.

5.8 Project Costs. The estimated cost of the Nhava Sheva Port Project at appraisal was Rs 7,040.5 million (equivalent to about US$722 million). The provisional final cost excluding the potential increment in the disputed contracts, is about Rs 8,886 million (equivalent to about to US$641 million), as shown in Chart 5(A) Part III. The increase in the total Rupee cost of about 26% is due to internal inflation and the decrease in US dollar cost is due to the change in the exchange rate. The project scope itself did not change.

5.9 Disbursements. The estimated disbursements from the Loan are given in para 3, Part III. Disbursements were delayed due to protracted initial implementation of the project. The original closing date was June 30, 1989, but due to three extensions the actual closing date was June 30, 1992. The loan account has not been closed due to the pending refund of the outstanding special account balance (about US$1.73 million). The cumulative disbursements against commitments up to December 31, 1992, are US$230.738 million and the outstanding balance is US$19.262 million.

5.10 Loan Allocation. The original and revised allocations from Loan 2387-IN and its actual disbursements are shown Chart 5C, Part III. Two reallocations were made on February 4, 1991 and December 10, 1991 to increase the amount in Categories 1(a) and 2.

6. Major Results of the Project

6.1 Project Objectives. Overall, the project achieved its main objective of providing modern, specialized additional port capacity in the Bombay area, to handle maritime container traffic as well as bulk foodgrain and fertilizer traffic up to the year 1992/93 with reduced port labor. The traffic and

vessel sizes at JNP and Bombay are shown in Chart 6, D and E, Part III. This shows that traffic growth was slower than expected and that although the move to larger bulk vessels did in fact occur, the same did not happen for container vessels as JNP so far is served by feeder vessels rather than mainline vessels and this is not expected to change unless the performance of the port improves significantly. As a corollary JNP also achieved the equally important objective of reducing congestion in Bombay port. The project also has been successful in introducing the new port high-capacity cargo handling systems for foodgrains and fertilizers, a much needed advance over the labor-intensive methods employed for such cargo in nearly all other Indian ports. Hopefully this will be the harbinger of similar projects in other Indian ports which suffer from high (that is, higher than need be) direct labor costs and, more importantly, high indirect costs of ship waiting time associated with much slower manual handling of cargo that could be handled more speedily in bulk.

6.2 Physical Results. The physical targets of the project, in terms of provision of facilities, essentially were achieved as planned. However, some facilities and equipment items procured under Bank financing have given operational problems. The Bank reviewed the required size of facilities at appraisal. The size of the container yard and CFS, and amount of equipment were reduced based on the normal operational standard in many developing nations. It was expected that additional equipment would be provided only when justified by actual traffic growth.

6.3 The technical audits (referred to in para 5.6) disclosed issues and also recommended corrective measures. It is, however, difficult to identify, at this time, the responsible parties for the shortcomings and problems found in the system. Improvements in operation and maintenance works are urgently needed to ensure that the physical results are sustained.

6.4 Meanwhile numerous corrective actions for the automated systems are being considered, and JNPT has decided to convert the systems to partially manual operated ones. Both systems, however, were designed to achieve a very high degree of automation requiring rigid adherence to prescribed operational methods. The container handling equipment, however, after partial conversion to manual operation is performing well. On the other hand, the bulk handling system, in particular, cannot be easily converted to partial manual operation even though many of its automated functions such as bagging and stacking are unsatisfactory. Better coordination is further required to ensure the timely availability of containers and chassis; otherwise poor productivity rates will persist. There is also need to reduce the loss in working time due to breaks and other factors.

6.5 In December 1991, a Bank supervision mission recommended that GOI consider the use of private sector involvement to overcome JNPT's low productivity and equipment maintenance inadequacies. Several shipping lines and private industrial groups had expressed a keen interest in being involved in the operation and management of selected port activities, alone or in joint venture. This recommendation is in line with MOST's announcement in the spring of 1991 that private sector involvement in ports was desirable and would be given consideration.

6.6 Subsequent to the formal commissioning of the project, and in light of projected traffic development, the Bank agreed with JNPT to the procurement of one container additional crane. This was to augment the three originally provided (in addition to one crane to be financed by port users). Although the new crane was to be covered by loan funds, there was lack of action by GOI on JNPT's request and the equipment was never procured.

6.7 Financial Performance - Present. Estimates of JNPT's finances contained in the Appraisal Report assumed start of port operations FY88 and total cargo throughput of 5.1 million tons by FY92. In reality, the port did not begin even partial operation until May 1989 due to project completion delays, and had reached a total throughput of only 2.65 million tons by FY92 due to delays in project completion and initial low productivity. Furthermore, because of cost overruns and the effects of inflation, the project's cost exceeded estimates by some Rs 2 billion. These factors also incr ed JNPT's indebtedness, annual loan servicing and depreciation charges.

6.8 The effects of these various constraints are apparent in the table of financial highlights on pages 1 and 2 of Annex 1, summarized below:

(Rs million)

Year ended March 31	FY92 Appraisal Estimates	FY92 Actual
Cargo throughput(mil. tons)	5.1	2.65
Operating Revenue	1287	731
Operating Expenses	422	508
General Administration	1472	
Operating Surplus	851	151
Operating Ratio %	33.9%	79.3%
Hist. Valued Fixed Assets	7075	9150
% ROR on Fixed Assets	13.5%	1.7%
Annual Depreciation	173	282
Long-term Debt	7388	9789

6.9 The operating ratio of 79.3% compares very unfavorably with the appraisal estimate largely because of the much lower cargo throughput and lower cargo handling productivity rates achieved. JNPT's security, marine and general service indirect overhead costs, together with operational and administrative staff training charges resulted in a higher level of general administration costs than the Appraisal Report's rather optimistic figure of Rs 14 million. Furthermore, since this type of expenditure is prone to grow, JNPT needs to vigilantly avoid the development of an expensive bureaucracy. A major concern for JNPT is its long-term debt. The Appraisal Report considered GOI's intention that JNPT's financing plan depend solely on debt, rather than a mix of debt and equity, determining the high costs of the project have now made such a formula untenable.

6.10 Financial Performance - Future. Apart from JNPT's own modest retained earnings, the port has no equity capital. Its development has been financed entirely from loans, i.e., Rs 5.3 billion from GOI and Rs 4.4 billion from two other major ports. To assist JNPT meet loan service obligations in the early years, GOI granted a ten-year moratorium on its part of the loan capital.

