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PROJECT PERFORMANCE AUDIT REPORT

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

December 15, 1976

Operations Evaluation Department

PROJECT PERFORMANCE AUDIT REPORT **FOR OFFICIAL USE ONLY**

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

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Preface

This report presents a performance audit of achievements under the India First Shipping Project for which Credit 328-IN in the amount of US$83 million was fully disbursed in May 1974.

This performance audit is based mainly on the attached Project Completion Report (PCR) prepared by the South Asia Regional Office, a review of IDA files (including appraisal and supervision reports), and discussions with IDA staff and officials of the Government, the Shipping Corporation of India, the Shipping Development Finance Committee, and the Indian Oil Corporation.

In February 1976, a 12-day visit was made to India in connection with this performance audit. The valuable assistance of many officials in the above mentioned organizations is gratefully acknowledged.

The summary which follows highlights the main results and then draws attention to the main issues raised by the project. More details of the project are contained in the attached PCR.

Exchange Rates: Indian rupees (Rs)

1972 - US$1 = Rs 8.01
1973 - US$1 = Rs 8.13
1974 - US$1 = Rs 8.08
1975 - US$1 = Rs 8.94

PROJECT PERFORMANCE AUDIT BASIC DATA SHEET

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Amounts (in US$ mln)

	Original	Disbursed	Cancelled	As of 12/31/75 Repaid	As of 12/31/75 Outstanding
Credit 328-IN	83	83	-	-	83

Project Data

	Original Plan	Actual or Est. Actual
Conception in IDA	-	5/70
Board Approval	2/72	3/7/72
Credit Agreement	-	9/26/72
Effectiveness	-	12/6/72
Physical Completion	12/74	12/75
% of original project actually completed	4 out of 6 ships: 78% of project cost	100%
Credit Closing	6/30/75	6/75
Total Costs (US$ mln)	83	97.1
Econ. Rate of Return (%)	12	7

Mission Data

	Month, Year	No. of Weeks	No. of Persons	Manweeks	Date of Report
Preliminary	10/70	1	2	2	3/71
Identification	2/71	1	3	3	
Preparation					
Preappraisal					
Appraisal	7/71	3	5	12/a	2/72
Subtotal		5		17	
Supervision I	10-11/73	4	2	8	12/73
Supervision II	10/74	1	3	3	11/74
Supervision III	11-12/75	2	2	4	12/75
Subtotal		7		15	

/a Estimated.

Date of Conception is date IDA first recorded project was being considered for financing and began to follow up that decision in a serious continuous way (Project Negotiations or Country General Files). Actual credit closing date is date of last disbursement out of the credit, as given by Controller's Department data.

PROJECT PERFORMANCE AUDIT REPORT

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Highlights

Credit 328-IN financed the purchase of 4 crude oil carriers (80,000 dwt class) and 2 oil product carriers (20,000 dwt class) by the Shipping Corporation of India (SCI). The four crude carriers were to be used for conveying imports to a new refinery at Haldia and the two product carriers for transporting imports and distributing refinery products along the coast.

The four crude carriers were delivered on or before schedule, with only minor cost overruns, and have performed well. But delivery of the two product carriers was considerably delayed, a substantial cost overrun was incurred, and some initial operating problems were experienced.

An interesting issue raised in this project concerns the methodology underlying the economic justification. At audit, the economic justification has been based on the assumption that, in the absence of the project, similar vessels would have to be chartered. The oil crisis, by making surplus a considerable proportion of the world tanker capacity, has had a depressive effect on charter rates and this has negatively affected the economic justification of the project. Taking an optimistic view about the recuperation of the charter market, the audit rate of return is 7%, lower than the 12% expected at appraisal.

The project can be credited with having encouraged better utilization of the Indian tanker fleet. But it could have had greater impact if a broader scope had been envisaged.

The following points may be of particular interest:

Economic justification of the project (paras. 6, 26-31 and 49-50).

Beneficial effects of loan covenants (paras. 39-42 and 51).

Need for greater attention to training (paras. 43 and 52).

Bidding procedures (paras. 38 and 54).

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

I. Project Results

1. Credit 328-IN was made to the Government of India (GOI) for the First Shipping Project, which involved the purchase of six oil tankers by the Shipping Corporation of India (SCI) and their chartering for 16 years to the Indian Oil Corporation (IOC).

2. The original approach by the GOI to IDA in connection with this project was in October 1970. At that time, the GOI had plans to purchase during the fourth Five-Year Plan 12 tankers/combination carriers at a total cost of about US$200 million. The request was for financing of US$60-US$80 million from this total.

3. Although GOI approaches for shipping finance in 1957 and 1962 had been unsuccessful, this time the GOI argued that: (a) the proportion of Indian traffic carried in Indian-owned vessels was (at 5% of the total) unreasonably low; (b) expansion into the tanker trade was therefore justified; and (c) sufficient commercial financing was not available to support this policy. The Bank was unwilling to increase India's debt exposure to Bank loans, and the Indian Consortium strongly supported the GOI's efforts to control the volume of foreign loans made to public sector bodies.

4. The case for considering the GOI request was therefore accepted, envisaging that any assistance given would be in the form of a credit, for the reason referred to in the previous paragraph. Assistance for the construction of ships would be disbursed rapidly and the advantage of this to balance of payments appears from the files to have been a factor in Bank thinking at the time. Initial discussions focused primarily on the on-lending and chartering arrangements, the extent to which Indian tax laws could be said to subsidize shipping unduly, and the possible need for additional equity for the shipping companies then under consideration for ownership of the tankers. It was agreed that, given the nature of the usual contract negotiations related to ship purchases and the then very full nature of shipyard order books, some variation of standard international competitive bidding was inevitable.

5. The project was appraised during late 1971/early 1972. By that time, it had been defined as purchase of 4 crude carriers of 80,000 dwt class and 2 product carriers of 20,000 dwt class. The crude carriers were to be used for imports to a new refinery at Haldia and for expansion of the Barauni refinery, served by pipeline from Haldia (see map in attached PCR). The product carriers were to be used for importing products, and for distributing refinery output along the coast, as part of the general fleet of similar vessels. Previous plans to involve private shipping companies were dropped because of difficulties seen by GOI in defining charter arrangements appropriate to both public and private sector companies. The financial case, seen from the SCI viewpoint, was assured by the cost plus nature of the charter arrangements. The 16-year charter gave the IOC protection from the fluctuation of the charter market, though naturally limiting their ability to take advantage of any favorable movement of the charter market that might occur.

6. The economic case was based on a comparison of the alternatives of ownership and of charter. The analysis was based on the assumptions that operating costs were the same for Indian-owned as for foreign-owned vessels, and that long term charter rates included a financial return on gross investment of at least 8% per annum after depreciation and before taxes and a straight line depreciation charge over a 20-year useful life. By owning the vessels rather than leasing them, the returns to capital would be retained within the economy. On the basis of these assumptions, a 12% rate of return on the project was estimated.

7. Board approval was given in March 1972, although the Credit Agreement was not signed until September of that year because of delays in the replenishment of IDA. A number of conditions (PCR, Section IV) were included in the Credit Agreement: charter arrangements, establishment of a Marine Department in IOC, feasibility studies of tug/barge operations, dredging of the Hooghly River, provision of transfer vessels, and port improvements. It was also agreed that the project tankers would not be used for traffic other than India's (i.e., in cross trades) without IDA's agreement.

8. The six vessels were ordered in March 1972, within a week of Board approval (and nearly six months before the Credit Agreement was signed). The four crude carriers were ordered from Mitsubishi shipyard in Japan and the two product carriers from Trogir shipyard in Yugoslavia.

9. The delivery dates and costs as envisaged at the time of order, and as realized, are summarized in Annex 1. While the four crude carriers were delivered (by agreement) ahead of schedule, with a comparatively modest cost overrun arising from revaluation of the yen against the dollar, the two product carriers were much delayed and incurred very substantial cost overruns (32%). The reasons for the delay were financial problems at the Yugoslav shipyard. To ensure delivery of the product carriers, SCI had to agree with the yard on a substantial cost increase amounting to 32%. The cost increase was borne by GOI. There seem to have been two reasons for agreeing to this escalation. First, the yard had orders for five similar Indian product carriers, the two project tankers, and three subsequently ordered vessels. The yard was in severe financial difficulties and, if a price increase had not been freely negotiated, under Yugoslav law it appears that the choice would have been either a court settlement amounting to an imposed price increase or a declaration of bankruptcy by the yard and disposition of the vessels to pay creditors. Second, these five product carriers (the two project tankers under Credit 328-IN and the three similar vessels that were subsequently ordered under supplier credit) were not the only ones under construction in Yugoslavia for India, and clearly Government to Government considerations were involved. The Bank appears from the files not to have commented formally on an SCI request to agree to the increase, although the question was discussed by the supervision mission.

10. Anticipated usage of the crude carriers has been affected by two major factors:

(a) Refinery delays at Haldia: The first of these factors was the delay in the commissioning of the Haldia refinery. On original planning, the crude carriers would have been delivered a few months after the commissioning of the refinery and the need for some short term chartering had been envisaged. In the event, the position was reversed. The crude carriers were, by agreement, delivered early and the refinery was delayed by a series of technical problems. Completion of the refinery was delayed first by three months, then by nine months. This meant that the crude oil import level required at Haldia in 1973 was only 0.1 million tons, against the 1.6 million tons expected at appraisal (PCR, para. 2.03).

(b) World oil crisis: Next, and most fundamentally, came the world oil crisis of late 1973. Within six months, oil prices rose by a factor of four, and in October 1973 the GOI introduced a series of crisis measures aimed at reducing oil consumption and hence crude oil imports. These measures were very successful and crude oil imports actually fell in 1974 compared with 1973. These measures included further, planned delay to the commissioning of Haldia refinery and the substitution of indigenous crude at Barauni for what was originally planned to be imported crude piped from Haldia.

11. A further factor arose with the exceptional circumstances in the Hooghly River. Floods in 1971 led to a change in the channel and a consequential reduction in the depth available, and a very much reduced downward flow in 1972 caused excessive siltation and a further reduction in draft. It had always been the intention to lighten the crude carriers (i.e., reduce their draft before entering the river by pumping part of their load into a smaller vessel) up to 1980. The full capacity of the crude carriers is used up to the Indian coast, so the effect of the reduced draft in the river is to increase the proportion of each crude carrier's load that has to be lightened, and to defer the time when lightening is no longer necessary. The problem and the steps the GOI has taken to resolve it are discussed in detail in PCR, Annex 3.

12. Another effect of the oil crisis has been to accelerate the involvement of the GOI in the refining process in India. A result is that, with one probably short-lived exception, all vessels bringing crude oil to India can now be viewed as part of a single pool. The four project crude oil carriers are now to be regarded as forming part of this Indian crude oil carrier fleet rather than as dedicated to one specific project. To assist in making the best use of this additional freedom, the GOI has set up an Oil Coordination Committee (OCC) with members drawn from the oil industry, both public and private sector, and the ministries concerned in order to achieve the best deployment of the vessels chartered by IOC. This may be viewed as a continuation of the thinking in the covenant to the credit under consideration requiring the establishment of a Marine Department within IOC.

13. At present, the four project crude oil carriers have been fully occupied in supplying Haldia and other Indian refineries (PCR, para. 2.04) and, with the exception of a period when (by agreement) lightening at Colombo was

practiced, have been engaged in the Indian trades, as required by the Development Credit Agreement. This requirement has not been met without considerable effort by the IOC and the SCI, and its existence has encouraged the useful consideration of a wide range of technical alternatives. Based on the last quarter of 1975 and allowing for certain exceptional factors of a technical nature, the annual tonnage per ship appears to be running at the rate of approximately 975,000 tons, which is about 20% below the 1.2 million tons expected at appraisal.

14. Because of the late delivery of the product carriers and some technical teething troubles with their operations, reliable estimates cannot yet be made of the annual tonnage that will be carried by them, though the annual tonnages are likely to be lower than forecast at appraisal. This is due to a number of factors: the reduced volume of crude imports following the oil crisis, already mentioned, which has led to a reduced volume of coastal movements, the changing pattern of imports, particularly of products (though recent SCI moves have helped to increase India's share of this traffic) and, to some extent, the slow turnaround achieved at some ports in handling products.

15. The overall audit rate of return of the project is conservatively estimated to be 7%, lower than the appraisal forecast of 12% (see Annex 3). The financial performance from the viewpoint of the SCI has been satisfactory (PCR, paras. 5.01-5.10). Because of the Bank's insistence on the 16-year cost related charter arrangements between SCI and IOC, the SCI's position remains good, although profits will be substantially lower this year as surplus tonnage accumulates for which comparatively low charter rates may have to be accepted to avoid lay-up.

16. The financial impact of the charter arrangements on the IOC has been less satisfactory because IOC might otherwise have chartered foreign-owned tonnage at lower rates but paid for in foreign currency.

II. Main Issues and the Role of the Bank

17. The main issues identified in this project are: the justification of Bank involvement including both balance of payments and economic considerations, project preparation, bidding procedures used and effect of credit covenants.

18. In this project, the effect of unforeseen circumstances has been fundamental. We have tried to avoid judging with hindsight actions that were necessarily taken only with information available at the time. The view here is that the very sharp increase in oil prices in the autumn of 1973 and its consequences could not have reasonably been foreseen at the time of appraisal in 1971.

Justification of Bank Involvement: Balance of Payments Considerations

19. Crude Carriers: The four crude carriers were envisaged to be an integral part of the supply system of the new refinery at Haldia. Their use

was therefore guaranteed, within the assumptions made at the time, putting them in the first of UNCTAD's recommended priority categories for shipping involvement by developing nations.

20. The alternatives open to the Government for the supply of Haldia were, broadly, purchase, whole life charter, or a succession of time charters, between say one and five years.1/ Whole life and long term charters are used by oil companies, depending on their tax regime, to assist in minimizing tax liabilities, and such considerations are scarcely appropriate to a Government. There is also some doubt whether at that time a potential supplier of a whole life charter to the GOI could have been found. The Government had then only a choice between ownership and time (say one to five years) charters. Not surprisingly it favored ownership on grounds of security of supply, stability of cost and perhaps, to some extent, on national policy grounds.

21. Tankers and combination carriers had previously been ordered from Yugoslavia and product carriers from the USSR. Subsequently, combination carriers were ordered from Sweden and tankers from Japan. The SCI had (and still has) a very high reputation for management and financial stability. It is likely that the GOI could have obtained a loan for the four crude carriers on commercial terms, in the absence of support from the Bank Group. The pure "lender of last resort" argument does not therefore appear to be very strong in this context, though the points about restricting commercial borrowing made in para. 3 should be borne in mind.

22. Balance of payments considerations were however much in people's minds at the time, with a strong desire to support GOI's wish to improve control of foreign borrowing by public sector organizations. Following this line of thought, the argument then seems to have been that the GOI's desire to purchase tankers for Haldia was reasonable, and that a commercial loan was at the time undesirable. Because of the quick disbursement associated with shipbuilding, a credit had the additional, even if incidental, merit of giving rapid foreign exchange benefits.

23. There were a number of counter arguments: that shipowning was a risky business whose returns depended on the vagaries of the charter market, that other projects were available, suitable for lending, with greater benefits in terms of employment and secondary effects and that, in the absence of the "lender of last resort" argument, the case seemed to rest primarily on its balance of payments effect. On balance, it was decided to proceed with project preparation, to see if the standard test for economic priority could be met.