6.11 JNPT's draft capital expenditure program, if approved by GOI and implemented between FY93 and FY99 would cost Rs 6.5 billion at 1992 prices or Rs 9.2 billion allowing for inflation at 8% p.a. JNPT has requested that GOI convert 50% of existing loans into equity capital to improve JNPT's future cash flow.

6.12 However, projections indicate that savings accruing to JNPT from such a restructuring of debt/ equity would fall well short of the program's cost. JNPT would need to seek loans to offset much of the shortfall. Only if the program costs are cut back to Rs 3.7 billion could further borrowing be avoided.

6.13 If, however, GOI gradually increases its equity holding by meeting the cost of planned capital expenditure, classifying such funds as an equity injection until a 50:50 debt:equity ratio has been reached, JNPT can complete the entire capital expenditure program without further loans. The following estimates of JNPT's future financial performance assumes this solution will be adopted by GOI and JNPT.

6.14 JNPT's draft capital expenditure program assumes another container gantry crane will be installed by 1993/94; during 1994/97 some short-life equipment will be replaced; and during 1997/99 work is expected to proceed on additional container wharves for which no detailed plans are yet available. Forecast balance sheets show that if this capital program is pursued and its cost is fully met by GOI until JNPT's debt:equity ratio reaches 50:50, this ratio level will likely occur during FY98.

6.15 Pages 3 and 4 of Annex 1, show traffic, revenue and expenditure forecasts for the period FY93 to FY99. These figures are based largely on JNPT's presentation to MOST on March 12, 1992, in a submission seeking the Ministry's reaction to financial restructuring proposals. Although JNPT's traffic forecasts are somewhat optimistic in light of the port's recent performance, they are attainable if cargo handling productivity improves. Therefore, JNPT's figures have only been amended to take into account investment income and increases in estate rental income which JNPT's presentation did not include. Highlights of the revised forecasts are summarized below:

(Rs million)

	ACTL FY92	BUDJ FY93	EST FY94	EST FY96	EST FY98
Container Cargo (mil.tons)	1.21	1.44	2.40	3.60	4.38
Bulk Cargo (mil.tons)	1.44	2.20	2.50	2.82	3.03
Operating Revenue	731	983	1339	1797	2134
Operating Expenditure#	580	575	658	804	907
Net Surplus	151	408	681	993	1227
Operating Ratio (%)	79	58	49	45	43
Investment Interest	118	130	150	150	150
Long-term Debt Interest	74	280	564	1031	983
Net Revenue	195	258	267	112	394
Net Cash Generated*	477	486	501	395	760
Long-term Loan Repayments	-	160	262	503	621

Including depreciation * Net Revenue plus Depreciation

6.16 Apart from capital expenditure, the forecasts do not take into account the effects of inflation. It has been assumed GOI will allow JNPT to amend tariffs promptly to keep abreast of inflation, in accordance with the project's Credit Agreement. Prompt action has not occurred in the past but, as GOI's recently expressed intentions are to make quasi-government entities more profit-oriented, this facet of sound financial management should be given higher priority in the future.

6.17 The projections show a favorable and attainable operating ratio and an ability to meet loan interest commitments until the year 2000, at which time loans bearing a ten-year grace period need servicing. Until then, it should be possible for JNPT to meet loan repayment obligations from internal cash generation. Forecast balance sheets are given on page 4, Annex 1.

6.18 In the year 2000, when total annual debt service costs increase from Rs 1689 million to Rs 2219 million, JNPT's additional container berths should be fully operational and contributing to the port's profitability.

6.19 GOI has not yet decided to support JNPT with capital grants; a policy not previously applied to the port subsector. Very cogent reasons support such a policy. JNPT is a specialized port using sophisticated and expensive equipment. It should become India's showcase for container and bulk cargo handling. For a fledgling agency such as this to rely solely on loan capital with its associated heavy fixed interest and tight repayment schedule is not conducive to successful growth.

6.20 In the past, GOI has frequently granted to public corporations loan interest, repayment moratoriums and further loans to meet mounting debt service obligations. Rather than solving problems, this policy invariably leads to further unmanageable indebtedness.

6.21 Corporations should be provided a sound financial base with a debt:equity ratio that can be serviced, given reasonable economic growth and sound management. Financial goals can be determined and monitored and management would not be tempted to relax on the assumption that unlimited loan funds and loan servicing moratoriums are easily accessible in case of need.

6.22 GOI can reduce the burden of financing future port development by privatization, a solution already strongly recommended by the Bank. Even if basic civil works infrastructure were to remain the responsibility of JNPT, a port operating contract should require that, at least, future cargo handling equipment needs be financed by the private operator. The prospects of achieving better cargo handling productivity by privatizing operations have already been discussed earlier in this report.

7. Project Sustainability

7.1 The project has had the following significant benefits:

(a) Ship waiting time for berth, in Bombay port for container ships, has declined dramatically since the facilities at Jawaharlal Nehru Port (JNP) went into operation: from more than 10 days on average in 1982/83 to less than one-fourth day in 1991/92. Waiting time for a berth in JNP was nil in the latter year. The number of container ships which visited the two ports in 1991/92 was 555 for Bombay and 237 for JNP. The resulting savings are estimated at almost 8,000 ship-days valued at US$58.1 million. Similar savings have been realized for bulk ships also (89 in Bombay and 55 in Nhava Sheva) totalling 1,440 ship-days valued at over US$8.9 million.

(b) Time-at-berth for ships using JNP are considerably less than for ships using Bombay port, since facilities at the former are more modern and designed to handle cargo at much faster rates, especially for bulk. Average time-at-berth for container ships in JNP is 1.75 days/ship, compared with 4.48 days/ship in Bombay. Also, ships visiting JNP are much larger with each ship's cargo capacity equal to three ships visiting Bombay. This savings is estimated at 1,940 ship-days/year, valued at US$11.1 million. In the case of dry bulk cargo ships, the savings are estimated at 1,520 ship-days valued at over US$5.6 million.

(c) Benefit has also been realized from the use of larger vessels in the trade served by JNP compared with those served by Bombay port. This has generally been in the form of a freight advantage of US$4 per ton of bulk cargo handled at JNP. In 1991/92, the new port handled 1.4 million tons of dry bulk cargo, with a saving of US$5.6 million in freight paid by the Indian trade.

(d) There have also been savings in the form of reduced cargo loss for cargo handled at JNP valued at 0.4% of the value of the cargo handled at JNP, amounting to about US$3 million in 1991/92.

7.2 The above savings totalled approximately US$92.3 million in 1991/92 and will grow with continued growth in the volume of traffic handled at JNPT. By the year 2000, the savings should be some 50% larger, even though this may require some small investments in additional equipment, especially for handling containers. The ERR on the project as completed can be estimated at 11.5%, which is marginally acceptable, and compares with 20% at appraisal. (Table 2)

7.3 The project can be considered a sustainable investment provided JNPT's operational efficiency and financial condition improves shortly. The prospects for traffic growth at JNP are very probable, and the capacity and efficiency of the present facilities can be augmented with some marginal investments and appropriate staff training. It is important, however, for JNPT to provide proper maintenance and measures to improve operational efficiency. JNPT is undertaking maintenance based on the manual provided by the contractors; however, due to the possible low quality level of the equipment and the lack of JNPT's experience, significant deterioration has already occurred. JNPT's improvement is urgently required.

8. Bank Performance

8.1 The Bank's own supervision efforts were not systematic enough throughout the implementation period in terms of mission composition. Although adequate in the early stage of implementation engineering input was insufficient after 1989. However, the number of missions, two per year on average, appear to have been appropriate.

9. Borrower Performance

9.1 Chart 7, Part III, contains a review of the performance of the borrower in terms of the legal covenants. JNPT's performance in terms of operational efficiency, however, has been unsatisfactory. Productivity of cargo handling is still low and the maintenance of equipment is below standard. However, JNPT's performance could have been much better if it had been staffed with personnel experienced in a similar type of project or in handling potential problematic issues from the early stage of a project; and/or had JNPT employed a more experienced foreign consultant to assist in preparation and implementation of the project. Extensive administrative changes, including possible privatization of some activities, is necessary to accomplish any major improvements in operations and maintenance.

9.2 JNPT has paid a great deal of attention to environmental aspects, in particular maintenance and creation of green areas, even though this was not a part of the scope of the project.

10. Project Relationship

10.1 The Bank's relationship with both GOI and JNPT during the project has been satisfactory.

11. Consultant Services

11.1 The main consultancy services for the project, provided:

(a) engineering: preparation of bid documents and supervision;
(b) training: a comprehensive staff training program (financed by the Netherlands Government); and

(c) studies:

(i) an Organization, Management and Finance (OMF) study (financed by the Netherlands Government);
(ii) an Intermodal Transport Study; and
(iii) a Container Operations Manual.

11.2 Even before the appraisal of the project, the consulting firm that had been in charge of the project preparation, had been selected by GOI for project implementation. Although the firm apparently had sufficient experience in this type of assignment, the performance of its staff assigned to this project was inadequate, in that they did not seek sufficient input from experts experienced in specialized areas.

11.3 Generally all the training and studies were completed satisfactorily. Although the scope of the staff training was expanded by utilizing the Netherlands Government grant funds, further training in certain specialized areas, such as equipment operation and maintenance, is required. It should also be mentioned that many trained operators of equipment left JNPT for other jobs thus causing a shortage of trained operators. This is one reason for low operational efficiency. The financial part of the OMF study is being utilized and other parts are under testing. The Container Operations Manual is also being utilized for terminal operations. Certain modifications to cover all operational aspects are underway. An origin/destination study as well as traffic forecasts were included in the Intermodal Transport Study and these should be evaluated in the future.

12. Project Documentation and Data

12.1 The Loan Agreement, in the case of Loan 2387-IN, was adequate and appropriate for achieving project objectives in the key organizational and financial areas. The appraisal report of the project provided a useful framework for both the Bank and GOI to follow project implementation. JNPT provided a draft Project Completion Report for this project, with subsequent clarifications.

PART II. PROJECT REVIEW FROM BORROWER'S PERSPECTIVE

1. The concept of Nhava Sheva Port conceived in 1961, was sanctioned only in 1982 and proposed to the World Bank for funding. Thanks to the participation of the World Bank, which was the real turning point, the Project was pursued and progressed thereafter to a tight time schedule. Even by World Bank standards, this project is considered to be a model project, which has been constructed and commissioned within an active construction time of 3-1/2 years.

2. Objectives of the Project and Achievement

Objectives

(a) Decongest Bombay Port;

(b) provide modern facilities for handling container and dry bulk cargo; and

(c) provide modern port management systems in port operation.

Achievements

(a) Severe congestion in Bombay Port has already been relieved and the waiting time of ships at Bombay has been eliminated or reduced considerably;

(b) with the commissioning of the modern container handling system and bulk handling system, major transfer of cargo from Bombay Port to JNP, even within three years of operation, has taken place. JNP has become the No. 2 port in container handling amongst the 11 major ports in India, next only to Bombay (Table 1). JNP is the leading port in the major ports of India handling finished fertilizers. JNP is also the second leading port in India in handling raw materials for fertilizers. It is expected that this will improve further in the coming years, provided there is no major change in the policy for fertilizers and finished fertilizers through this port;

(c) unlike the practice in other major ports in India, where (i) dock labor; (ii) shore labor; (iii) private labor; (iv) transport contractors, and (v) equipment contractors, are involved in port operations, the entire operation in JNP is managed by a single agency, viz., JNPT. JNP is managed by a professional team of a few officers and staff for rendering integrated service;

(d) unlike in other ports, where piece-rates, incentives and speed money are involved, JNP has no such practice. JNP works round-the-clock on a composite tariff basis without the users requiring to pay any additional costs as overtime for working either on Sundays/Holidays, etc.;

(e) the Customs Collectorate in JNP and its management are distinctly different from that in some other ports in its team work and response to the users; and

(f) environmental care and continuous monitoring have been introduced in the port project at JNP.