24. The situation with the product carriers was slightly different. They were seen as additions to the Indian fleet of similar vessels, whose utilization depended on the overall fleet utilization. Their use was not related to a specific project but were intended to carry product imports and

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1/ Charter is a form of hire; in general terms, vessel costs plus crew, stores, maintenance, and insurance costs are borne by the owner. Fuel, port dues and some exceptional crew costs are borne by the party chartering the vessel.

coastal products. The volume of product imports is typically subject to fluctuation, and chartered tonnage is accepted as a suitable way of meeting the variable part of this demand. At the time of appraisal, the purchase of the two product carriers was expected to increase the proportion of product imports carried in Indian-owned vessels from 5% to about 50%. With the changes in the pattern of imports following the oil crisis, and the purchase of additional product carriers, India now has ample capacity to carry all product imports in her own vessels. Coastal product movements are cabotage, i.e., within the country, and in general tend to be in nationally owned vessels. Thus the GOI's desire to increase its proportion of the tonnage involved in the carriage of products, and in that process to modernize and increase the cabotage fleet, was reasonable though based on perhaps less strong grounds than in the case of crude carriers.

25. Thus the desirability of Bank Group involvement rested almost as much on balance of payments considerations as on the economic and institutional objectives of the project (discussed below in paras. 26-30). The implicit assumption was that, in the absence of a credit, GOI would have been forced to obtain -- or at least, would have sought -- a loan elsewhere on commercial terms.

Justification of Bank Involvement: Economic Aspects

26. This was the first shipping project to have reached appraisal since 1954 1/ and was therefore of considerable methodological interest. The basic question to be answered was: is it better to own or to charter? The answer to this question will depend on the cost of owning (and operating) a vessel, compared with the cost of chartering. This discloses the difficulty: charter rates are notoriously variable and hence intrinsically difficult to predict, and most of the discussion about methods was concerned with this difficulty and how to overcome or circumvent it. There was also discussion whether the effect on balance of payments of a loan, rather than the credit proposed, should be assessed. An earlier UNCTAD report 2/ is relevant to this issue. The approach adopted for appraisal was to assume that long run charter rates would be equal to capital and operating costs, plus a return on capital.

27. This return on capital was assumed in the appraisal report to be 8% after depreciation but before taxes. Although three references are given in the report, none appears to support the 8% figure with empirical data and the admittedly scant evidence available suggests that a lower

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1/ Kingdom of Norway Shipping Loan 97-NO for US$25 million.

2/ "Establishment or expansion of merchant marines in developing countries," TD/26/Rev 1, UNCTAD 1968.

figure may be more realistic.[1/] The appraisal rate of return on the project is highly sensitive to assumptions about that rate. A 4% figure would have produced a rate of return between 6%-7%. In addition, because of the existence of subsidies to shipowners in some countries, there seems no reason why the perceived cost of ownership should be the same to all owners. This could lead to differences in what is seen to be an "acceptable" profit for the owner.

28. The alternative approach would have been to attempt to forecast future charter rates. Towards this, Shipping Consultants A/S of Norway were commissioned to undertake a study of "The Future Market for Tankers, with Special Emphasis on Ships between 70,000 dwt and 80,000 dwt" (August 1971). This thorough study set existing tonnage (allowing for age) and known orders against the expected increase in world crude oil transportation. It concluded:

> "Our estimates indicate an excess supply corresponding to some 150/180 200,000 dwt units by the end of 1976. Seen separately the situation seems somewhat better for ships in the medium range and especially for the 70/80,000 dwt. However the over supply of the larger tankers will probably have a rather great negative effect in this market also . . . . Our forecasts indicate that the excess supply of 1973 will be kept more or less at the same level up to 1975."

29. It should be recalled that this was written for the pre-oil crisis situation. The late delivery of a number of tankers in 1972-73, in the face of increasing demand for capacity, tended to mask this underlying effect. As is well known, freight rates rose sharply in the latter part of 1972 and first three quarters of 1973, encouraging owners to rush to place orders for new building. The tanker market would, most likely, have been depressed now because of this in any event and the reduced demand following the oil crisis has of course exacerbated the situation. However, the Norwegian study did not venture beyond 1976 and its results were considered insufficient on which to base an economic appraisal. Any attempt to forecast future charter rates would have to take cognizance of the cyclical pattern characteristic of the tanker market, at least up to the oil crisis of late 1973. This question of cyclicity would have been particularly important at the time of appraisal, when rates were falling. In hindsight and for practical purposes, of course, the results of such analysis would have been vitiated by the impact of the oil crisis.

30. Two alternative strategies were discussed. One involved the purchase of secondhand vessels at a lower capital cost. Resistance to this was concerned mainly with the possible maintenance problems associated with such vessels. It was also not clear whether a bidding procedure acceptable to IDA could be defined in this case. Another strategy suggested was to charter initially, then, once Haldia refinery was in full production, to

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1/ The Rochdale Report on Shipping quotes figures ranging from 2.1%-7.1% for the profits after depreciation but before tax, expressed as a return on capital employed, for independent UK tanker owners over the period 1958-69. The average profit over these years for the same owners was 4.2% (Committee of Inquiry into Shipping. Cmnd. 4337, 1970).

order new vessels. This would have meant that for 12-18 months of full production, the refinery would have had to rely on chartered vessels. This would have given no security of cost for the refinery's supplies. Indeed, rates could in these circumstances be expected to be high. In addition, because of the very high charter rates ruling during 1973, when the initial charter would have been made (a charter has to be fixed an appreciable time before the vessel is required), the advantages of this approach are not certain, even with hindsight. Given the circumstances of 1972, and the pattern of shipbuilding costs which rose slowly during 1972, then sharply to a peak in mid-1973, the decision taken to purchase new vessels for Haldia at the time of the credit was reasonable.

31. It is concluded therefore that a reasonable case existed for the purchase of the project tankers. The approach adopted for the economic justification in the appraisal report is in our view open to serious objections. The alternative approach of trying to estimate future charter rates (or to calculate what long term charter rates level would be required for an acceptable rate of return) and to compare them with the costs of Indian ownership of the vessels is admittedly fraught with difficulties but, again in our view, might usefully have been attempted. There is some evidence also that Indian total manning costs are lower than those of many other countries, and this factor would have worked in favor of purchase, had this alternative approach been followed. Neither approach can be fully satisfactory when the alternative involves so variable a cost as the charter market. It is perhaps stating the obvious, but the vessels will show returns almost directly related to the charter market rates of similar tankers.

Project Preparation

32. Project preparation was concerned with the optimum number and size of the vessels to be included. A GOI committee set up to prepare the proposal took the view that the use of consultants was not necessary. The Bank, however, considered that an outside view was desirable both to calculate the technical parameters of the vessels required (size, speed, number), and on the possible future of the charter market. The ship optimization studies were concerned only with the crude carriers (and the transfer vessels) and are considered by those involved to have given useful though limited guidelines. The depth at Haldia was taken as given, because the port was designed for ore carriers and other users, as well as tankers, so that the ship optimization did not include port costs other than port charges common to all sizes of vessels. The size of the product carriers was determined by the maximum depth available at the ports involved. It was further assumed that the necessary program of improvements of reception facilities for these vessels would be adhered to. This point is discussed further below (paras. 40 and 41).

33. The Identification Report had earlier commented that, "it may be necessary, in the case of the crude carriers, to consider whether the ships which are optimum for Haldia viewed in isolation, are also optimum when related to the total supply requirements of IOC." This comment might also have been made in the context of the product carriers in considering the best fleet mix for coastal products movements. However, it must be borne in mind that

the vessels were envisaged specifically for the Haldia project. Moreover, at that time the majority of Indian refineries were in private hands, so that it is not clear what practical result any wider analysis could have had. The situation now has changed, of course, and crude imports with one (temporary) exception form a single system.

34. Considerable effort was made at the time of preparation to ensure that appropriate arrangements were made for on-lending of the credit and for the ultimate charter arrangements between SCI and IOC. This effort has undoubtedly been justified by the very smooth and satisfactory way in which the lending and chartering mechanisms have worked.

35. No delay to the Haldia refinery was anticipated at the time of appraisal. Whether further technical examination then could have revealed the possibility of such delay cannot be known now, and it would have been difficult to do. However, the possibility of such delay, and its impact on project outcome, might have been considered at appraisal. The delays were notified to Bank staff only at a very late stage, and there appears to have been some failure of communication over this.

36. The 1971 Hooghly floods gave rise to doubts about the dredging program, but the actions of the Government in chartering a foreign dredger and mobilizing others convinced the Bank that the dredging program would be back on schedule in good time.

37. With Government agreement, the opportunity might have been taken at appraisal for a thorough going review of the GOI policy of expansion into shipping and in particular into tanker shipping. A review appears to have been done but only in the most general terms: a specific analysis might have strengthened the case for the credit. In general terms, project preparation appears to have been somewhat limited in scope. In part, this may have arisen from the size of the project which, while considerable in absolute terms, was not large in the context of the Indian program for expansion into shipping. This point is referred to further below (para. 53).

Bidding Procedure

38. There had been some doubts expressed whether the normal purchasing methods for ships could conform to international competitive bidding. The procedure adopted was as follows: Bids were invited on the basis of outline specifications, requiring the ship with the largest dwt at a specific draft, in order to produce the cheapest vessel per dwt. Bidders were required to fulfill a delivery schedule that was, considering the full state of shipyard order books at that time, fairly tight. This was considered necessary at the time because of the refinery construction program and because of the anticipated effect of rapidly filling shipyard order books on prices. Five bids were received for each group of vessels (i.e., crude carriers and product carriers), with one yard bidding for both. It is considered that the bidding procedure which was followed conformed to the intent of the Guidelines and was completely acceptable under them.

Effect of Covenants

39. The covenant that proved to have the greatest impact was that concerned with restricting the use of tankers to the purposes specified, i.e., Haldia, or, failing that, other Indian trade for the crude oil carriers and Indian imports or coastal movements for the product carriers. SCI and IOC

put very substantial effort into meeting this requirement and, as commented earlier, the existence of this covenant has perhaps had the unintended but beneficial side effect of encouraging application of the technique of lightening Indian tankers.1/ Without the development of this lightening procedure, the present position of the SCI in making effective use of its fleet would be severely prejudiced.

40. The other covenant whose effect has been, although slow, wholly beneficial is that referring to improvements in the speed of oil handling in Indian ports. However, progress on this has not been fast. First, the appropriate facilities had to be provided, and even now that significant advances have been made on this front, it appears from operational data that achieved pumping rates are still low.

41. It would have been simplest if IOC as beneficiary had paid for, and made, the improvements, but it appears that there were legal obstacles to this. Instead, committees were set up in each port to consider the question; problems of payment appear to have arisen and progress has been slow. Technical support in the context of the credit might have been useful here.

42. Another valuable covenant was the one requiring establishment within IOC of a Marine Department to assist in tanker scheduling. This appears to have encouraged a realization of the benefits from taking an overall viewpoint, which has reached more complete expression in the setting up of the OCC. Practical steps toward integrated crude oil import transportation probably had to await the GOI's greater involvement in Indian refineries, and this in turn was facilitated by the oil crisis, although reluctance on both sides may be indicated by the view reported in 1973: "the GOI insists that the acquisition of tankers has to be related to the requirements of the Indian oil industry's public sector refineries.2/"

43. Greater attention might well have been given in the covenants to the training of ship's crews and officers, particularly marine engineers and engine room staff. An earlier proposal to include some training equipment in the credit was dropped and, in the event, there was no condition related to training. The SCI has taken exceptional steps (PCR, Annex 7) to ensure that it has sufficient trained staff for its own needs, but the number of marine engineers and other marine staff under training in India overall has recently been a cause of concern. The school for marine engineers is to be expanded and two UN experts have recently conducted a study of marine training facilities from which further actions are expected to be taken. There is high wastage of such trained men to foreign flag vessels, although presumably this is not without benefit to the balance of payments through home remittances. Bank involvement at the time of the credit could have made a valuable contribution here to the overall Indian situation.

44. The crude carriers are at present dry docked at Singapore but after 1980 will be able to use Cochin. The appraisal mission was satisfied with maintenance arrangements, although no specific reference to them is made in the appraisal report.

45. The covenants have made a valuable contribution though faster results might have been achieved in the case of port improvements and a wider

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1/ This involves reducing the draft of a larger vessel as it nears its destination point by transferring part of its cargo to a smaller ship

2/ "The Rise of National Fleets," London, 1973.

view taken in the case of marine training. No covenant was included requiring consultation in the event of further ship orders, which could affect the utilization of the project tankers, or their cost.

III. Conclusions

46. The credit has been fully disbursed. The four crude carriers were delivered on or before the due date at the contract price (after allowing for exchange fluctuations) and have performed well. The two product carriers were delivered very late because of financial and other problems at the shipyard, and a price increase of about 32% had to be agreed. There has not yet been sufficient experience to judge their performance, although there have been teething troubles.

47. The use to which the four crude carriers has been put has been subject to drastic change following the world oil crisis and its effects. However, with a brief exception, the vessels have been used in Indian trades as required. Their future use in Indian trades seems reasonably secure. The use of the product carriers in the coastal movement of oil products seems reasonably assured also.

48. The purchase of the six project tankers was regarded, at least on the Indian side, as a contribution towards the general expansion of their tanker fleet. This view appears to have been tacitly accepted by Bank staff in the case of the product carriers, whose purchase was not related to a specific project. The purchase of the four crude carriers was specifically to guarantee supply to the Haldia refinery and the expansion of Barauni, though because of the oil crisis not more than two are likely to be used for this purpose.

49. The audit rate of return depends on future charter rates. The current view is that these are likely to remain depressed for several years though, as had been observed earlier, the prediction of such rates is notoriously difficult. Taking a reasonably optimistic view suggests the audit rate of return may reach 7%, assuming that in the absence of the project tankers, similar vessels would have to be chartered. The cost data on which this figure is based are given in Annex 3. The oil crisis has had the effect of making surplus a significant proportion of the world's tanker capacity. Without the crisis there would probably have been some spare capacity, at least up to 1976, though at much lower, acceptable, levels. Charter rates would thus have been higher and the rate of return, without the crisis, would have been better. Given the circumstances of the time, and the many variables involved, the decision to purchase was not, in our view, unreasonable.

50. The economic appraisal was based on the key assumption that, in the long term, charter rates are equal to capital and operating costs, plus an 8% financial return on the gross value of the investment. This assumption is by no means self-evident (see para. 27). The alternative approach, whereby an attempt is made to compare the cost of ownership with the cost of chartering, is open to similarly serious, though different, objections but might well have been tried. Tanker charter rates have typically shown strong cyclic fluctuations (though the oil crisis may have interrupted this pattern). An attempt to forecast future rates at appraisal would have to have paid cognizance to this cyclic effect. Charter rates are too variable to permit application of the Bank's normal rigorous procedure for economic appraisal, and Bank staff were faced with a difficult problem.

51. Four particular covenants and conditions had a beneficial effect: the requirement of tanker utilization in Indian trades, which encouraged development of lightening techniques, the encouragement of greater attention to the benefits of overall scheduling, the required SCI/IOC charter which has served as a pattern for public sector shipping in general and, with more limited success, the requirement of improved tanker turnaround time and antipollution arrangements. These last two requirements gave rise to continuing correspondence and, in our opinion, more attention might have been paid to the mechanism by which these improvements were to be achieved and paid for.

52. The project could have had a greater impact had a wider view been taken of its scope. For example, SCI training arrangements have been good and there have been no manning problems with the project tankers. However, greater attention might also have been given in the covenants to overall training in India of ship's crews and officers.

53. Given the relatively small proportion of India's ship purchasing program represented by the credit, a requirement for consultation concerning India's future purchasing program for ships might well have been difficult to achieve. However, this might reasonably have been required in the case of further orders likely to affect the utilization of the project tankers or, as proved to be the case for the product carriers, their cost.

54. The bidding procedure adopted appears to have presented no problems and conformed fully to the intent of the Guidelines, although the tight time requirement specified may have restricted the number of bidders. In our opinion, this was not really necessary, as tonnage could have been chartered to make up any temporary shortfall.