3. Aspects Reviewed by the World Bank in the Detailed Project Report and Their Implications

(a) At appraisal, the World Bank pruned down the traffic forecast assessed by the consultants in the Detailed Project Report (DPR). However, the present traffic scenario indicates that the forecast contained in the DPR, were more realistic than the pruned traffic forecast assessed by the World Bank;

(b) World Bank cut down the facilities for export of bulk cargo. There were demands for export facilities after the scope was modified. Hence, it was desirable to have some facilities for export. Alternatively reversible conveyor belt system for use of import and export should have been selected;

(c) in respect of container berth, the World Bank assumed that only three cranes were needed for handling the traffic to the tune of 3 million tons, in spite the port and the ministry pointed out at that point of time that the throughput assumed for the cranes is on the high side. The present experience bears out our apprehension. Providing three cranes for three berths is a mismatch since internationally ships require a minimum of two cranes for a ship. Of course, this was conceded by the World Bank in August 1989 itself, within a few months after commissioning of the port, on the basis of which a case for augmentation of the equipment was made by the port; and

(d) when the World Bank reviewed the area requirement of CFS, they had pruned the covered area from 70,000 m2 recommended by the consultants to only 25,000 m2. This pruning down resulted in the covered area created for CFS becoming inadequate within less than one year from the date of commissioning of the port, resulting in a separate complex being set up elsewhere as CFS for export.

4. Other Observations

4.1 Though the World Bank Appraisal assumed that about five years will be a normal period for any port to reach its planned throughput, they had not correctly assessed the phasing of the increase in the initial two years to reach the designed throughput.

5. Usefulness of the Bank Missions

5.1 The Bank was always found to be very quick and responsive to the needs of the JNPT. Discussions were always very open and frank. However, in certain cases, it was noticed that the Bank was critical of the role of JNPT regarding non-settlement of claims and non-payment of certain disputed bills. We had subsequently clarified to the Bank that actions followed by the port are in terms of the contract and as dictated by legal and audit requirements.

5.2 We found the World Bank missions had been visiting the port at least twice a year and had come out with critical reviews pointing out the action points and bottlenecks requiring immediate action at various levels, like the port, MOST and other agencies. They were also supportive of JNPT in taking up certain matters with contractors, when we expressed our dissatisfaction on the co-operation extended by certain contractors at some critical stages of the project.

5.3 The World Bank was also kind enough to send a special port consultant to this project, with a view to identifying operational problems which were hampering the performance of the port.

5.4 The World Bank were also appreciative of the fact that ours is a green site port and also one of the ports executed with least time overrun.

5.5 On resettlement matters the mission showed keen interest and one mission even went and saw for themselves the two villages, which had been bodily shifted and resettled from Sheva to a place just outside the boundary of the port.

5.6 The World Bank has been suggesting a lot of improvements in the Custom formalities. While certain formalities are linked with the policy of the Government, certain other problems have been sorted out with the help and co-operation of the Customs collector. A very important feature, which we note in the Bank missions is that they also have interaction with the users of the port like railways, customs, CWC, shipping agents, stevedores, clearing agents, etc., so that they are able to suggest useful remedial actions to the port. The Bank authorities were very much appreciative and accommodative of the need for certain reallocation of the loan proceeding required during the execution of the project.

6. Lessons Learnt from the Execution of the Project

6.1 The main infrastructural facilities which could not be developed, matching with the construction of the port which are lacking even today are as under:

- the construction of the road, national highway - NH-4B link; and
- development of Dronagiri Node.

6.2 The port, however, tried its best to make contingent arrangements to overcome the delays in above areas. The lesson learnt from above is that preferably the port itself should have been made responsible for completion of very important infrastructure facilities which may have a direct bearing on its success. All infrastructure facilities like, port users building, transportation facilities have not been thought of at project stage. Delay in their implementation caused dissatisfaction with the port users. Such operational requirements should have been part and parcel of the project.

6.3 In a project of this magnitude, where it is to be concluded through a number of contracts, with interdependency between contracts, litigation could be a big hurdle throwing the complete project out of gear. Litigation in one contract could have crippling effect on the progress of a number of other contracts. In this project, in Contract C-1, there was litigation, when one of the bidders was disqualified at the stage of opening of technical bid. This led to a delay of six months. In spite of the best efforts by the port, by bringing to the notice of the judiciary that even a day's delay of such a mammoth project could mean a loss of lakhs of rupees per day, six month's time was lost. Ultimately, the judgement was in favor of JNPT. However, the resultant delay in completion and commissioning and rise in escalation costs were inevitable. There was also litigation with regard to the acquisition of land, some of which has not been sorted out till today, but fortunately clearance was obtained at least for the possession of the land subject to the compensation to be sorted out subsequently, so that the construction work could be started as planned.

6.4 All the bids prepared by the consultants were sent to the World Bank for review of the conditions, specifications, commercial and technical details, etc. Present technical audit on container and bulk terminal points out certain major planning and design deficiencies in the tender itself and as such the review of the tenders at the port, the Government and the World Bank levels do not appear to be fool-proof. Unfortunately at that point of time the port also did not have senior staff with the requisite background and experience in the facilities planned to scrutinise and monitor the proposals. As such the World Bank may like to think of suitable controls in future projects to avoid such planning and design lapses in major investments.

6.5 It is for consideration whether the design and planning of such large projects should also be required to be reviewed by another senior consultant before and during implementation.

6.6 For handling a project of this magnitude and with the latest state of-the-art technology, the port could not get consultants with requisite experience for execution of the same. Though the consultants had back-up arrangements, with other international consultants, on certain specialized areas, the overall performance of the consultants had not been up to the mark, as could be borne out by the outcome of the technical audits. It is, therefore, necessary to ensure that for projects of this magnitude, selection of the right consultant is important. Though this apprehension was spelt out by the port in 1983, the port was asked to continue with the same consultant by the Ministry, as otherwise, it would have led to further delays.

6.7 In bigger projects there are always needs for going in for certain left out items which are required to be tied up through similar contracts with a tight time schedule. The World Bank should permit LCB for such low value works, but yet time bound requirements and accordingly fix the total monitoring limits under the loan agreement. Our experience is that low value works do not attract global participation and lead to loss of more time at pre tender acceptance stage.

7. Suggestions for Consideration by the World Bank for this Project at the Present Stage

7.1 A project with state-of-the are technology in a developing country requires proper training of personnel and also technical assistance for its effective management. No doubt, the Bank had stressed the need for training of personnel in its appraisal report and also in its subsequent missions. To this end, even training was included as a part of certain contracts in the supply of equipments. In reality, it was found that such stipulations in the contract in terms of adequacy, duration and quality of training was not found to be satisfactory. Training through supply contracts had to be done at a time when staff had not been recruited. Language problems were also a barrier for importing training to the different levels of the staff. With regard to technical assistance, it is felt that this should have been visualized as a part and parcel of the original project. Likewise a properly equipped training institute with facilities for simulator type of training should also have been planned as a integral part of the project.