55. The "lender of last resort" argument was not strong. GOI would probably, in the absence of the credit, have obtained a loan on commercial terms. The main difference is in balance of payments terms (Annex 3). A loan on commercial terms would have had a negative cumulative effect at least until 1982. The credit made will probably have contributed about US$92 million to India's balance of payments by that time.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Project Outcome, Cost and Delivery

Cost Item	Contract Price	Original Equivalent (US$ million)	Actual Payment Made (US$ million)	Planned Delivery Date	Actual Delivery Date	
Crude Carriers						
NS Bose	Yen 5,000 million	15.9	18.235	11/73	12/73	
Vivekanauda	"	15.9	18.227	1/74	1/74	
C. Shivaji	"	15.9	17.370	9/74	4/74	brought forward
BR Ambedkar	"	15.9	18.164	11/74	5/74	by agreement
Subtotal	Yen 20,000 million	63.6	71.995			
Product Carriers						
R.A. Kidwai	US$9.5 million	-	12.378	6/74	6/75	
J.N. Vyas	"	-	12.677	9/74	12/75	
Subtotal	US$19.0 million	19.0	25.055			
Contingencies		0.4	-			
Total		83.0	97.050			

Note: Excludes local currency expenditure described in PCR Table 2 as "capitalized interest" and "pre-commisioning expenses", together amounting to Rs 48.8 million.

Source: GOI, SCI.

ANNEX 1

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Forecast and Actual Maximum Ship Drafts Acceptable at Haldia

Year	Appraisal Forecast (ft)	Actual/ Current Plan
1974	32	-
1975	35	30
1976	36	(32 (Feb.) (35 (year end plan)
1977	37	-
1978	38	-
1979	39	-
1980	40	40

Source: PCR and GOI.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Economic Justification of the Project

Audit Rate of Return

The four crude carriers were delivered between December 1973 and May 1974. Each has been fully occupied since delivery, and prospects for continued utilization on Indian trades seem assured. The two product carriers were delivered during 1975. Apart from the initial teething troubles described earlier, these vessels have been occupied in the coastwise movement of products since delivery, and prospects for their continued utilization for this traffic seem good. The basic assumption is thus made in estimating the audit rate of return that, had the six project tankers not been purchased, an equivalent tonnage would have to have been chartered. This assumption is perhaps optimistic: subsequent to the ordering of the project tankers, the SCI ordered a number of similar and other larger vessels. In the post-oil crisis situation, there may be surplus capacity in the SCI tanker fleet.

The basic approach in estimating the audit rate of return is therefore to compare the costs of ownership, both initial and operating, with the alternative cost of charter. Background information on charter rates has been specifically prepared for this analysis by H.P. Drewry (Shipping Consultants) Ltd., London, in the form of one-and five-year charter rates reported over the period 1972-75. These figures are given in Tables 1 and 2. Spot charter figures are not considered applicable to the situation under consideration where a continuing requirement can be foreseen. Additional information was provided by the Charter Department of the Ministry of Shipping and Ports in Table 3.

The estimated charter rates actually used in the calculation are given in Table 4.[1] The hypothetical chartered vessels are assumed to have dwt equal to the actual average liftings of the project tankers, making allowance for the increased depth available in the Hooghly River after 1980. The data available are not plentiful and are hard to interpret; however, we believe that they are not inconsistent with information up to now, and for the future estimates, that they represent a reasonably optimistic interpretation of current informed opinion.

/1 It should be made clear that H.P. Drewry have no responsibility for these estimates, which were prepared by the Bank team responsible for this audit.

The capital and operating costs for the product tankers are given in Annex 1 and Tables 5 and 6. The crude carriers are assumed to have a 20-year life and the product carriers to have a 16-year life, with 10% residual value in either case. With these assumptions, the benefit/cost stream is as shown in Table 7. The economic rate of return is calculated to be about 7%.

Effect on Balance of Payments

The effect of the purchase of the project tankers on Indian balance of payments was calculated for two situations:

(a) the credit as actually made;

(b) a commercial loan on OECD terms as applicable at the time, i.e., 70% of the originally estimated cost of the ships, with repayment over 7 years at 6% interest; and

The principal effect on the balance of payments relates to:

- capital cost payments to shipyards (-);

- loan/credit disbursements received (+);

- vessel residual value (+);

- foreign exchange component of the operating cost (-); and

- charter payments if the vessels had not been purchased (+).

The foreign exchange component of the operating cost was calculated from detailed information supplied by the SCI. This indicated for the crude carriers that the foreign exchange component was about 26% at present, although this figure should fall to about 22% when the vessels are dry docked at Cochin after 1980. For the product carriers, the proportion is assumed to be 25%.

On this basis the net foreign exchange income flows for each of the two situations was calculated, and the results are shown in Table 8. This indicates that a loan on OECD type terms would have started making a positive cumulative contribution only during 1982, when the loan had been paid off (and this, it should be recalled, is based on the reasonably optimistic assumed future charter rates). By that time, 1982, the credit should have made a contribution of US$92 million to the balance of payments.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Crude Carriers: One- and Five-Year Time Charters (85,000 dwt class)

One-Year Time Charters		Five-Year Time Charters	
Reported Date	US$/dwt/mo.	Reported Date	US$/dwt/mo.
-	-	1/72	2.14
-	-	1/72	2.63
-	-	2/72	2.14
10/72	2.65	2/72	2.57
12/72	2.60	11/72	2.77
-	-	3/73	3.70
-	-	4/73	3.75
-	-	4/73	3.70
-	-	4/73	3.75
-	-	4/73	3.85
-	-	4/73	3.95
5/73	6.20	5/73	4.05
6/73	6.85	9/73	6.13
10/73	7.45	10/73	6.25
12/73	4.50	10/73	4.50
12/73	4.35	10/73	4.50
12/73	4.90	11/73	4.50
1/74	4.20	3/74	4.23
3/74	4.35	-	-
5/74	4.75	-	-
8/74	3.30	-	-
12/74	2.50	-	-
4/75	0.90	-	-
7/75	1.45	9/75	2.20
7/75	1.50	9/75	2.15
7/75	1.50	10/75	2.25
11/75	1.25	12/75	2.25
12/75	0.80	12/75	2.22

Source: H.P. Drewry (Shipping Consultants) Limited, London.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Product Carriers: One- and Five-Year Time Charters (19,500 dwt class)

One-Year Time Charters		Five-Year Time Charters	
Reported Date	US$/dwt/mo.	Reported Date	US$/dwt/mo.
2/72	2.85	-	-
3/72	4.59	-	-
4/72	3.30	-	-
6/72	2.75	-	-
8/72	3.58	-	-
8/72	4.45	9/72	4.20
11/72	4.10	-	-
6/73	5.25	-	-
6/73	7.00	-	-
6/73	6.95	-	-
7/73	7.20	-	-
7/73	7.60	9/73	6.63
10/73	12.00	9/73	6.85
11/73	7.00	10/73	8.14
11/73	9.75	-	-
12/73	10.00	-	-
1/74	7.25	-	-
2/74	7.75	-	-
2/74	8.05	-	-
3/74	9.00	-	-
8/74	5.50	-	-
11/74	8.35	-	-
12/74	5.10	-	-
		3/75	5.50

Source: H.P. Drewry (Shipping Consultants) Limited, London.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Time Charters Effected by Charter Department
(Ministry of Shipping and Ports) for Product Carriers

Date	Rate/dwt/mo.	Period	Size of Vessel (thousand dwt)
9/72	US$6.90	12 mos.	6.0
11/72	R 24	2 yrs. from delivery	23.0
6/73	US$7.60	6½ mos.	13.5
6/73	US$8.90	10 mos.	13.5
7/73	US$7.30	1 yr. + 15 days	17.0
8/73	R 79.50	3 mos.	
9/73	US$9.95	1 yr.	10.0
10/73	US$12.40	1 yr.	6.0
2/74	R 68	3 yrs.	21.0
4/74	R 75/80	2 mos.	16.0
5/74	R 86	3 yrs.	25.0
2/74	R 72	3 yrs.	12.0
5/74	R 71	3 yrs.	16.0
2/75	R 50	1 mo.	16.0
2/75	R 60	6 mos.	20.0
5/75	R 120	5 yrs.	6.5

Source: GOI.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Estimated Charter Rates[/1] Used in Audit Rate of Return

Year	Crude Carriers (assumed 80,000 dwt until 1980, 85,000 dwt thereafter) US$/dwt/mo.	Product Carriers (assumed 20,000 dwt) US$/dwt/mo.
1974	6.00	
1975	4.50	
1976	2.40	
1977	2.40	7.50
1978	2.40	7.50
1979	2.40	7.50
1980	2.40	7.50
1981-85	3.00	10.00
1986 onwards	4.00	12.50

Source: Audit estimate.

Note: These rates are in constant value terms at 1975 price levels. Actual rates for 1976 onwards will be higher than shown here, because of inflation.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Crude Carriers: Assumed Operating Costs 1975 and Onwards

A.

Item	Annual Cost (US$ thousands)
Wages	170
Victualling	57
Stores	102
Sundries	6
Repairs	see Table B
Survey	-
Management	28 (estimated)
Insurance	341

B. Repairs and Survey

Year	(US$ thousands)
1	57
2	114
3	170
4	227
5	284
6	313
7	341
8	369
9	398
10	426
11	455
12	486
13	511
14	540
15	568
16	625

Source: Derived from SCI data.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Product Carriers: Assumed Operating Costs, 1975

Item	Annual Cost (US$ thousands)
Wages	170
Victualling	57
Stores	102
Sundries	6
Repairs	400
Survey	
Management	20
Insurance	300
Total	1,055

Source: Derived from SCI, Appraisal Report and other data for similar vessels.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Cost Benefit Calculation
(US$ thousand)

Year	Outgoings: Actual Payments to Shipyards	Outgoings: Operating Cost in 1975 Terms (1)	Benefit (Charter Hire) in 1975 Terms	Capital Cost Adjusted to 1975 Price Levels (2)
1972	13,320			21,046
1973	45,110			60,447
1974	28,770	2,283	17,280	31,647
1975	9,800	3,272	17,280	9,800
1976		5,606	12,816	
1977		5,834	12,816	
1978		6,062	12,816	
1979		6,178	12,816	
1980		6,290	12,816	
1981		6,402	17,040	
1982		6,518	17,040	
1983		6,630	17,040	
1984		6,746	17,040	
1985		6,870	17,040	
1986		6,970	22,320	
1987		7,086	22,320	
1988		7,198	22,320	
1989		7,426	22,320	
1990		7,426	22,320	
1991		7,426	22,320	
1992	(2,500)	5,316	16,320	(3,175)
1993		5,316	16,320	
1994	(7,200)	1,329	4,080	(9,144)

Note: (1) Operating cost excludes fuel cost and port charges.

(2) Capital costs adjusted according to the index of prices of developed countries manufactured exports to allow for the effect of world inflation. Source: IBRD Report No. 814.

PROJECT PERFORMANCE AUDIT MEMORANDUM

INDIA FIRST SHIPPING PROJECT (CREDIT 328-IN)

Net Foreign Exchange Gains from Purchase Compared with Charter Alternative
(US$ thousand)

Year	Credit	OECD Type Loan
1972	(320)	(3,320)
1973	(2,120)	(5,110)
1974	13,794	(15,846)
1975	6,006	(4,784)
1976	10,758	466
1977	10,698	904
1978	10,638	1,332
1979	10,610	1,812
1980	10,746	2,446
1981	14,946	15,568
1982	14,822	15,544
1983	14,086	15,416
1984	14,062	15,492
1985	14,043	15,473
1986	19,294	20,724
1987	19,266	20,696
1988	19,242	20,672
1989	19,194	20,622
1990	19,194	20,624
1991	19,194	20,624
1992	16,222	17,652
1993	12,362	13,142
1994	8,198	10,988
1995	(2,790)	
	↓	
until	2,022	

Source: Audit mission.

ATTACHMENT

INDIA

CREDIT 328-IN - COMPLETION REPORT

I. Summary

1.01 With the delivery of the second products tanker in December 1975, the project will be completed. Four crude oil tankers and one product tanker are on charter to IOC. Principal particulars and dimensions of the tankers are given in Annex 2. Two crude oil tankers are now being used to serve Bombay and two to serve Haldia. Barauni Refinery is operating solely on indigenous crude and output at Haldia is being restricted (para. 2.02 and 2.03). Due to draft restrictions in the Hooghly River part cargo is offloaded at Vizakhapatnam (paras. 2.04 and 2.05) The products tanker in operation is being used to carry refined products around the coast. (para. 2.07).

1.02 The total cost of the project is PRs 859.3 millions (US$ 98.8 million equivalent) as against the appraisal estimate of PRs 604.1 millions (US$ 83.0 equivalent) paras. 3.01 to 3.05.

1.03 Progress in installing antipollution devices at oil products ports other than Haldia and in improving oil transfer rates at these ports is slow (paras. 4.07 and 4.08)

1.04 There is no significant change in the expected internal and financial rates of return estimated at 12% at time of appraisal. The first year return on the investment in the crude oil tankers is about 18% (paras. 5.09 and 7.05)

1.05 SCI continues to operate successfully despite the present difficult situation in the tanker market and currently has no ships laid up. (paras. 6.01 to 6.04)

II. Employment of Tankers

2.01 At the time of appraisal, it was estimated that India would import about 18 million tons of crude oil in 1975, rising to 25 million tons in 1977. Based on this estimate the four crude oil tankers were to be employed in supplying the Haldia and Barauni Refineries.

2.02 As a result of the increase in the price of crude oil in 1974, the Government cut the import of crude oil to 13.5 million tons in 1975. The major impact of this cutback fell on the Haldia and Barauni Refineries because of their less favorable geographic location for the consumption of imported crude. Barauni Refinery is now processing indigenous crude and Haldia is operating well below its 2.5 million ton capacity.

2.03 The annual demand for crude oil for delivery to the Haldia Terminal estimated at time of appraisal together with actual and a revised forecast is given below:

	1973		1974		1975	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
Haldia Refinery	1.6	-	2.5	-	2.5	0.5
Barauni Refinery	-	0.1	1.2	0.4	2.2	0.3
	1.6	0.1	3.7	0.4	4.7	0.8

1976		1977 to 1980	
Appraisal	Revised Forecast	Appraisal	Revised Forecast
2.6	1.5	3.5	2.5
2.2	-	2.2	-
4.8	1.5	5.7	2.5

2.04 To maximize the utilization of the four crude oil tankers, IOC and SCI, with the Association's approval are now using two tankers to supply the refineries at Vizakhapatnam and Haldia and two to supply the Hindustan Petroleum Corporation Refinery at Bombay. These operations involve lightering operations in the outer harbor at Vizakhapatnam and in the open sea off the Gujarat coast 380 miles north of Bombay where sea conditions are relatively calm even during the monsoon. During the monsoon tankers cannot be handled at Bombay and the entire cargo is offloaded into two daughter tankers for ultimate discharge at Bombay.

2.05 To date two of the tankers were used in cross-trading for about 150 days. The Association's agreement to a maximum of 24 months of such use during the years 1974 and 1975 was obtained in advance.

2.06 The four crude oil tankers carried a total of 3.17 million tons to Indian ports from commissioning up to the end of March 1975. Port wise breakdown of the quantities is given in Table 1.

2.07 The first of the products tankers was delivered in June 1975 and has been chartered by IOC for coastal transportation of products. The second tanker will be delivered during December 1975.

III. Project Costs and Disbursements

3.01 Detailed final project costs and a comparison with appraisal estimates are shown in Section 3 of Form 590 and in Table 2.

(Rs Millions)

	Appraisal	Actual
1. Crude Oil Tankers	473.0	631.6
2. Products Tankers	138.3	227.7
3. Contingencies	2.8	-
	604.1	859.3
US$ Equivalent	83.0	96.8

3.02 **Cost overruns have been met from SCI's own resources and SIFC loans.**

3.03 The fixed price contract for the crude oil tankers provided for payment in Japanese yen and the variation in cost is due to exchange rate fluctuations.

3.04 The contract price for the products tankers was US$ 9.5 million each. However, due to financial difficulties at the Yugoslav yard where they were being built, the price was increased to US$ 12.38 million and US$ 12.68 million respectively.

3.05 The credit of US$ 83.0 million was fully disbursed by May 31, 1974. Actual disbursements compared with appraisal estimates are shown below:

	Appraisal Estimate	Actual
1972	14.6	15.1
1973	3.8	11.4
1974	52.1	56.5
1975	12.5	-
	83.0	83.0

IV. Undertakings Given by the GOI

4.01 **When the project agreement was concluded, the following assurances were given by the GOI:**

(a) **The ships to be chartered to IOC by SCI for 16 years at a rate based on a formula approved by the Association;**

(b) **A marine department to be established in IOC to schedule tankers and to study ways and means of improving tanker turnaround time;**

(c) The applicability of Tug and Barge Systems to Indian Coastal oil products movement to be studied;

(d) Hooghly River to be dredged to provide sufficient water depth to permit ships drawing 36' to lie alongside the Haldia oil terminal by 1975;

(e) Transfer vessels to be acquired and operated to provide the most economic use of the crude oil tankers;

(f) Improvements to pollution-control equipment to be made at shore facilities prior to delivery of the ships including the provision of slop tanks, improvement in shipboard practice and construction of facilities at Cochin.

4.02 The four crude oil tankers and one product tanker have been chartered to IOC for 16 years each. Copies of the Charter Parties have been lodged with the Association.

4.03 A marine department has been established by IOC at Bombay. It is staffed by qualified personnel and considerable improvement in tankers turnaround time has already been achieved (see Table 3).

4.04 The Association accepted the GOI view that the feasibility study for using tugs and barges in the coastal distribution of oil products was rendered unnecessary now that sufficient product tanker tonnage is available. However, the GOI is now actively reconsidering the question, and such a study forms part of the terms of reference for the consultants appointed in connection with the proposed coastal coal shipping project.

4.05 At the time of appraisal, it was estimated that the dredging of the Haldia channel in the Hooghly River would permit vessels drawing 35' to be berthed in 1975 and that the permissible draft would increase each year until 40' was reached in 1980. In addition, completion of the Farraka Barrage was expected to provide for a further 2 to 3 feet in draft. Annex 2 gives a detailed account of the circumstances which prevented these targets being reached. Calcutta Port Trust (CPT) considers that the 35' draft will be reached in April 1976 and that 40' draft will be achieved by the end of 1980. The reduced fresh water flow from the Farraka Barrage will only have a minimal effect on water depth; but it will, however, restrict the progressive siltation up the Hooghly River and thus protect channel depths. The Association considers the revised dredging program to be realistic apart from possible optimism about achieving the stated depth of 26' (suitable for 35' draft vessels) by April 1976.

4.06 Due to the changed circumstances, the acquisition of transfer vessels was abandoned. The present arrangements ensure that the crude oil tankers are utilized in the most economic manner.

4.07 The main oil handling ports and the facilities available are listed in Annex 3. Progress being made in the improvement of reception facilities is detailed in Annex 4.

4.08 India is a signatory to the International convention for the Prevention of Pollution of the Sea by oil, 1954 as amended in 1962, and the Instrument of Acceptance was lodged with the Intergovernmental Maritime Consultative Organization (IMCO) in March 1974. Annex 5 describes the measures taken and underway.

V. Review of Financial Evaluation

Financial Evaluation of the Shipowner

5.01 SCI's profits for the period covered by the appraisal are given in Table 4 and are summarised below:

	1972		1973		1974		1975		1976	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual	Appraisal	Revised Forecast
					(IRs millions)					
Gross Profit	190.3	178.1	189.1	153.6	241.9	289.7	375.4	667.2	439.4	570.0
Operating Profit	77.6	85.7	80.1	87.3	85.2	148.7	149.1	345.5	277.1	106.6
					Returns (%)					
Gross Profit to Freight	25.8	23.5	23.6	18.3	25.9	23.5	30.0	34.6	31.5	30.1
Operating Profit to Total Income	10.5	11.2	10.0	10.4	9.1	12.1	12.5	17.9	19.9	5.6
Operating Profit plus Interest to Capital Employed	5.9	6.6	4.7	4.8	4.3	5.8	5.6	10.5	8.9	5.4
Return on Equity	10.9	12.3	10.5	10.4	10.2	21.1	15.8	26.9	11.7	7.2

5.02 Forecast Trading results for the period 1977 to 1980 also shown in Table and are summarized below:

	1977	1978	1979	1980
	(IRs Returns)			
Gross Profit	742.7	806.0	905.0	858.0
Operating Profit	136.7	198.2	261.6	252.9
	Returns (%)			
Gross Profit to Freight	33.0	33.0	33.5	31.6
Operating Profit to Total Income	6.1	8.1	9.7	9.3
Operating Profit plus Interest to Capital Employed	7.1	7.9	9.3	9.2
Return on Equity	8.7	11.6	13.5	11.6

5.03 Balance Sheets comparison for 1972 to 1976 are given in Table 5 and representative years are given below.

(IRs Millions)

	1972		1975		1976	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Revised Forecast
Fixed Assets	1,595.0	1,527.6	3,752.8	4,462.6	4,265.3	6,386.4
Less Depreciation	432.7	435.4	772.0	812.5	959.0	1,081.5
Net Assets	1,162.3	1,092.2	2,980.8	3,650.1	3,306.3	5,304.9
Work in Progress	618.1	360.0	431.3	780.3	204.6	294.2
Other Assets	50.1	60.3	267.0	16.0	381.0	16.0
Current Assets	230.0	420.2	275.0	864.1	290.0	723.5
Deduct	2,060.5	1,932.7	3,954.1	5,310.5	4,181.9	6,338.6
Current Liabilities	115.0	268.9	130.0	617.4	135.0	629.9
Capital Employed	1,945.5	1,663.8	3,824.1	4,693.1	4,046.9	5,708.7
Represented by						
Loans	1,299.7	1,008.2	2,914.0	3,466.5	2,975.1	4,386.5
Equity & Reserves	645.8	655.6	910.1	1,226.6	1,071.8	1,322.2
	1,945.5	1,663.8	3,824.1	4,693.1	4,046.9	5,708.7
Debt/Equity Ratio	68/32	61/39	77/23	74/26	74/26	77/23
Current Ratio	1.9:1	1.6:1	2.1:1	1.4:1	2.1:1	1.1:1

B. Financing Plan

5.04: The financing plan prepared during appraisal showing funds requir and their expected source is compared below with the actual experience for the period 1972 through 1976. Details are given in Table 6.

(Rs millions)

	Appraisal	Actual (including estin for 1976)
Funds Required		
1. Capital Expenditure		
(a) Project Tankers	601.3	742.2
(b) Ships on order	2109.9	4097.6
(c) Other Capital Expenditure	102.0	170.5
	2813.2	5015.3
2. Repayment of Loans		
SDFC	299.7	385.7
Banks	42.0	309.1
Deferred Credits	240.5	278.5
	582.2	973.3
	3395.4	5988.6
Sources		
Loans		
SDFC	2195.5	2122.9
Banks	56.2	1292.7
Deferred Credits	446.9	1085.5
	2698.6	4501.1
Cash accruals	696.8	1442.5
Additional Equity	-	45.0
	3395.4	5988.6

5.05 The foregoing paras. 5.01 to 4.04 indicate a sound financial positic which is expected to continue. Details of the forecast trading results are shown in Table 4.

C. Financial Evaluation of the Charterer

5.06 No detailed forecasts of IOC's trading results were available at appraisal. Table 7 gives the results for the period 1971 to 1975 which are summarized below.

	Rs millions				
	1971	1972	1973	1974	1975
Gross Profit	319.3	539.9	672.5	514.3	814.0
Net Profit before Tax	211.0	369.9	534.7	357.8	615.7
(Appraisal Estimate)	(211.5)	(258.3)	(299.3)	(341.6)	-
	Returns (%)				
Gross Profit to Total Income	4.5	6.2	6.7	4.1	4.1
Net Profit to Total Income	2.2	3.7	4.9	2.5	2.6
Net Profit plus Interest to Capital Employed	11.0	17.4	24.8	14.0	21.3
Return on Equity	13.0	21.6	13.4	5.7	15.6

5.07 Balance Sheets for the period 1971 to 1975 are given in Table 8. Representative years are summarized below:

	1971	1974	1975
Fixed Assets	1829.7	2226.5	2775.9
Less Depreciation	450.8	953.4	1150.8
Net Assets	1378.9	1273.1	1625.1
Work in Progress	201.4	729.5	569.4
	1580.3	2002.6	2194.5
Investments	11.2	3.5	5.5
Current Assets	1151.2	3274.0	4008.3
	2742.7	5280.1	6208.3
Deduct:			
Current Liabilities	827.1	2795.1	3307.2
Capital Employed	1915.6	2485.0	2901.1
Represented by:			
Loans	706.3	771.5	938.3
Equity and Reserves	1209.3	1713.5	1962.8
	1915.6	2485.0	2901.1
Debt/Equity Ratio	37/63	31/69	33/67
Current Ratio	1.4:1	1.2:1	1.2:1

5.08 The financial position of IOC as shown in paras. 5.06 and 5.07 is satisfactory. The financial obligation involved from the time charter contracts with SCI is small in relation to overall commitments.

D. Financial Return on the Investment

5.09 Table 9 shows that a return of 18% to 19% was obtained in the first year of operation of the crude oil tankers. The expected return on the investment (Table 10) shows little variation from the appraisal estimate of about 12%.

E. SDFC

5.10 SDFC from its inception in 1958 to 1975 has disbursed US$ 450 million equivalent in loans (Table 11) to shipping companies of which about US$ 250 million equivalent has been made to SCI. Details of the loans made to SCI for the project tankers are given in Table 12.

VI. Organization, Management and Performance of SCI

SCI, one of the largest shipowning companies in the world, is well managed. Managerial and technical efficiency is constantly being improved through the introduction of new methods and techniques.

6.02 SCI has an active training policy and managers are sent on various courses. An outline of SCI's training program is contained in Annex 7. An adequate supply of merchant seamen and officers is available through the training facilities provided in India.

6.03 The company's fleet has grown from 20 vessels of 203000 dwt in 1962 to 126 vessels of 3.5 million dwt in 1975. Composition of the 1975 fleet is given in Annex 8. Nineteen vessels costing US$ 372.9 million equivalent are currently on order, totalling 1.3 million dwt. Details of costs and financing arrangements are given in Annex 9.

6.04 Despite the present difficulties in the tanker market SCI has no ships laid up. Details of the employment position for tankers and bulk carriers are given in Annex 10.

6.05 Auditing arrangements for the company are satisfactory. The project tankers are fully insured against marine and war risks and are maintained to the highest standards of recognized international classification societies.

VII. Review of Economic Evaluation

7.01 At the time of appraisal, the economic benefits of the project were based on a comparison of the costs to India of owning and of chartering the tankers.

7.02 Long-term charter rates include, inter alia, elements for capital recovery at an acceptable interest rate. It was, therefore, argued that by owning the assets rather than chartering, these returns on capital would be retained within the Indian economy since they would consist of transfer payments within the economy and would not include foreign exchange payments.

7.03 As a result of the collapse of the tanker market over the past two years, it is clear that India could have obtained the required tanker capacity at a much lower cost by delaying the acquisition of tankers. However, the dramatic increase in the price of oil in January 1974 could not have been foreseen and on the basis of the facts known at the time of appraisal, the investment decision taken was reasonable.

7.04 Charter rates for tankers of similar capacity over the last two years have ranged from US$ 3.25 to $2.50 per dwt/mth compared with the average rate of US$ 4.05 per dwt/mth paid by IOC for the project tankers. It would therefore have been cheaper to charter rather than own during this period and this situation may well continue for some years. Charter rates for the project tankers are payable in rupees and to the extent that the rupee has been overvalued in recent years, the real difference will be less.

7.05 This does not mean, however, that over the life of the project tankers (taken as 16 years in the Charter), it would have been more advantageous to charter. The project tankers are expected to show a satisfactory financial return over their economic lives (para. 5.09) and to show an internal rate of return approximately as estimated at time of appraisal at 12%. Such a return, it should be emphasized, omits the consideration noted in para 7.03 that the tankers might have been acquired at a lower capital cost.

VIII. Comment

8.01 All conditions of the Project Agreement dealing with subloan conditions (SDFC to SCI) ship mortgage and covenants have been met.

8.02 Supplies of crude oil for major oil companies are carried by (i) their own fleet (ii) tankers on long term charter and (iii) tankers on short term charter. Long term charter rates tend to reflect the underlying capital costs, whatever the short term effect may be of temporary conditions of over-supply or shortage of shipping. The short term market is volatile and extremely sensitive to fluctuations in supply and demand.

8.03 Since IOC are precluded by law from owning ships and, in any event, are inexperienced in ship management and operations, their main surplus of crude oil must be secured through long term charters. By owning the tankers, India's dependence on foreign flag carriers has been reduced.

8.04 The delivered cost per ton of crude oil in 1974/75 was US$ 5.70 compared with the appraisal estimate of US$ 3.75. This increase is due to quantities delivered being below the system capability, increased capital costs for tankers in dollar terms and increased fuel costs.

8.05 No further supervision in the field is required but progress in the installation of anti-pollution and oil handling facilities should be kept under review. SDFC, SCI and IOC will continue to submit financial and operational data in accordance with the Association's reporting requirement.

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Credit and Project Summary

Borrower:	India, acting by its President Shipping Development Fund Committee (SDFC) Shipping Corporation of India (SCI) US$ 83.0 million equivalent - repayment in 50 years with 10 years grace; repayments in semi-annual installments payable on each March 15 and September 15 commencing September 15, 1982 and ending March 15, 2022, each installment to and including the installment payable on March 15, 1992 to be one-half of one percent and each installment thereafter to be one and one-half percent of the principal amount.
Intermediary:	
Beneficiary:	
Amount and Terms of Credit:	
The Project:	The acquisition of (a) four crude oil tankers in the 80,000 tons dwt class for use in importing crude oil and (b) two refined products tankers in the 20,000 dwt class for use in the import, export and coastal distribution of refined petroleum products.
Relending Terms:	From India to SDFC 100% of the proeeds of the IDA Credit at 7½% interest per year on the amount of the loan outstanding; principal repayment to parallel those of SCI to SDFC; amount of loan to be denomiated in constant value rupees (in terms of sterling). From SDFC to SCI: 100% of the proceeds of the IDA credit at 8½% interest per year on the amount of the loan outstanding; one year grace period, principal to be repaid in 16 equal annual installments; amount of the loan to be denominated in constant value repees (in terms of sterling). From SDFC to SCI: 100% of the proceeds of the IDA credit at 8½% interest per year on the amount of the loan outstanding; one year grace period, principal to be repaid in 16 equal annual installments; amount of the loan to be denominated in constant value rupees (in terms of sterling).

		(US $ million)
Total Project Cost:	Crude oil tankers	63.6
	Refined products tankers	19.0
	Contingencies	0.4
	Total	83.0
Financed By:	IDA Credit	83.0
	Total	83.0

Procurement Arrangements: International competitive bidding

Estimated Disbursements:

(US$ million)			
1972	1973	1974	1975
14.6	3.8	52.1	13.5

Rate of Return: 12%

Source

Appraisal Report (PTR 102a) data February 5, 1972

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Principal Particulars and Dimensions of Project Tankers

1. Crude Oil Tankers

	Meters	Feet
Length, overall	236.0	774'3"
Length, between perpendiculars	226.0	741'6"
Breadth, moulded	39.4	129'3"
Depth, moulded	18.7	61'4"
Loaded draft	13.9	45'7"

Deadweight — at maximum draft 87500; at 39' 71500

Machinery (Main Engine) — Mitsubishi Sulzer 7RND90
Maximum rating (BHP) 20,300 PS at 122 RPM
Normal rating (BHP) 17,250 PS at 116 RPM

Speed — 15.55 knots at 15,680 PS at 39' draft

Fuel Consumption — 153 grains/PS/Hr. plus 5% at maximum rating for main engines only on basis of fuel oil with lower calorific value of 10,000 K cal/kg.