7.2 The World Bank may like to consider whether these areas can be funded, if needed, through new operation. This can also include the cost of the rectification measures required as a follow up of Technical Audit and the augmentation of equipments for the container terminal which are needed urgently.

PART III. STATISTICAL INFORMATION

1. Related Bank Loans and/or Credits

NONE

2. Project Timetable

Item	Date Planned	Date Revised	Date Actual
- Identification			
- Preparation			06/16/81
- Preappraisal			10/29/82
- Appraisal Mission	7/83		05/10/83
- Post-Appraisal Mission			07/27/83
- Loan Negotiations	1/84		01/16/84
- Board Approval	3/84		03/13/84
- Loan Signature	5/84		05/25/84
- Loan Effectiveness	8/84		08/23/84
- Loan Closing	6/89	06/92	06/30/92
- Loan Completion	03/89	12/92	12/31/92

3. Loan Disbursements

Bank Fiscal Year and Quarter		Disbursements (in $ Million) Estimated Cumulative	Actual Cumulative	Actual % of Estimated
1983/84	1	-	-	-
	2	-	-	-
	3	-	-	-
	4	-	-	-
1984/85	1	.60	.62	0.2
	2	2.00	1.02	0.4
	3	12.00	2.08	0.8
	4	30.00	3.70	1.5
1985/86	1	50.00	4.12	1.6
	2	70.00	14.05	5.6
	3	95.00	14.59	5.8
	4	120.00	15.28	6.1
1986/87	1	145.00	15.48	6.2
	2	170.00	24.57	9.8
	3	190.00	49.91	20.0
	4	205.00	96.04	38.4
1987/88	1	215.00	96.04	38.4
	2	223.00	105.17	42.1
	3	230.00	120.38	48.2
	4	235.00	122.70	49.1
1988/89	1	240.00	156.29	62.5
	2	245.00	157.75	63.1
	3	250.00	171.38	68.6
	4	250.00	175.08	70.0
1989/90	1	250.00	194.59	77.8
	2	250.00	194.59	77.8
	3	250.00	222.10	88.8
	4	250.00	223.37	89.3
1990/91	1	250.00	223.37	89.3
	2	250.00	226.66	90.7
	3	250.00	228.44	91.4
	4	250.00	229.19	91.7
1991/92	1	250.00	229.19	91.7
	2	250.00	229.19	91.7
	3	250.00	229.19	91.7
	4	250.00	230.74	92.3
1992/93	1	250.0		
	2	250.0		

4. Project Implementation

Project Components	Planned Completion	Actual Completion	Months of Delays
Civil Works			
- Main Civil Works	3/89	4/90	13
- Container Freight Station	12/89	5/89	5
- Residential Colony	3/89	12/90	21
- Electrical Distribution System	9/88	6/90	21
- Dredging	3/89	6/88	-9
Equipment			
- Bulk Handling Equipment	3/89	12/92 1/	45
- Container Equipment	3/89	12/92	45
- Workshop Equipment	3/89	6/90	15
- Floating Craft	9/88	7/90	22
Technical Assistance			
- Training	12/88	9/92 2/	33
- OMF Study	6/87	10/89	28
- Intermodal Study	6/87	7/89	25
- Container Manual	9/87	9/89	24

1/ Expected
2/ Training financed by the Netherlands included.

5. Project Costs and Financing

A. Project Costs

	Appraisal Estimate						Actual		
	Local Costs	Foreign Exchange Costs (US$ M)	Total	Local Costs	Foreign Exchange Costs (Rupee M)	Total	Local Costs	Foreign Exchange Costs (US$ M)	Total
A. Land Acquisition	20.5	0.0	20.5	175.0	0.0	175.0	12.1	0.0	12.1
B. Civil Works	154.7	62.6	217.3	1325.1	231.2	1556.3	91.6	16.0	107.6
C. Dredging	6.0	24.3	30.3	85.0	147.8	232.8	5.9	10.2	16.1
D. Plant and Equipment	44.0	70.7	114.7	793.3	581.7	1375.0	54.8	40.2	95.0
E. Container Freight Station	4.3	1.3	5.6	139.8	0.0	139.8	9.7	0.0	9.7
F. Bulk Storage Facilities	13.8	13.4	27.2	264.7	115.4	380.1	18.3	8.0	26.3
G. Electric Power Distribution	11.1	5.0	16.1	128.2	0.0	128.2	8.9	0.0	8.9
H. Utilities and Services	25.5	1.0	26.5	455.1	23.2	478.3	31.5	1.6	33.1
I. Residential Colony	24.6	0.0	24.6	705.8	0.0	705.8	48.8	0.0	48.8
J. TA and Training	3.0	2.5	5.5	12.7	7.9	20.6	0.9	0.5	1.4
K. Engineering Services	7.9	2.6	10.5	174.0	5.6	179.6	12.0	0.4	12.4
Base Estimate	315.4	183.4	498.8	4258.7	1112.6	5371.3	294.3	76.9	371.2
L. Contingencies	13.8	10.6	24.4	55.9	20.8	76.7	3.9	1.4	5.3
Physicial	52.4	30.4	82.8	1547.8	664.5	2212.3	107.0	45.9	152.9
Price									
Total Project Cost	381.6	224.4	606.0	5862.4	1798.0	7660.4	405.1	124.3	529.4
M. Interest during Construction	115.4	0.0	115.4	1224.8	0.0	1224.8	84.6	0.0	84.6
N. Front-end Fee on IBRD Loan	0.0	0.6	0.6	0.6	0.0	0.6	0.0	0.0	0.0
Total Financing Required	497.0	225.0	722.0	7087.8	1798.0	8885.8	489.8	124.3	614.1

Overall average exchange (US$1=Rs. 14.47) was calculated by using the actual Bank disbursements profile and the yearly exchange

B. Project Financing

Sources		Planned (US$'000)	Final (US$'000)
Bank Group		250.0	230.7
Bombay Port Trust	205.0	234.9	
Kandla Port Trust	0.0		34.6
GOI and Co-Financier	267.0	160.4	
Total		722.0	660.6

C. Allocation of Loan Proceeds

Category	Original Allocation	Final Allocation	Actual Disbursements
(1) Civil Works			
(a)	70,000,000	70,021,558	70,021,296
(b)	54,000,000	32,740,000	25,920,470
(2) Equipment	100,000,000	131,475,000	118,808,612
(3) Technical Assistance, Engineering Services and Training	16,000,000	15,140,000	13,635,360
(4) Fee	623,442	623,442	
(5) Unallocated	9,376,558	0	
Total	250,000,000	250,000,000	228,385,738