Classification — Ships including machinery equipment and outfittings constructed in accordance with the Rules and Regulations and under special supervision of the American Bureau of Shipping (ABS).

2. Products Tankers

	Meters	Feet
Length, overall	160.0	525'0"
Length, between perpendiculars	153.1	502'0"
Breadth, moulded	22.8	74'9"
Depth, moulded	13.95	45'9"
Maximum draft	10.70	35'0"

Deadweight — at maximum draft 24,114; at 30' 19,500

Machinery (Main Engine) — MAN. K6Z. 70/120E
8400 BHP at 140 RPM

Speed — at 85% continuous rating of main engine of 8400 BHP at 30 ft. draft - 15 knots.

Fuel Consumption — 155 grains/BHP plus 5% at maximum continuous output of 8400 BHP at 140 RPM - net calorific value of 10,000 K cal/kg.

Classification Ships including hull equipment and machinery bulk main Lloyds Register of Shipping.

3. The project tankers have been constructed in accordance with the following:
   (a) International Convention for the Safely of Life at Sea 1960 (SOLAS-highest standard).
   (b) International Loadline Convention.
   (c) International Antipollution Rules 1971 together with all IMCO recommendations.
   (d) United Kingdom Board of Trade and Industry Rules.
   (e) British Factory Act for Cargo Gear.
   (f) Indian Merchant Shipping Rules.
   (g) Suez and Panama Canals Regulations.
   (h) US Public Health Regulations.

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Draft Limitations and Dredging in the Hooghly River

In 1971, the Government of India through the Calcutta Port Trust (CPT) undertook substantial investments for the improvement of the navigation channels from the sea up the Hooghly River to Haldia estimated to cost about US$ 74 million equivalent. These works included increasing the depth of water at the Haldia jetty and the turning area, and the dredging of the Hooghly River estuary in stages to an ultimate depth by 1980 suitable for vessels drawing up to 40 feet.

The stages were as follows:

Year	Draft in Feet for Inward Ships for 320 days in the Year
1974	32
1975	35
1976	36
1977	37
1978	38
1979	39
1980	40

Under Credit 328-IN, the project provided for the procurement of four crude oil tankers of 87,500 dwt and of two products tankers of about 24,000 dwt. The vessels were designed to operate with 71,500 dwt at 39 feet draft and 19,500 dwt at 30 feet draft, and were expected to be available during 1974. The choice of the size for the crude oil tankers assumed the completion of the Hooghly dredging within the above time-scale.

In 1971, however, the Hooghly River experienced the highest upland flow since 1883 which seriously affected the regime of the river. The strong river ebb breached the channel at the Acukland bar area on the west side and attempted to follow the line of the old Dutch entrance channel of circa 1660, which entered the estuary from the Bay of Bengal close to the western shore.

In 1972, the upland flow was the lowest since 1923 and resulted in excessive deposition of silt in the main river channels. Interim measures

were taken by CPT to seal the breach in the channel bend at Auckland bar, at a cost of Rs 0.3 million. Dredging was undertaken on a 24 hour basis by the CPT suction dredger "MOHANA" of 3,000 cu. metres capacity.

In June 1973, a contract was placed with Ham River Dredging Co. for the provision of a larger suction dredger "HAM 308" of 4,800 cu. metres capacity which started dredging in November 1973. Additional dredging assistance was obtained by another contract using the "Delta Bay" of 9,200 cu. metres capacity commencing in May 1974 for an intended period of 12 months. By October 1974, the channel had been improved sufficiently to accept vessels drawing 29 feet with widths of 2000 feet and 1500 feet in the outer and inner estuaries respectively. However, the "Delta Bay" had been employed direct from a previous large contract and was out of commission due to breakdown for about 20% of its time. Moreover, the pickup heads were not fully suitable for the Hooghly River material and the Contract was terminated in April 1975.

The use of the Government - owned dredger "MDT 5" was obtained in February 1975, and by March 1975, navigable depths of 20 feet and 23 feet had been provided over the Auckland and Middleton bars respectively, permitting access for vessels drawing 30 feet. By October 1975, the depths have been further improved by about 1½ feet. CPT have arranged for the use of a second Government-owned suction dredger, "MDT 6" of 3,500 cu. metres capacity to start dredging in January 1976, and expect delivery of their own new suction dredger "MOHANA 2" in mid-1976, (3,000 cu. metres capacity). Some 21 million cubic metres (m.c.m.) of spoil have now been dredged from the Hooghly bars to Haldia since late 1973, with a further 12.9 m.c.m. to be removed by the end of April 1976. CPT consider that in April 1976 they should achieve channel depths suitable for vessels drawing 35 feet to proceed to Haldia on 320 days of the year. Based on progress of dredging works to date and with the dredgers which will be available to them, CPT consider that they can achieve the desired water depths for 40 feet draft vessels by the end of 1980. This is estimated to require dredging of some 35 m.c.m. They further consider that additional deepening after achieving 40 feet draft acceptance in 1980 is feasible but will prudently review the effects of the current stages of dredging upon the regime of the river before embarking on further channel deepening. The present total estimated cost of dredging is Rs 480 million, an increase of 50% over the 1973 estimates.

In order to protect the navigable channels and particularly to facilitate maintenance of the depths at the Auckland and Middleton shoals, training works have been undertaken by stages at a total estimated cost of about Rs 350 million (Rs 240 million in 1973 estimates - see Map 11928). These are based on the principle that the navigable channels should coincide with the natural ebb channel of the river since it is the upland run-off which helps to keep the siltation to a minimum. The river is tidal as far as Nabadwip at the confluence of the Bhagirathi and Balengi rivers, some

22 miles upstream of Calcutta, and the penetration of silt has successively increased year by year during periods of low dry weather flow of the river. With this in mind, the Farakka Barrage has been constructed some 254 miles upstream of Calcutta. This barrage will supplement via a feeder canal the fresh water flow into the Hooghly River by about 40,000 cusecs for periods each year when the normal fresh water flow into the Hooghly River falls to a minimum. In this way, the progression of siltation up the Hooghly River should be restricted, and existing channel depths protected. However, the increase in depth of water in the Hooghly River as a result of the supplementary flow from Farakka is now expected to be considerably less than the 2 to 3 feet estimated earlier due to restricted draw-off of water from the Ganges at Farakka.

Other corrective measures to maintain optimum channel alignment will be the deepening and realigning at Jigerkhali upstream of Haldia.

Based on the detailed discussions in Calcutta, the program of dredging appears realistic, apart from possible over-optimism about achieving the stated depth of 26 feet (suitable for 35 ft. draft vessels) by April 1976.

SOURCE: CPT and Bank Staff

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Oil Handling Facilities at Indian Ports

KANDLA

For Black Oil: 1 No. 400 mm (16") pipeline is available and also a booster pump of 800 HP. Pumping rate is 500 to 800 tonnes/hour depending on pressure and rate of discharge by tanker pumps.

For White Oil: 1 No. 350 mm (14") pipeline is available and also a booster pump of 1000 HP. Pumping rate is 400 to 500 tonnes/hour depending on pressure and rate of discharge by tanker pumps.

For HSD: 1 No. 300 mm (12") pipeline is available. Facilities are available for flushing pipelines.

BOMBAY

Butcher Island: The entire POL traffic is being handled at Butcher Island Marine Terminal. There are three jetties, and facilities at each jetty consist of:

(1) 1 No. black oil line of 600 mm (24") dia.
(2) 2 Nos. white oil lines of 400 mm (16") dia.
(3) 1 No. flushing line of 300 mm (12") dia.

Pumping rate during discharge operation is 300-350 T/hour for black oil and 400-450 T/hour for white oil. The loading rate ex-refineries through black oil pipeline is 1600-1800 T/hour and through white oil pipeline is 700-850 T/hour.

At Pir Pau: At Pir Pau, there are 2 Nos. flushing pipelines of 300 mm (12") dia for handling white oils only and 3 Nos. booster pumps of 140HP and 1050 GPM capacity. An oil barge is also available for cleaning tanks.

COCHIN

At North Tanker Jetty: Though this jetty is mainly intended for crude tankers, 3 Nos. of 300 mm (12") pipelines are available for products. Of these, one line is for black oil and two lines for white oil.

At South Tanker Jetty: In this jetty which handles mainly products, 3 Nos. of 300 mm (12") pipelines for products are available. One line is for black oil and two lines for white oil. Pumping rate is 300 to 500 tonnes per hour.

Super Tanker Oil Terminal Project: Though the proposed oil terminal will be confined to crude unloading only for the present, suitable provisions are proposed to be made to cater for product loading in future. 1 No. 350 mm (14") line for black oil and bunkering and 1 No. 300 mm (12") for white oils are proposed to be laid from the existing oil jetty area to the new oil jetty. Booster pumps--one each for black oil and white oil--will be installed. 1 No. separate 300 mm (12") NB loading crane will be installed for loading of white products. The crude unloading system will be used for loading black oil also.

MADRAS

Oil (Products) Handling Facilities: White oil and other products are handled in 300 mm (12") pipeline. The handling rate is about 500 tonnes/hour. Black oil is handled in 350 mm (14") pipeline, and the handling rate is about 600 tonnes/hour.

VISAKHAPATNAM

There are two alongside berths OR-1 and OR-2 where oil tankers are handled: The raisers at OR-1 berth consist of:

(a) 1 No. 200 mm (8") dia pipeline for ballast
(b) 1 No. 150 mm (6") dia pipeline for kerosene
(c) 1 No. 200 mm (8") dia pipeline for motor spirit
(d) 1 No. 200 (8") dia pipeline for MTO
(e) 1 No. 150 mm (6") dia pipeline for LDO
(f) 1 No. 200 mm (8") dia pipeline for HSD
(g) 1 No. 200 mm (8") dia pipeline for ATF
(h) 1 No. 200 mm (8") dia pipeline for FO

The raisers at OR-2 consist of:

(a) 1 No. 200 mm (8") dia pipeline for ballast
(b) 2 Nos. 200 mm (8") dia pipeline for FO
(c) 1 No. 150 mm (6") dia pipeline for kerosene
(d) 2 Nos. 200 mm (8") dia pipeline for MTO
(e) 1 No. 150 mm (6") dia pipeline for motor spirit
(f) 1 No. 150 mm (6") dia pipeline for ATP

Main lines to which raisers are connected are as under:

(a) 1 No. 250 mm (10") dia pipeline for ballast
(b) 1 No. 300 mm (12") dia pipeline for FO
(c) 1 No. 300 mm (12") dia pipeline for MTO
(d) 1 No. 250 mm (10") dia pipeline for HSD
(e) 1 No. 200 mm (8") dia pipeline for SK
(f) 1 No. 200 mm (8") dia pipeline for LDO
(g) 1 No. 200 mm (8") dia pipeline for ATF
(h) 1 No. pipeline with varying diameter from 200 mm (8") to 300 mm (12") for motor spirit

The pumping rates for the various lines are as follows:

(a)	Motor spirit	225 T/hr
(b)	HSD	400 T/hr
(c)	LDO	250 T/hr
(d)	SK	200 T/hr
(e)	ATF	200 T/hr
(f)	MTO	200 T/hr
(g)	FO	600 T/hr

In addition, there are some pipeline facilities available at jetty berth J-3 which are mainly used by IOC. They are:

(a) 1 No. 220 mm (8") dia pipeline for black oil
(b) 1 No. 200 mm (8") dia pipeline for white oil. Pumping rate varies from 200 to 300 tonnes/hr depending on nature of oil

CALCUTTA/HALDIA

At Haldia, 2 Nos. of 300 mm (12") pipelines are available for MS/Naptha, SK and HSD. The pumping rates obtained are 350-500 tonnes/hour.

Source: IOC

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Improvements in Oil Products Reception Facilities at Indian Ports

KANDLA	1. Additional tanker berth has been built and has become operational from May 1975. 2. Approach channel has been further dredged to increase the tanker draught from 30 ft. to 33 ft. 3. Product pipeline is being renewed and pressure up to 150 PSI will be allowed in near future, increasing flow rates and thus achieving better turnaround. 4. Tankers are planned with two grades which are discharged simultaneously thereby reducing berth occupancy.
BOMBAY	1. 4th tanker berth to accommodate 125,000 DWT tankers has been sanctioned and is expected to be ready by 1977-78. 2. A bridge connecting mainland to Butcher/Island has been sanctioned by Government of India. Large diameter pipelines connecting Butcher/ Island jetties to refineries and other storage points will be laid on this bridge. This will increase product movement rate and also facilitate maintenance of pipelines.
VASCO (GOA)	Additional tanker berth to accommodate tankers with 42 feet draft is under construction and is expected to be operational in next two years.
COCHIN	Additional berth for accommodating 100,000 DWT tankers for handling crude is planned. This will make present two tanker berths available exclusively for product handling.
MADRAS	Proposal for constructing additional tanker berth for handling product tankers is Bharati docks is under consideration.
VISAKHAPATNAM	Outer harbor to accommodate ships of 100,000 DWT is nearing completion. Proposal for providing a tanker berth in the outer harbor is under consideration.

HALDIA	1. Oil tanker berth has been in operation and has proved safe and economical for handling tankers. Hose handling facilities will be provided by the port authorities in near future. 2. Intensive capital dredging is being undertaken by Calcutta Port Commissioners in approach channel to Haldia. January 74 Maximum/minimum FW drafts were 8.8 M(29 ft.) and 7.0 M (23 ft.) whereas May 1975 drafts are 9.7 M (32 ft.) 8.6 M(28 ft.) respectively. The position is expected to further improve when water from Farakka barrage starts flowing through Hooghly River.
BUDGE BUDGE	No improvements possible at this installation. However, quantum of movement of product at this installation is expected to reduce as Haldia refinery product movement increases.
PAHARPUR	Additional 12" pipeline will be laid in near future to expedite FO discharge from tankers.
MANGALORE	New port has been recently commissioned. Tanker jetty to handle 30' draft vessels has also been commissioned.
TUTICORIN	New port has been commissioned. Tankers are presently handled at temporary mooring system which discharge product by means of flexible floating hoses. Work on construction of permanent tanker berth is progressing satisfactorily.

Source: IOC

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Anti-Pollution Facilities at Indian Ports

1. VISAKHAPATNAM

A. A 100-ton barge is available into which oily residues and mixtures from bilges of ships can be pumped by ships. These mixtures can be pumped into a shore masonary tank of 100T capacity. Oil collected in the tank can be suitably disposed of.

B. The Caltex Oil Refining (India)Ltd. has a tank of 1800-ton capacity and this tank can be made available for receipt of oil ballast water or oily mixtures from tankers and ships.

C. Hindustan Shipyard has a tank of 250 tons capacity for receipt of oily mixtures or oily ballast from ships calling for repairs.

2. As regards the other three ports, viz. Kandla, Cochin and Calcutta/Haldia, the provision of reception facilities for oily residues and mistures are in the various stages of implementation and after completion of same, these ports will also be notified by Government of India as having reception facilities in accordance with the IMCO Convention. The present status of the provision of such facilities at the above three ports is briefly given below.

A. KANDLA

The scheme for provision of oil reception facilities, sanctioned at an estimated cost of Rs3.88 lakhs, is in progress and is expected to be completed by December 1975. Brief particulars of the scheme in progress are as follows.

A. For oil tankers berthing at the oil jetty at old Kandla, a 250-ton capacity steel tank will be provided into which oily mixtures from tankers can be pumped through 200 mm dia pipeline. Oil collected in the tank will be lifted by a suitable pump provided in tank lorries.

B. A tank lorry of 12 kilo litre capacity will be provided at the cargo jetty at New Kandla into which ships can discharge their oily mixtures. The tank lorry will discharge the oily mixtures into the pumps provided at Old Kandla from where the contents will be pumped into the tank referred to above.

B. COCHIN

A. Such facilities are being planned as part of the Super Tanker Oil Terminal Project which is under Government's consideration. The project envisages provisions of the following facilities:

(i) A 10,000m^3 ballast storage tank into which the ballast and slop oil will be pumped through a 12" dia ballast/slop oil line.

(ii) A 200m^3 oil storage tank with suitable pumps, piping, etc.

B. For provision of necessary facilities for products tankers which operate from the existing jetty, necessary plans and estimates are being prepared by the consultants.

C. CALCUTTA/HALDIA

Ships which call in for repairs dispose of their oily mixtures by arrangement with ship repairers and tank cleaning contractors. Oily residues are removed into drums and taken out of the port area for ultimate disposal.

3. To deal with oil spills, a boom and skimmer is being provided at Madras and a boom and foam dispersal facility at Vizak.

Source: Ministry of Shipping and Transport

INDIA

COMPLETION REPORT

SHIPPING PROJECT

TRAINING FACILITIES

A Committee was appointed in 1968 to formulate policies regarding manpower planning for technical officers (navigating and engineering) for manning SCI ships. This was a high power Committee headed by SCI Chairman. As a result of the implementation of the recommendation of this Committee the recruitment program and training program of SCI was reoriented and intensified.

NAVIGATING OFFICERS:

Recruitment and Training.

SCI have converted 8 ships into Cadet Ships where special arrangement were made for providing training and technical guidance to the Cadets. The intake from ex.Dufferin/Rajendra was expected to be only proportionate to SCI's tonnage/Indian Shipping and the rapid expansion program was to be met by this additional recruitment. The yearwise recruitment has been as follows:

Year	Ex-Dufferin/Rajendra	Direct Entry	Total
1968	38	16	54
1969	36	82	118
1970	31	116	147
1971	36	91	127
1972	42	73	115
1973	35	61	96
1974	58	128	186
1975(upto 9/30/75)	65	158	223

Apart from creating additional capacity by conversion, wherever surplus accommodation was available, it was fully utilized by posting additional Cadets on board. On date there are 510 Cadets on board and 137 ashore for their Certificates of Competency after completing requisite sea-time.

Some of these Cadets are now Chief Officers.

Pre-Sea Course

For these Cadets SCI started conducting pre-sea six week duration intensive and fully residential training courses to acclamatise them to sea life before they were posted on ships. 216 Cadets have undergone this six week pre-sea training from September 1974 onwards.

Mid-Term Courses

SCI has also introduced an intensive six week Mid-Term residential training program for the Cadets who are taken off the ships half way through their apprenticeship on board and put through a six week residential course in order to guide them in regard to their weaknesses and to prepare them for their Certificate of Competency. Since January 1975, 94 Cadets have been put through such courses.

Cadets, during these residential courses, are under the charge of two Master Mariners, one of them a retired Principal of Nautical College.

These programs are going on throughout the year.

Correspondence Courses

A Correspondence Course in Mathematics, Physics and General Shipknowledge has also been introduced for all the Cadets since early 1974.

MARINE ENGINEERS

Recruitment and Training

Since the DMET (The traditional training Institute) intake was not sufficient to meet SCI's expansion needs it was decided to recruit engineering graduates, both Mechanical and Electrical and to train them to become Marine Engineers. This was possible because of the availability of graduate engineers in the country. To facilitate this training, some of the best workshops in Inida viz. Mazagon Docks, Scindia Workshops and Bombay Port Trust in Bombay and Garden Reach Workshops and CIWTC in Calcutta were persuaded to provide facilities for training in their workshops to trainee graduate engineers and thus 86 vacancies for training in workshops were created enabling the training of almost 150 trainees every year by utilizing training aboard ships in port also.

SCI has recruited 845 graduate engineers since 1968 as indicated below:

Year	Total Recruitment
1968	65
1969	86
1970	96
1971	50
1972	105
1973	149
1974	155
1975(upto 10/7/75)	139

Evening technical lecture programs are provided by SCI's senior engineering shore staff for these graduate engineers.

Today, SCI fleet has 26 Chief Engineers, 77 Second Engineers and 41 Third Engineers from this source. This direct graduate engineers' recruitment provides almost 60% of engineers afloat.

SPECIALIZED IN-SERVICE TRAINING

Apart from the recruitment training, other special training programs are also arranged.

MARINE CONTROL ENGINEERING COURSES

To meet the needs of technological advancement aboard ships, comprehensive three week residential training programs for engineer officers and electrical officers are being conducted at Bombay where an electronics practicals laboratory has been set up and simulators are being built up. 271 Engineers have been put through these courses on modern ship automation providing training for marine instrumentation, controls and electronics.

SENIOR OFFICERS STAFF COURSE

SCI has conducted 14 Senior Officers' staff courses covering 242 officers where an equal number of Masters and Chief Engineer Officers are given opportunities for free and frank discussion with heads of departments and senior executives of the Corporation of various problems of ship operation and management with the present rapidly changing situations in world shipping/ship operation practices in highly competitive markets. These courses also provide opportunities for Head Office senior executives to know various problems faced by ships' staff at various ports of the world and this exchange of information also forms a problem solving base.

FIRE FIGHTING AND DAMAGE CONTROL COURSES (OFFICERS)

The Indian Navy Training Establishment is conducting special 3-day Fire Fighting and Damage Control Courses for SCI Officers for the last year and has now extended the facility for another two year period. 108 Officers have completed the above course.

FIRE FIGHTING COURSES (CREW)

SCI has started Fire Fighting Courses for Tanker and Passenger ship crew where all such crew after selection and before being posted on board will be put through a one-day intensive course where mock-up fires and conditions will be explained with fire-fighting demonstrations and hoses/extinguishers actually handled by the crew to be able to learn proper method of handling.

Modern Management Techniques

During all training and specialized in-service programs, special lectures in humanities, communication, and other modern management subjects are introduced to develop a high standard of officer cadre.

Special Courses Abroad

Apart from these courses organized in India, selected staff are sent to UK and Europe for specialized courses such as Tanker Safety, Fire Fighting and Radar Simulator courses and machinery manufacturer's courses etc. and their experience and knowledge is suitably utilized for training others.

Some senior Ship Masters have also been sent to Ship Handling Course at Grenoble to gain simulated experience on VLCC handling.

Source: SCI

INDIA

COMPLETION REPORT

SHIPPING PROJECT

SHIPPING CORPORATION OF INDIA

Composition of Fleet as at March 1975

	Type of Vessels	No.	D.W.T.	%
(i)	Dry Cargo Vessels	73	875,897	25
(ii)	Bulk Carriers	16	682,935	19
(iii)	Combination Carriers	8	555,341	16
(iv)	Crude Carriers	13	1,010,551	28
(v)	V.L.C.C.	1	273,317	8
(vi)	Product Carriers	5	86,036	2
(vii)	Coal Carriers	3	44,806	1
(viii)	Passenger-cum-cargo Vessels	6	22,808	1
(ix)	Timber Carrier	1	4,237	--
		126	3,555,928	100

Source: SCI

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Shipping Corporation of India Limited

Ships on Order - Financing Arrangements

Sr. No.	Yard & Country	Type of Ship	DWT	Date of Delivery	Price	Payments made till 30.9.1975	Payments yet to be made (excluding Deferred Credit) 1975-76 (Oct.'75 to Mar.'76)	1976-77	1977-78	1978-79	Deferred Credit	Financing Arrangements
	Santieral Naval Galati, Galati											
1.	Archana	Bulk Carrier	18,000	31.12.1975	Rs. 41,475,000	Rs. 20,73,750	Rs. 41,47,500	-	-	-	Rs. 3,52,53,750	Entire price payable in Indian Rupees. Rs. 10.67 million availed of as loan from SDFC. Balance amount paid out of own resources.
	Uljanik Shipyard, Pula											
2.	H. No. 305	VLCC	2,69,000	31. 3.1976	US$ 41,000,000	US$28,700,000	-	-	-	-	US$ 12,300,000	US$20.5 million foreign exchange loan. US$ 8.2 million own resources - free foreign exchange release.
3.	H. No. 308	Bulk Carrier	41,604	31. 3.1977	US$ 19,250,000	US$ 3,850,000	US$ 1,925,000	US$ 3,850,000	-	-	US$ 9,625,000	US$7.70 million foreign exchange loan. US$1.925 million - own resources - free foreign exchange release by Govt
4.	H. No. 310	" "	"	31. 7.1977	US$ 19,250,000	US$ 3,850,000	-	US$ 3,850,000	US$ 1,925,000	-	US$ 9,625,000	US$7.70 million foreign exchange loan. US$1.925 million - own resources - free foreign exchange release.
5.	H. No. 311	" "	"	30.11.1977	US$ 19,250,000	US$ 3,850,000	-	US$ 1,925,000	US$ 3,850,000	-	US$ 9,625,000	US$7.70 million foreign exchange loan. US$1.925 million - own resources - free foreign exchange release.
	Brodogrediliate, Split, Split											
6.	Zakir Hussain	Tanker	1,15,000	Nov. 1975	US$ 20,025,000	US$ 8,250,000	US$ 2,640,000	-	-	-	US$ 9,135,000	Free foreign exchange.
7.	Vallatbol	OBO Carrier	1,13,000	31.12.1975	US$ 23,800,000	US$ 9,520,000	US$14,280,000	-	-	-	-	US$21.42 million foreign exchange loan. US$2.38 million own resources; free foreign exchange release.
8.	Vallabhbhai Patel	" "	"	31. 5.1976	US$ 23,800,000	US$ 2,380,000	US$14,280,000	US$ 7,140,000	-	-	-	US$21.42 million foreign exchange loan. US$2.38 million - own resources - free foreign exchange release.

Sr. No.	Yard & Country	Type of Ship	DWT	Date of Delivery	Price	Payments made till 30.9.1975	Payments yet to be made (excluding Deferred Credit) 1975-76	1976-77	1977-78	1978-79	Deferred Credit	Financing Arrangements
	Jozolozovina 'Mosor' Trogir											
9.	Jainarayan Vyac	Product Tanker	24,114	Dec. 1975	US$ 12,677.000	US$ 7,600,000	US$ 1,900,000	-	-	-	US$ 3,177,000	US$3.8 million World Bank loan. US$5.7 million own resources - free foreign exchange release.
10.	Kolandia	" "	"	15.12.1975	US$ 12,688,000	US$ 1,721,000	US$ 573,750	-	-	-	US$ 10,393,000	US$0.57 million foreign exchange loan. US$1.721 million own resources - free foreign exchange release.
11.	Dadabhai Naoroji	" "	"	15. 4.1976	US$ 12,685,000	US$ 1,721,000	-	US$ 573,750	-	-	US$ 10,390,000	US$0.57 million foreign exchange loan. US$1.72 million - own resources - free foreign exchange release.
12.	Aurobindo	" "	"	15. 7.1976	US$	US$ 1,721,000	-	US$ 573,750	-	-	US$ 11,022,000	US$0.57 million foreign exchange loan. US$1.72 million - own resources - free foreign exchange release.
	Lithgows Ltd., Port Glasgow											
13.	Kasturba	Bulk Carrier	75,000	Dec. 1975		£ 4,660,000+ 2,204,802 (escalation)	£ 1,165,000+ 298,000 (escalation)	-	-	-	-	India/UK mixed Aid project.
	Baltic Shipyard, Leningrad, USSR											
14.	Sarojini Naidu	Tanker	16,300	15.10.1975	Rs. 4,31,25,000	Rs. 1,29,37,500	Rs. 3,01,87,500	-	-	-	-	Entire price payable in Indian Rupees. Rs. 38.81 million availed of as loan from SDFC. Balance amount paid out of own resources.
	Mitsubishi Heavy Industries Ltd., Kobe Shipyard, Kobe, Japan											
15.	Lokmanya Tilak	Tanker	87,500	17.10.1975	¥ 5,000,000,000	¥ 4,000,000,000	¥ 1,000,000,000	-	-	-	-	¥ 4172.6 million foreign exchange loan. ¥ 827.4 million own resources - free foreign exchange release.
	Gotaverken Oresandsvarvet AB, Landskrona, Sweden											
16.	H. No. 261	OBO Carrier	1,23,685	Feb.	Sw.Kr. 184,000,000	Sw.Kr. 18,400,000	-	-	Sw.Kr. 73,600,000	-	Sw.Kr. 92,000,000	Sw.Kr. 73.6 million foreign exchange loan. Sw.Kr. 18.4 million own resources - free foreign exchange release

Sr. No.	Yard & Country	Type of Ship	DWT	Date of Delivery	Price	Payments made until 9/30/75	Payments yet to be made (excluding Deferred Credit) 1975-76	1976-77	1977-78	1978-79	Deferred Credit	Financing Arrangements
17.	H. No. 262	OBO Carrier	123,685	April 1978	Sw. Kr. 186,000,000	Sw. Kr. 18,600,000	--	--	Sw. Kr. 74,400,000	--	Sw. Kr. 93,000,000	Sw. Kr. 74.4 million foreign exchange loan. Sw. Kr. 18.6 million own resources - free foreign exchange.
	Mazagaon Docks, Bombay											
18.	Vikramaditya	Passenger vessel	3,555	March 1978	Rs.56,500,000	Rs4,237,500	--	Rs28,250,000	Rs24,012,500	--	--	Entire price payable in Indian rupees. Rs. 53.63 million loan from SBFC.
	Cochin Shipyard Ltd. Cochin											
19.	H. No. 001	Bulk Carrier	75,000	June 30, 1978	Rs 189,000,000	--	Rs56,700,000	Rs37,800,000	Rs56,700,000	Rs37,800,000	---	Subject to Government Approval
			1,353,993		(millions)	$equiv.						
		Totals			Rs330.1	38.0	19.3	91.0	66.0	80.7	37.8	35.3
					$ 217.8	217.8	73.2	35.6	17.9	5.8	--	85.3
					S.Krs370.0	84.0	37.0	-	--	148.0	--	185.0
					£ 8.3	16.6	6.9	1.4	--	--	--	--
					yen 5000	16.5	4000	1000	--	--	--	--
						372.9						

Source: SCI

INDIA
COMPLETION REPORT
SHIPPING PROJECT

THE SHIPPING CORPORATION OF INDIA LTD.

A. Tankers as on 20.10.75 — Particulars of ships on period charter

Vessel's name	DWT	Delivery date	Name of charterers	Period charter upto	Remarks
World Bank Tankers on time charter.					
1. mt NETAJI SUBHAS Bose	87,980	Nov.73	Indian Oil Corpn. Ltd.,	30.11.1989	
2. mt VIVEKANANDA	87,960	Jan.74	- do -	31.1.1990	
3. mt CHHATRAPATI SHIVAJI	88,077	April '74	- do -	12.4.1990	
4. m.t B.R.AMBEDKAR	88,041	May '74	-do -	29.5.1990	
Other tankers					
5. mt. DESH BANDHU	36,232	June 64	Indian Oil Corpn. Ltd.	22.9.1976 *	
6. mt. NANAK	34,780	Sept.56	Norse Shipping	30.12.1975 *	
7. mt. LAJPATRAI	48,558	July 65	Hindustan Petroleum Corpn. Ltd.	11.7.1976 *	
8. mt. GARGI	57,811	June 64	Madras Refineries Ltd.	15.1.1976 *	
9. mt. JAWAHARLAL NEHRU	85,793	Sept.69	Oil & Natural Gas Commission	3.9.1978	
10. mt. LAL BAHADUR SHASTRI	85,793	June 70	Madras Refineries Ltd.	2.2.1977	
11. mt. SATYAMURTI	87,940	April 75	- do -	15.1.1975 *	
12. mt. KANCHENJUNGA	272,760	Sept.75	Esso Tankers Inc.	2.10.1976	
13. mt. LOKMANYA TILAK	87,940	Oct.'75	Hindustan Petroleum Corpn.Ltd.,	3 Years after arrival in West Asia Gulf.	