6. Project Results

A. Direct Benefits

Indicator	Appraisal Estimate	Estimate at Closing Date	Estimated at Full Development
Reduced ship waiting time	$20 million (1988)	$67.0 million (1992)	$100.5 million (2000)
Faster cargo handling	n.a.	$16.7 million (1992)	$25.1 million (2000)
Larger vessels			
- Bulk cargo	$30 million	$5.6 million	$8.4 million
- Containers	$14 million	(1992)	(2000)
Reduced cargo loss (% of the cargo value)	0.4%	$3.0 million	$4.5 million

B. Economic Impact

	Appraisal Estimated Estimate	Actual
Economic Rate of Return	20%	11.5%

C. Financial Impact

	Appraisal Estimate	Actual
Financial Rate of Return	FY 92 13.5% FY 93 15.2% FY 94 18.5%	FY 92 1.7% Est. FY 93 5.6% Est. FY 94 7.7%

D. Studies

	Studies	Purpose as Defined at Appraisal	Status	Impact of Study
1.	Organization, Management and Financial Study	Development of optimal structure and systems enabling JNPT to function smoothly and efficiently	Completed as planned	Finance Accounting Study is being utilized. Others are under testing.
2.	Container Operations Manual and Training	Development of efficient operation in handling containerized cargo	Completed as planned	Container Operation Manual is being utilized. Training improved productivity.
3.	Intermodal Transport and Traffic Allocation Study and Traffic Forecast	Development of efficient inland transportation of containers	Completed as planned	Too early to evaluate.

E. Traffic
('000 Tons)

	JNP				Bombay Port	
	at Appraisal		Actual		Actual	
	Bulk	Container	Bulk	Container	Bulk	Container
1988/89	1,000	780	-	-	29,342	3,600
90	2,452	1,400	291	407	27,746	3,870
91	2,604	1,700	1,370	657	25,500	4,286
92	2,756	1,900	1,443	1,314	24,070	3,433
93	2,908	2,200				
94	3,060	2,500				
95	3,279	3,000				
96	3,496	3,500				
97	3,715	4,000				

F. Vessel Size
Average Tons (DWT)

	JNP				Bombay (without JNP)			
	at Appraisal		Actual		at Appraisal		Actual	
	Bulk	Container	Bulk	Container	Bulk	Container	Bulk	Container
1987/88	22,000	20,000						
89	23,000	21,000						
90	24,000	22,000	30,404	18,794				
91	25,000	23,000	40,470	17,564	16,800	15,000	13,233	5,580
92	26,000	24,000	34,140	14,688				
93	27,000	25,000						
94	28,000	26,000						
95	29,000	27,000						
96	30,000	28,000						

7. Status of Covenant

Brief Description of Covenant	Selection Applicable	Compliance	Remarks
Lending rate for Bank funds to be not less than 11.5%, with 25 years repayment including 5 years grace period.	LA 3.01	Yes	
BPT to lend an amount of Rs 2 billion at 10% with 15 years repayment including 5 years grace period.	LA 3.02	Yes	
Other loans required to be made available at 10.25% with repayment period of 25 years including 10 years grace period.	PA 2.09	No	The terms and conditions are under consideration by the Govt.
Ports accounts are to be audited by auditors and to be furnished with 9 months.	PA 4.02	Yes	
Port is not to incur debts exceeding US$10 million per annum for purposes other than port construction if debts service ratio is below 1.2.	PA 4.03	Yes	
In 1989-90 and 1990-91 port to achieve an operating ratio of .6.	PA 4.04	No	The operating ratio for 1991-92 is 0.7. As the traffic did not materialize the ratio of 0.6 could not be achieved during 1989-90 and 1990-91. The ratio of 0.6 to be achieved in 1992-93.
From financial year 1989-90 onward revenues to cover operating expenses and debt service.		Yes	

8. Use of Bank Resources

A. Staff Inputs

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	Total
Preappraisal	13.00	10.4	19.0	30.3	118.3										191.00
Appraisal				0.2	51.3	32.2									83.70
Negotiations						11.9									11.90
Supervision						2.5	17.7	22.3	30.8	17.0	14.3	12.9	8.1	6.5	132.10

B. Mission Data

	Month/ Year	No. of Persons	Days in Field	Specializations Represented	Performance Status a/	Rating Trend b/	Type of Problems c
Identi/Prep	4/79	3	30	EC, EGR, FA	-	-	-
Appraisal	10/82	6	60	EC,EGR	-	-	-
Supervision I	9/84	2	15	EC,EFR	2	2	-
Supervision II	12/84	1	6	EGR	2	2	P
Supervision III	4/85	1	4	EGR	2	2	P
Supervision IV	10/85	1	5	EGR	2	2	
Supervision V	2/86	2	6	EC, EGR	2	2	
Supervision VI	10/86	2	16	EGR, FA	2	2	
Supervision VII	5/87	1	7	EGR	2	2	
Supervision VIII	11/87	2	6	EGR	2	2	
Supervision IX	6/88	3	15	EC, EGR,	1	1	
Supervision X	10-11/88	3	15	EC, EGR, EC	1	2	
Supervision XI	5/89	1	5	EGR	1	2	
Supervision XII	10/89	1	5	FA	2	3	
Supervision XIII	1-2/90	3	30	FA, EGR, EC	1	1	
Supervision XIV	4/90	2	6	FA, EC	1	2	
Supervision XV	11/90	3	15	FA, EC	2	3	
Supervision XVI	7-8/91	2	10	FA, EC	1	1	
Supervision XVII	10-11/91	3	12	FA, EC, EGR	2	2	
Supervision XVIII	2/92	2	4	FA, EC			
Completion	10/92	3	20	EC, FA, EGR			
Total			292				

Comments
a/ 1 = problem free or minor problems; 2 = moderate problems; 3 = major problems.
b/ 1 = improving; 2 = stationary; 3 = deteriorating.
c/ P = Procurement.

9. Procurement

Contracts exceeding US$5.0 million.