* In principle it has been agreed that the charter period of these tankers will be extended further as all of them are engaged in importing crude oil/ fuel oil to India or are being used as daughter tankers in lighterage operations.

Particulars of ships on period charter

B. Tankers (Coastal) as on 20.10.75

Vessel's name	DWT	Delivery date	Name of charterers	Charter period upto	Remarks
1. Desh Deep	11,984	October 1959	M/s.Indian Oil CorpnLtd.,	1.2.1977	-
2. Leelavati *	21,615	September 1965	- do -	26.1.1977	-
3. Visvesvaraya	16,220	January 1974	- do -	16.5.1977	-
4. Bhaskara *	21,594	September, 1965	M/s.Burmah Shell	3.6.1976	-
5. Bhagat Singh	16,220	18.12.1974	M/s.Indian Oil Corpn.Ltd.,	From 10.8.75 for 6 months@	It is expected that the charter of this tanker with IOC will be continued further.
6. Rafi Ahmed Kidwai (World Bank Tanker)	19,812	25.6.1975	- do -	From 1.7.75 for 16 years.	
7. Sarojini Naidu	16,220	15.10.1975	Delivered to SCI on 15.10.75	Before being put on regular employment the tanks of the ship are to be coated with epoxy paint after which the ship is proposed be employed for import of oil products to India.	

* Ore - Oil carrier.

Particulars of ships on period charter

C. Bulk Carriers as on 20/10/75

Vessels	Delivery date	DWT	Name of charterers	Charter period upto	Remerks
1. Ajanta	20.3.68	41,398	M/s.Nippo Kaishan Co.Ltd., Tokyo	upto 13.3.1978	-
2. Nalanda	22.11.68	41,398	- do -	" 28.12.1978	-
3. Sanchi	6.8.1968	41,398	M/s.Sanko Steamship Co.Ltd., Japan.	" 26.12.1977	-
4. Samrat Ashok	24.5.74	127,468	- do -	" 25.5.1979	-
5. Jhansiki Rani	1.1.75	75,390	M/s.M.M.T.C. India	" April 1992	To be delivered on T/C to M/s.M.M.T.C. in April 1976 for 16 years.
6. Laxmi	June 1963	36,471	M/s.Japan Lines	" Dec. 1977	-
7. Parvati	April 1963	36,496	M/s.Alcoa New York	" Nov. 1975	-
8. Shahjehan	November '63	36,478	- do -	" March 1976	-
9. Chandragupta	August 1963	36,504	M/s.Sovfracht Moscow	" November 1976	-

D. Combination Carriers as on 20/10/75

Particulars of ships on period charter

Vessels	Delivery date	DWT	Name of charterers	Charter period upto	Remarks
1. Abul Kalam Azad	7.6.1974	112,539	M/s.Letasa of Spain	upto Nov./Dec. 1977	From November/December 1975 the ship will be given on a 2 years charter to M/s.Letasa of Spain arising out of a charter which was negotiated in 1974 when the freight market was favourable.
2. Motilal Nehru	14.9.1973	112,289	M/s.International Produce New York.	Upto Jan.1978	To be delivered on T/C to M/s. International Produce New York for 12/15 months 1 month more or less in November, 1975.
3. Bailadila	23.2.1971	85,521	M/s.Shinwa Kaishin Kaisha Ltd., Tokyo.	upto 1.4.1978	

Particulars of ships under construction and having firm agreements for period charter

Vessel's name	Expected delivery date	DWT	Name of charterers	Charter period	Remarks
1. Kasturba (Bulk Carrier)	Dec. 1975	75390	M/s.M.M.T.C. of India	Upto April 1992 (16 years)	
2. Kolandia (Product Carrier)	January 1976	19812	-	-	For import of products to India.
3. Dadabhai Naoroji (Product Carrier)	April 1976	19812	-	-	
4. Aurobindo (Product Carrier)	July 1976	19812	-	-	
5. Jainarain Vyas (World Bank Ta.ker)	December 1975	19812	M/s Indian Oil Corporation	16 years Time Charter	

Source: SCI

INDIA
COMPLETION REPORT

SHIPPING PROJECT

Shipping Corporation of India

Voyage Summary 1/

Vessel	Madras	Haldia	Madras/ Haldia	Bombay	Bombay/ Madras	Ballast	Cross Trade	Offshore	Total
1. MT Netaji Subhas Bose									
No. of Voyages	8	1	1	--	4	1	1	--	16
No. of Days	195	23	39	--	120	18	75	6	486
Cargo carried in tons	557,503	49,097	77,155	--	217,444	--	--	--	901,199
2. MT Vivekananda									
No. of Voyages	8	2	2	3	--	1	--	--	16
No. of Days	202	62	73	46	--	29	--	11	423
Cargo carried in tons	521,261	97,223	118,764	155,485	--	--	--	--	892,733
3. MT Chatrapati Shivaji									
No. of Voyages	5	3	5	--	--	1	--	--	14
No of Days	108	71	156	--	--	16	--	2	353
Cargo carried in tons	378,745	132,180	317,931	--	--	--	--	--	828,856
4. MT B.R. Ambedikar									
No. of Voyages	1	4	1	3	1	1	1	--	12
No. of Days	27	93	31	39	26	16	75	--	307
Cargo carried in tons	60,325	183,362	76,196	155,214	68,056	--	--	--	543,153
5. Totals									
No of Voyages	22	10	9	6	5	4	2	--	58
No of Days	532	359	299	85	146	79	150	19	1,569
Cargo carried in tons	1,517,834	461,862	590,046	310,699	285,500	--	--	--	3,165,941

1/ From commissioning to March 31, 1975

Source: SCI

TABLE 1

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Project Cost - Appraisal and Actual

(PRs million)

	Local Currency		Foreign Currency		Total	
	Appraisal	Actual	Appraisal	Actual	Appraisal	Actual
1. Four 87,500 Dwt. crude oil tankers	--	31.6	473.0	600.0	473.0	631.6
2. Two 24,000 Dwt. products tankers	--	17.2	138.3	210.5	138.3	227.7
3. Contingencies	--	--	2.8	--	2.8	--
	--	48.8	604.1	810.5	604.1	859.3
	--					
US$ equivalent		5.6	83.0	93.2	83.0	98.8

Note: 1. Local currency expenditure comprises (a) capitalized interest PRs 46.2 million
(b) precommissioning expenses PRs 2.6 million

2. Exchange Rate at appraisal Rs 7.28 = US$1.00. For Actual PRs 8.7 = US$1.00
3. Increase in price of Products Tankers PRs 50.4 million
4. Other cost overruns due to exchange rate fluctuations.

Source: GOI and Bank Staff

TABLE 2

TABLE 3

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Products Tankers Days Lost

Month	1974 Berthing Detention	1974 Poor Performance	1974 Total	1975 Berthing Detention	1975 Poor Performance	1975 Total
January	62	10	72	41	12	53
February	30	9	39	16	7	53
March	35	23	58	31	7	38
April	62	25	87	25	18	43
May	36	20	56	35	14	49
June	48	16	64	16	12	28
Total 6 Months	273	103	376	164	70	234
July	35	14	49			
August	26	16	42			
September	47	9	56			
October	59	15	74			
November	34	7	41			
December	27	19	46			
Total 12 Months	501	183	684			

Note 1 - Improvement in 1975 as compared with 1974 due to:

(a) less movements to Calcutta from Bombay as a result of the Haldia Refinery coming into operation;
(b) larger capacity vessels being used.

2.- Less days were lost in January 1975 due to dockworkers strike.

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Shipping Corporation of India (IRs million)

Comparison of Actual with Forecast Trading Results

Year Ending March 31	1972 Forecast	1972 Actual	1973 Forecast	1973 Actual	1974 Forecast	1974 Actual	1975 Forecast	1975 Actual	1976	1977	1978 Revised Forecasts	1979 Revised Forecasts	1980
Freight and Charter Hire	737.4	759.8	799.9	837.6	934.0	1,231.8	1,192.4	1,927.9	1,892.1	2,247.9	2,445.9	2,705.1	2,713.5
Direct Express & Standing Charges	547.1	581.6	610.8	684.1	692.1	942.1	835.0	1,260.7	1,322.1	1,505.2	1,639.9	1,800.1	1,855.5
Gross Profit	190.3	178.2	189.1	153.5	241.9	289.7	357.4	667.2	570.0	742.7	806.0	905.0	858.0
% to Freight	25.8	23.5	23.6	18.3	25.9	23.5	30.0	34.6	30.1	33.0	33.0	33.5	31.6
Interest	35.1	24.9	36.7	25.8	51.0	55.0	62.0	142.9	199.4	273.2	270.2	279.5	245.5
Depreciation	82.6	78.2	77.3	67.5	110.7	108.8	151.3	198.9	269.0	337.8	342.6	368.9	364.6
Operating Profit	72.6	75.1	75.1	60.2	80.2	125.9	144.1	325.4	101.6	131.7	193.2	256.6	247.9
Other Income	5.0	10.6	5.0	27.1	5.0	22.8	5.0	20.1	5.0	5.0	5.0	5.0	5.0
Net Profit before Tax	77.6	85.7	80.1	87.3	85.2	148.7	149.1	345.5	106.6	136.7	198.2	261.6	252.9
% to Freight	10.5	11.2	10.0	10.4	9.1	12.1	12.5	17.9	5.6	6.1	8.1	9.7	9.3
% Operating Profit Plus Interest to capital employed	5.9	6.6	4.7	4.8	4.3	5.8	5.6	10.5	5.4	7.1	7.9	9.3	9.2
Taxation	5.0	5.0	5.0	6.5	5.0	9.7	5.0	15.4	11.0	11.0	11.0	11.0	11.0
Net Profit	72.6	80.7	75.1	80.8	80.2	139.0	144.1	330.1	95.6	125.7	187.2	250.6	241.9
Dividend	14.1	15.3	14.1	16.8	14.1	-	14.1	16.8	-	-	16.8	16.8	16.8
Rate of Dividend %	6	5½	6	6	6	-	6	6	-	-	6	6	6
Net Appropriations	-	1.1	-	54.7	-	-	-	2.1	-	-	-	-	-
Cash Accruals	141.1	144.7	138.3	186.2	176.8	247.8	281.3	514.3	364.6	463.5	513.0	602.7	589.7
Return on Equity %	10.9	12.3	10.5	10.4	10.3	21.1	15.8	26.9	7.2	8.7	11.6	13.5	11.6

Source SCI and Bank Staff

TABLE 4

THE SHIPPING CORPORATION OF INDIA LTD.

Basis Adopted for the Preparation of
Forecast Trading Results and Cash Flow

(1) Fleet: In estimating the revenue earnings and expenses, the existing fleet and the anticipated deliveries from the existing firm orders have been taken into account. Deliveries against future orders yet to be placed have not been reckoned as the same are uncertain.

(2) Income: In the Liner services, the forecast of freight earnings has been made on the basis of the existing freight rates for the years 1975-76 and 1976-77. For the subsequent three years, moderate freight increases ranging from 5-10% which are most likely to be announced by various Conferences have been assumed from different dates on the basis of a realistic assessment.

(3) For Tankers, Bulk Carriers and OBOs which are presently on time charter, the actual rates have been taken into account till the expiry of the present Charter Parties.

(4) For Tankers, Bulk Carriers and OBOs which are presently not on time charter, the existing market rates which are very low have been taken as the basis for forecast for the years 1975-76 and 1976-77. For the subsequent period, moderate increases ranging from 5-20% per DWT per month have been assumed for all vessels including those which will be released from existing time charter commitments. These are on the assumption that after a couple of years the existing depressed market conditions will show some improvements.

(5) Expenditures: As regards direct operating expenses, these usually bear a more or less fixed ratio to the gross freight earnings. A proper ratio has been evolved with latest experience and the same has been used for forecast of these expenses which comprise Agency commission, Brokerage, Port dues, Cargo handling expenses and Bunker.

(6) The indirect operating expenses which consist of crew wages, victualling, stores, repairs and survey and fleet insurance have been forecast on the basis of vessel-wise actuals for the year 1973-74 and applying thereon annual escalation of 6% overall. Based on past experience, this basis is considered to be realistic.

(7) The Management overheads for the Corporation as a whole have been budgeted for each year, taking appropriate increases from year to year based on past experience.

(8) Depreciation in respect of fleet has been provided on the basis of actuals.

(9) Interest charges on borrowing have also been worked out on the basis of appropriate rates.

(10) Cash Flows: Cash flows in respect of anticipated loan receipts have been worked out, assuming that for all the payments due to various shipyards it would be possible to arrange commercial loans as and when the installments are due. The rate of interest has been taken at 10% per annum, and the term of commercial loans has been taken as 8 years. These are based on the present borrowing pattern.

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Shipping Corporation of India

Comparison of Forecast and Actual Balance Sheets
(Rs. Millions)

As of March 31	1972		1973		1974		1975		1976	1977	1978	1979	1980
	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual			Revised Forecasts		
Fixed Assets	1,595.0	1,527.6	1,777.0	1,965.3	2,510.9	2,843.9	3,752.8	4,462.6	6,386.4	6,797.8	7,253.0	7,639.6	7,639.6
Less Depreciation	432.7	435.4	510.0	502.8	620.7	611.6	772.0	812.5	1,081.5	1,419.3	1,761.9	2,130.8	2,495.4
	1,162.3	1,092.2	1,267.0	1,462.5	1,890.2	2,232.3	2,980.8	3,650.1	5,304.9	5,378.5	5,491.1	5,508.8	5,144.2
Work in Progress	618.1	360.0	1,088.0	742.6	1,063.4	1,170.4	431.3	780.3	294.2	133.0	192.1	-	-
Other Assets including Trade Investments	50.1	60.3	70.1	14.9	114.2	9.7	267.0	16.0	16.0	123.6	152.6	161.9	139.4
Current Assets	230.0	420.2	245.0	481.9	255.0	554.7	275.0	864.1	723.5	736.0	748.5	761.0	773.5
	2,060.5	1,932.7	2,670.1	2,701.9	3,322.8	3,967.1	3,954.1	5,310.5	6,338.6	6,371.1	6,584.3	6,431.7	6,057.1
Deduct													
Current Liabilities	115.0	268.9	120.0	342.7	120.0	486.4	130.0	617.4	629.9	632.4	634.9	637.4	639.9
Capital Employed	1,945.5	1,663.8	2,550.1	2,359.2	3,202.8	3,480.7	3,824.1	4,693.1	5,708.7	5,738.7	5,949.4	5,794.3	5,417.2
Represented by													
Loans: SDFC	1,046.1	708.1	1,577.0	1,018.4	2,137.1	1,624.6	2,410.9	2,154.8	2,293.3	2,273.1	2,200.4	2,082.3	1,956.2
Banks	44.5	90.0	43.3	304.1	50.0	620.2	57.0	749.0	1,028.8	926.2	1,050.7	843.5	630.5
Deferred Credits	209.1	210.1	220.6	262.4	238.0	322.6	446.1	562.7	1,064.4	1,091.5	1,080.0	1,016.4	753.3
	1,299.7	1,008.2	1,840.9	1,584.9	2,425.1	2,567.4	2,914.0	3,466.5	4,386.5	4,290.8	4,331.1	3,942.2	3,340.0
Ordinary Share Capital	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5	279.5
Reserves and Surplus	366.3	376.1	429.7	494.8	498.2	633.8	630.6	947.1	1,042.7	1,168.4	1,338.8	1,572.6	1,797.7
	645.8	655.6	709.2	774.3	777.7	913.3	910.1	1,226.6	1,322.2	1,447.9	1,618.3	1,852.1	2,077.2
	1,945.5	1,663.8	2,550.1	2,359.2	3,202.8	3,480.7	3,824.1	4,693.1	5,708.7	5,738.7	5,949.4	5,794.3	5,417.2
Debt/Equity Ratio	68/32	61/39	73/27	67/33	77/23	72/28	77/23	74/26	77/23	75/25	73/27	68/32	62/38
Current Ratio	1.9:1	1.6:1	2.0:1	1.4:1	2.1:1	1.1:1	2.1:1	1.4:1	1.1:1	1.2:1	1.2:1	1.2:1	1.2:1