Contract	Bid Documents sent to the Bank	Bid Documents to Bidders (M/D/Y)	Bid Opening (M/D/Y)	Evaluation sent to the Bank (M/D/Y)	Award of Contract (M/D/Y)	Contract Price (US$ M)	Period of Evaluation/ Award (months)
1. Contract I - (Main Civil Works)		2/1/84	6/15/84	6/12/85	7/12/85	91.7	13
2. Contract II (Bulk Handling System)	May 85	12/5/85	4/4/86	11/00/86	11/00/86	137.4	7
3. Contract III (Container Handling Equipment)	May 85	12/5/85	4/8/86	8/25/86	10/30/86	22.0	6
4. Contract IV (Mobile Equipment)	June 86	2/17/86	5/19/86	11/4/86	1/7/87	6.9	8
5. Contract VII (Port Craft)	Feb. 86	5/15/86	8/7/86	4/16/87	4/18/87	14.8	8
6. Contract VIII (CFS)	LCB	9/29/86	12/17/86	-	9/14/87	5.4	9
7. Contract IX (Port Building)	-	6/12/86	8/1/86	1/14/87	2/6/87	9.1	6
8. Contract XI (Computer)	Aug. 87	-	12/30/87	-	7/22/88	9.6	7

INDIA

JAWAHARLAL NEHRU PORT TRUST
NHAVA SHEVA PORT PROJECT - LOAN 2387-IN
PROJECT COMPLETION REPORT

Financial Highlights
(Rs. Million)

REVENUE AND EXPENDITURE

Year ended March 31	FY90 Appraisal Estimates	FY90 Actual	FY91 Appraisal Estimates	FY91 Actual	FY92 Appraisal Estimates	FY92 Actual
Container Cargo (mil tons)	1.7	0.41	1.9	0.66	2.2	1.21
Bulk Cargo (mil tons)	2.6	0.29	22.7	1.37	2.9	1.44
Container Revenue	571	126	665	181	770	347
Bulk Revenue	422	114	446	324	471	325
Estate Rentals	46	15	46	26	46	38
Other Operating Revenue	0	0	0	0	0	21
Total Operating Expenses	1039	255	1157	531	1287	731
Direct Operating Expenses:						
Container Cargo		4		26		36
Bulk Cargo		3		50		61
Channel Dredging		25		37		35
sub-total	0	32	0	113	0	132
Indirect Operating Expenses		21		62		94
sub-total	215	53	231	175	249	226
General Administration	10	57	12	65	14	72
Depreciation	173	183	173	255	173	282
Total Operating Expenses	398	293	416	495	436	580
Operating Surplus	641	-38	741	36	851	151
Add: Investment Interest	16	37	29	47	49	118
Less: Interest on Long-term Debt	791	6	791	28	790	74
Net Revenue	-134	-7	-21	55	110	195
Operating Ratio	38.3	114.9	36.0	93.2	33.9	79.3
ROR on Hist. Valued Fixed Assets %	9.6	--	11.5	0.4	13.5	1.7

Source: JNPT and Bank Staff

INDIA

JAWAHARLAL NEHRU PORT TRUST
NHAVA SHEVA PORT PROJECT - LOAN 2387-IN
PROJECT COMPLETION REPORT

Financial Highlights
(Rs. Million)

BALANCE SHEETS

Year ended March 31	FY90 Appraisal Estimates	FY90 Actual	FY91 Appraisal Estimates	FY91 Actual	FY92 Appraisal Estimates	FY92 Actual
Assets						
Gross Fixed Assets	7075	8287	7075	8781	7075	9150
Less Accumulated Depreciation	520	185	693	441	867	753
Net Fix Assets in use	6555	8102	6382	8340	6208	8397
Work in progress	0	350	0	220	0	14
Total Fixed Assets	6555	8452	6382	8560	6308	8411
Investments	75	449	207	638	468	999
Cash at Banks	36	15	39	28	42	55
Inventories	35	1	37	3	39	16
Accounts Receivable	87	50	96	36	107	56
Other Current Assets	0	748	0	692	0	787
Total Current Assets	158	814	172	759	188	914
Less Current Liabilities	18	304	19	199	21	176
Net Current Assets	140	510	153	560	167	738
Total Assets	6770	9411	6742	9758	6843	10148
Liabilities & Equity						
Paid Up Capital	26	0	26	0	26	0
Retained Earnings	-659	102	-631	153	-571	349
Total Equity	-633	102	-605	153	-545	349
Staff Pension/Provident Funds	0	1	0	4	0	10
Long Term Debt:						
Government of India	5272	4782	5452	5094	5649	5332
Bombay/Kandla Port Trusts	2131	4525	1944	4507	1739	4457
Total Long Term Debt	7403	9307	7396	9601	7388	9789
Total Liabilities & Equity	6770	9411	6791	9758	6843	10148

Source: JNPT and Bank Staff

INDIA

JAWAHARLAL NEHRU PORT TRUST
NHAVA SHEVA PORT PROJECT - LOAN 2387-IN
PROJECT COMPLETION REPORT

Forecast, Traffic, Revenue & Expenditure
(Rs. Million)

REVENUE AND EXPENDITURE

Year ended March 31	FY93	FY94	FY95	FY96	FY97	FY98	FY99	7-Year Total
Container Cargo (mil tons)	1.44	2.40	3.42	3.60	3.96	4.38	4.80	24.00
Bulk Cargo (mil tons)	2.20	2.50	2.81	2.82	2.82	3.03	3.20	19.38
Container Revenue	412	686	978	1030	1133	1253	1373	6865
Bulk Revenue	497	565	635	637	637	685	723	4379
Estate Rentals	53	65	80	100	125	155	190	768
Other Operating Revenue	21	23	26	30	35	41	48	224
Total Operating Revenue	983	1339	1719	1797	1930	2134	2334	12236
Total Cash Operating Expenses	347	409	490	521	530	541	560	3398
Cash Operating Surplus	636	930	1229	1276	1400	1594	1774	8838
Add: Investment Interest	130	150	160	150	140	150	170	1050
Total Cash surplus	766	1080	1389	1426	1540	1743	1944	9888
Long-term Debt Interest	280	564	853	1031	1041	983	987	5739
Depreciation	228	249	271	283	302	366	411	2110
Net Revenue	258	267	265	112	197	394	546	2039
Source and Application of Funds								
Source of Funds:								
Total Cash Surplus	766	1080	1389	1426	1540	1743	1944	9888
GOI Capital Grant	975	980	1135	640	1100	2580	1795	9205
Total	1741	2060	2524	2066	2640	4323	3739	19093
Disposition of Funds:								
Long-term Debt Interest	280	564	853	1031	1041	983	987	5739
Long-term Debt Repayment	160	262	388	503	563	621	702	3199
Total Debt Service	440	826	1241	1534	1604	1604	1689	8938
Capital Expenditure	975	980	1135	640	1100	2580	1795	9205
Increase in Investments	304	230	120	-142	-103	95	204	708
Increase in Working Capital	22	24	28	34	39	44	51	242
Total	1741	2060	2524	2066	2640	4323	3739	19093

Source: JNPT and Bank Staff

INDIA

JAWAHARLAL NEHRU PORT TRUST
NHAVA SHEVA PORT PROJECT - LOAN 2387-IN
PROJECT COMPLETION REPORT

Forecast Summary Balance Sheets
(Rs. Million)

BALANCE SHEETS

Year ended March 31	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Assets							
Gross Fixed Assets	10139	11119	12254	12894	13994	16574	18369
Less Accumulated Depreciation	981	1230	1501	1784	2086	2452	2863
Net Fixed Assists in use	9158	9889	10753	11110	11908	14122	15506
Work in progress	0	0	0	0	0	0	0
Total Fixed Assets	9158	9889	10753	11110	11908	14122	15506
Investments	1303	1533	1653	1511	1408	1503	1707
Net Current Assets	760	784	812	846	885	929	980
Total Assets	11221	12206	13218	13467	14201	16554	18193
Liabilities & Equity							
GOI Capital Grant	975	1955	3090	3730	4830	7410	9205
Retained Earnings	602	864	1124	1231	1422	1810	2348
Total Equity	1577	2819	4214	4961	6252	9220	11553
Staff Pension/Provident Funds	15	20	25	30	36	42	50
Total Long Term Debt	9629	9367	8979	8476	7913	7292	6590
Total Liabilities & Equity	11221	12206	13218	13487	14201	16554	18193
Debt/Equity Ratio	86/14	77/23	86/32	63/37	56/44	44/56	36/64
Financial Rate of Return on Historically Valued Fixed Assets	5.6%	7.7%	9.5%	9.1%	9.2%	9.0%	8.5%

Source: JNPT and Bank Staff

TABLE 1

JAWAHARLAL NEHRU PORT TRUST

NHAVA SHEVA PORT PROJECT - LOAN 2387
PROJECT COMPLETION REPORT

Cargo Traffic in Terms of Principal Commodities
('000 tonnes)

Ports	Period	Crude Products	Iron Ore	Fertilizer		Coal		Containers		Others	Total
				Finished	Raw Materials	Thermal	Coking	Tonnage	TEUs		
Calcutta	1992	7690		275	307	2802	1792	920	(67)	2214	16000
	1991	7257		231	354	2868	1251	980	(71)	2299	15240
Paradip	1992	24	1524	87	75	3369	1535	3		1630	7297
	1991		1748	100	195	1944	1670			1227	6884
Visakhapatnam	1992	6384	6161	503	949	3054	2594	79	(8)	1798	21522
	1991	5597	5496	458	1044	2182	2707	82	(8)	1855	19421
Madras	1992	10124	5394	531	279	4971	81	1003	(106)	2658	25041
	1991	9826	5549	509	345	4304	189	1132	(109)	2666	24518
Tuticorin	1992	496		302	304	2905		202	(28)	1659	5868
	1991	472		288	226	2371		119	(20)	1599	5075
Cochin	1992	5834		148	466			286	(52)	721	7455
	1991	5804		181	434			275	(49)	581	7275
New Mangalore	1992	622	6492	141				15	(2)	1004	8274
	1991	612	6125	83				10	(1)	1203	8053
Mormugao	1992	1864	12517	127						590	15098
	1991	1369	12986	166						390	14911
Bombay	1992	17077		22	494			3433	(277)	3477	27503
	1991	19885		36	624			4286	(324)	4955	29786
JNPT	1992			625	820			1314	(109)	38	2795
	1991			521	845			657	(55)	4	2027
Kandla	1992	16503		366	261		54	333	(28)	3486	21003
	1991	17061		308	316		32	302	(43)	3466	19685
TOTAL	1992	49618	32088	1125	3955	16101	6106	7588	(677)	19275	157856
	1991	45883	31904	1381	4381	13669	5849	8043	(680)	20245	152855

TABLE 2

INDIA

NHAVA SHEVA PORT PROJECT (LN. 2387-IN)
Project Completion Report
Economic Rate of Return (ERR) and Sensitivity Analysis
(1992 prices, million US$)

	Base Case				
	Costs				
Year	Capital Investment	Maintenance	Total	Total Benefits	Net Cash Flow
1985	9.2		9.2		(9.2)
1986	28.2		28.2		(28.2)
1987	198.4		198.4		(198.4)
1988	65.7		65.7		(65.7)
1989	128.3		128.3		(128.3)
1990	118.5		118.5		(118.5)
1991	14.7		14.7		(14.7)
1992	3.7	12.3	16.0	92.3	76.3
1993	47.4	12.3	59.7	97.1	37.4
1994		12.3	12.3	102.2	89.9
1995		12.3	122.3	107.5	95.2
1996		12.3	12.3	113.1	100.8
1997		12.3	12.3	119.0	106.7
1998		12.3	12.3	125.2	112.9
1999		12.3	12.3	131.7	119.4
2000		12.3	12.3	138.5	126.2
2001		12.3	12.3	138.5	120.0
2002		12.3	12.3	138.5	120.0
2003		12.3	12.3	138.5	126.2
2004		12.3	12.3	138.5	126.2
2005		12.3	12.3	138.5	126.2
2006		12.3	12.3	138.5	126.2
2007		12.3	12.3	138.5	126.2
2008		12.3	12.3	138.5	126.2
2009		12.3	12.3	138.5	126.2
2010		12.3	12.3	138.5	126.2
2011		12.3	12.3	138.5	126.2
Total	614.1	258.4	872.5	2,500.1	1,677.6
			ERR =	11.5 %	
			NPV (10%)=	4.6	

Notes: (i) Benefits projected for only 20 years.
(ii) Maintenance costs assumed to be 2% of capital costs.
(iii) Traffic and benefits assumed to grow 5% p.a. to the year 2000, when additional facilities, particularly for containers, may be needed; so further growth assumed.
(iv) Ship time valued at US$5,700 (Bombay) and US$11,200 (Nhava Sheva) per day for container ships and US$3,710 (Bombay) and US$10,190 (Nhava Sheva) for bulk ships (from the Bank's ship Cost User Manual).