TABLE 5

Source: SCI and Bank Staff

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Shipping Corporation of India

Comparison of Forecast and Actual Cash Flow
(Rs. Million)

Year Ending March 31	1972		1973		1974		1975		Total	
	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual	Forecast	Actual
Sources										
Net Surplus	141.1	144.7	138.3	186.2	176.8	247.8	281.3	514.3	737.5	1,093.0
Increase in Loans										
SDFC	521.1	175.2	568.1	369.7	620.5	715.1	356.4	613.5	2,066.1	1,874.5
Banks	8.2	56.2	10.6	223.3	12.8	300.0	13.5	215.2	45.1	794.7
Deferred Credits	8.5	0.7	53.2	97.1	53.2	103.1	245.8	304.7	360.7	505.6
	537.8	232.1	631.9	690.1	686.5	1,119.2	615.7	1,133.4	2,471.9	3,174.8
Share Capital	-	45.0	-	-	-	-	-	-	-	45.0
	678.9	421.8	770.2	876.3	863.3	1,367.0	897.0	1,647.7	3,209.4	4,312.8
Disposal										
1. Capital Expenditures										
(a) Project Tankers	106.4	-	13.8	119.8	293.6	488.0	187.5	60.8	601.3	668.6
(b) Other Ships	432.0	214.5	615.6	687.8	398.7	802.3	403.8	1,096.1	1,850.1	2,800.7
(c) Other Capital Expenditures	18.0	7.8	22.5	12.7	17.0	16.1	18.5	71.7	76.0	108.3
	556.4	222.3	651.9	820.3	709.3	1,306.4	609.8	1,228.6	2,527.4	3,577.6
2. Decrease in Loans										
SDFC	26.7	23.2	37.2	59.4	60.4	109.9	82.6	83.3	206.9	275.8
Banks	13.5	11.5	11.8	9.2	6.1	14.3	5.5	55.9	36.9	90.9
Deferred Credits	56.6	47.9	41.7	44.8	35.8	42.9	37.7	64.7	171.8	200.3
	96.8	82.6	90.7	113.4	102.3	167.1	125.8	203.9	415.6	567.0
3. Increase (Decrease) in Working Capital	4.5	(40.5)	(10.0)	4.8	10.0	(72.7)	10.0	(126.3)	34.5	(234.7)
4. Investments	-	47.5	-	(45.4)	-	(5.1)	-	3.8	-	0.8
	657.7	311.9	752.6	893.1	821.6	1,395.7	745.6	1,310.0	2,977.5	3,910.7
Opening Cash and Bank Balances	63.5	60.4	84.7	170.3	102.3	153.5	144.0	124.8	63.5	60.4
Increase (Decrease)	21.2	109.9	17.6	(16.8)	41.7	(28.7)	151.4	337.7	231.9	402.1
Closing Cash and Bank Balances	84.7	170.3	102.3	153.5	144.0	124.8	295.4	462.5	295.4	462.5

Source: SCI and Bank Staff

TABLE 6

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Indian Oil Corporation Ltd

Comparison of Forecast and Actual Trading Results

(IRs Million)

Year dated March 31	1971 Forecast	1971 Actual	1972 Forecast	1972 Actual	1973 Forecast	1973 Actual	1974 Forecast	1974 Actual	1975 Actual
Income									
Sales	-	7,210.3	-	8,631.8	-	9,973.7	-	12,425.0	19,650.2
Other Income	-	31.3	-	36.0	-	49.2	-	42.5	70.9
Total	-	7,241.6	-	8,667.8	-	10,022.9	-	12,467.5	19,721.1
Expenditure									
Raw Materials	-	2,834.9	-	3,665.1	-	4,613.8	-	6,131.7	12,459.7
Duties	-	3,328.0	-	3,552.4	-	3,884.2	-	4,321.8	5,162.6
Salaries & Wages	-	148.6	-	158.7	-	180.1	-	211.3	275.8
Other Expenses	-	610.8	-	651.7	-	672.3	-	1,088.4	1,009.0
		6,922.3	-	8,027.9	-	9,350.4	-	11,753.2	18,907.1
Gross Profit	323.2	319.3	387.7	539.9	435.9	672.5	505.4	514.3	814.0
% of Total Income	-	4.5	-	6.2	-	6.7	-	4.1	4.1
Depreciation	111.6	108.3	129.4	120.0	136.6	137.8	163.8	156.5	198.3
Interest	-	53.3	-	50.5	-	43.0	-	49.6	94.3
Net Profit Before Tax	-	157.7	-	319.4	-	491.7	-	308.2	521.4
% of Total Income	-	2.2	-	3.7	-	4.9	-	2.5	2.6
Net Profit Plus Interest	-	211.0	-	369.9	-	534.7	-	357.8	615.7
Return on Capital Employed %	-	11.0	-	17.4	-	24.8	-	14.0	21.3
Taxation	-	-	-	50.0	-	270.0	-	210.0	215.0
Dividend	-	49.8	-	49.8	-	49.8	-	35.6	56.9
Rate %		7.	-	7.		7.	-	5.	8.
Return on Equity %		13.0	-	21.6		13.4	-	5.7	15.6

Source IOC and Bank Staff

TABLE 7

TABLE 8

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Indian Oil Corporation Ltd. (Rs million)

Balance Sheets as at March 31

	1971	1972	1973	1974	1975
Fixed Assets	1,829.7	1,918.4	2,047.8	2,226.5	2,775.9
Less Depreciation	450.8	568.1	702.9	953.4	1,150.8
Net Fixed Assets	1,378.9	1,350.3	1,344.9	1,273.1	1,625.1
Work in Progress	201.4	370.1	609.3	729.5	569.4
	1,580.3	1,720.4	1.954.2	2,002.6	2,194.5
Investments	11.2	11.0	3.5	3.5	5.5
Current Assets	1,151.2	1.399.7	1,406.5	3,274.0	4,008.3
Total Assets	2,742.7	3,131.1	3,364.2	5,280.1	6,208.3
Deduct					
Current Liabilities	827.1	1,005.3	1,208.2	2,795.1	3,307.2
Capital Employed	1,915.6	2,125.8	2,156.0	2,485.0	2,901.1
Represented by:					
Government Loans	441.5	347.6	251.7	156.4	181.5
Bank Loans	200.6	197.3	152.6	522.9	245.2
Foreign Credits	64.2	102.0	100.9	92.2	511.6
	706.3	646.9	505.2	771.5	938.3
Share Capital	711.8	711.8	711.8	711.8	711.8
Reserves & Surplus	497.5	767.1	939.0	1,001.7	1,251.0
	1,209.3	1,478.9	1,650.8	1,713.5	1,962.8
	1,915.6	2,125.8	2,156.0	2,485.0	2,901.1
Debt/Equity Ratio	37/63	30/70	23/77	31/69	33/67
Current Ratio	1.4:1	1.4:1	1.2:1	1.2:1	1.2:1

Source IOC and Bank Staff

INDIA

COMPLETION REPORT

SHIPPING PROJECT

SHIPPING CORPORATION OF INDIA

Statement Showing Charter Hire Earnings and Expenses of Crude Oil Tankers

	Netaji Subhas Bose		Vivekananda		Chatrapati Shivaji		B.R. Ambedkar	
Date of Commissioning	12/1/73		2/2/74		4/15/74		5/29/74	
Capital Cost (Rs. millions)								
Loan	157.0		157.2		157.4		156.8	
Equity	0.7		0.5		0.8		1.2	
	157.7		157.7		158.2		158.0	
Financial Year	1973/74	1974/75	1973/74	1974/75	1973/74	1974/75	1973/74	1974/75
No. of days available	121	365	58	365	-	351	-	307
Less off. Hire	-	7	-	12	-	2	-	-
Operational days	121	358	58	353		349		307
Daily rates of Hire as per Charter Party	Rs. 96.665	Rs. 101.891	Rs. 97.197	Rs. 101.891		Rs. 102.109		Rs. 102.194
	(Rs 000)		(Rs 000)			(Rs 000)		(Rs 000)
Charter Hire Earnings	11.696	36.514	5.637	36.048		35.636		31.374
Expenses								
Wages	465	1.604	76	1.466		1.370		1.282
Victualling	164	430	159	450		498		496
Insurance	1.018	2.964	516	2.935		2.867		2.532
Stores	31	565	424	595		574		1.648
Repairs and Survey	50	591	11	893		37		274
Sundries	13	48	6	63		53		22
Management	313	956	151	958		921		805
Other Expenses during off-hire	26	114	11	188		70		62
	2.080	7.272	1.354	7.548		6.390		7.121
Gross Profit	9.616	29.242	4.283	28.500		29.246		24.253
Return on Capital %	18.4	18.6	15.1	18.1		19.2		18.2

Source: SCI and Bank Staff

TABLE 6

TABLE 10

INDIA

COMPLETION REPORT

SHIPPING PROJECT

Expected Return on Investment in Crude Oil Tankers

(Rs million)

Year	Capital Expenditure	Operating Costs	Income	Net Benefits
1972	114.840	-	-	(114.840)
1973	99.180	-	-	(99.180)
1974	417.600	3.434	17.333	(403.701)
1975	-	28.331	139.572	111.241
1976	-	28.331	139.572	111.241
1977	-	28.331	139.572	111.241
1978	-	28.331	139.572	111.241
1979	-	28.331	139.572	111.241
1980	-	28.331	139.572	111.241
1981	-	28.331	139.572	111.241
1982	-	28.331	139.572	111.241
1983	-	28.331	139.572	111.241
1984	-	28.331	139.572	111.241
1985	-	28.331	139.572	111.241
1986	-	28.331	139.572	111.241
1987	-	28.331	139.572	111.241
1988	-	28.331	139.572	111.241
1989	-	28.331	139.572	111.241
1990	(63.160)	20.921	103.291	145.530
	568.460	449.320	2214.204	1196.424

Expected Return on Investment (before Tax) 12.8%

Source: SCI and Bank Staff

TABLE 11

INDIA

COMPLETION REPORT

Shipping Development Fund Committee

Financial Assistance Extended to Shipping Companies Since Inception

Year Ended March 31	Loans Sanctioned	Loans Disbursed	Repayments	Balance of Loans Outstanding
		(Rs millions)		
1960	28.70	28.70	-	28.70
1	92.90	2.59	1.57	29.72
2	300.82	43.31	1.70	71.33
3	32.10	27.71	3.12	95.92
4	115.21	61.74	4.95	152.71
5	300.39	112.61	6.57	258.75
6	111.29	70.65	15.95	313.45
7	52.61	116.31	16.12	413.64
8	436.32	137.33	21.04	529.93
9	268.95	197.10	55.59	671.44
70	908.65	262.81	70.72	863.53
1	813.74	360.04	77.23	1,146.35
2	900.95	276.62	99.33	1,323.63
3	1,419.78	358.21	121.66	1,560.18
4	117.65	977.82	178.73	2,359.27
5	232.19	886.55	161.64	3,084.18
Total Rs Millions	6,132.25	3,950.10	835.92	
Total US$ Millions	704.05	450.07	95.97	

Source: SDFC

INDIA

COMPLETION REPORT

SHIPPING PROJECT

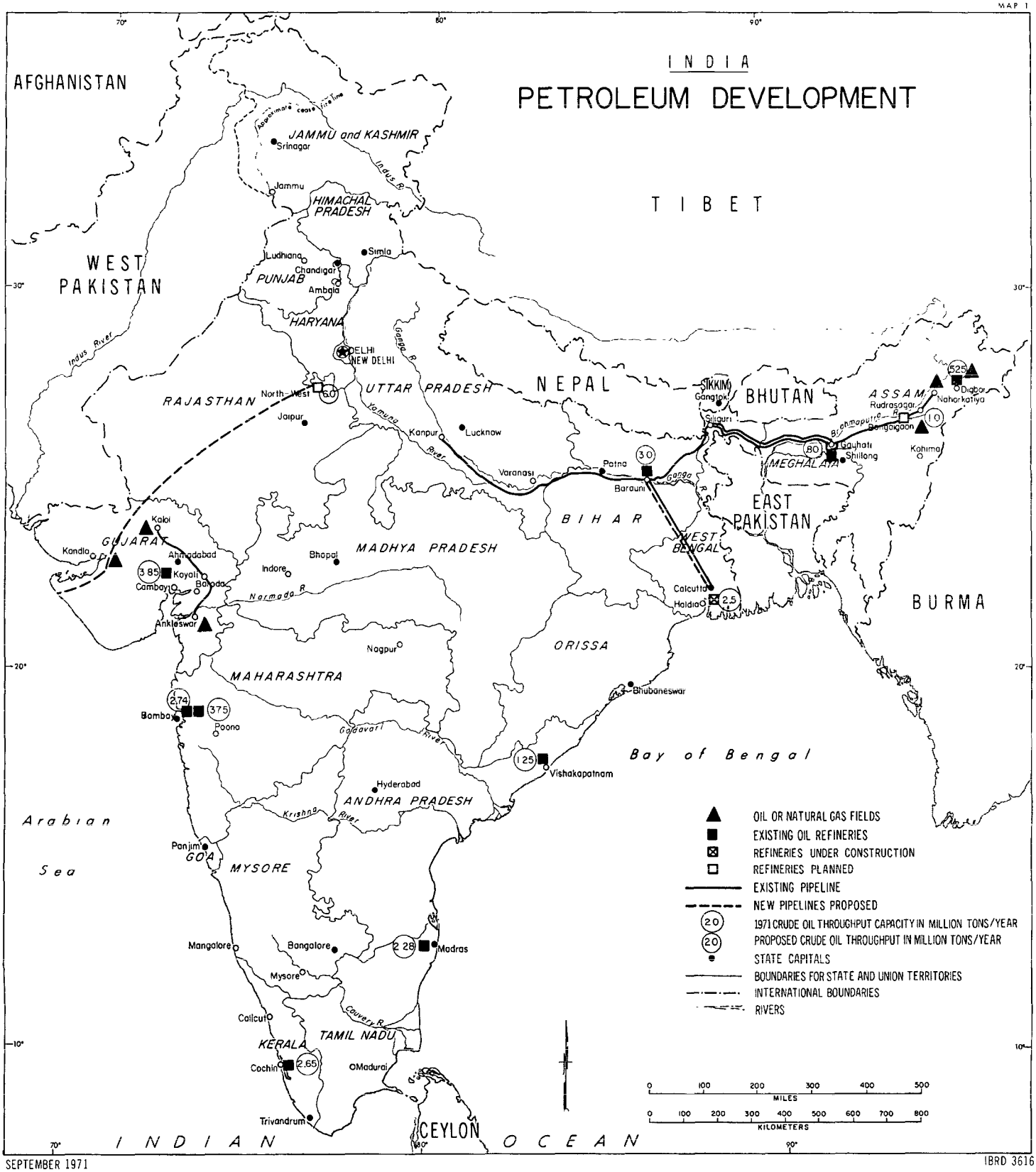
Statement Of SDFC Loans Made For Six Project Tankers

(Rs millions)

Vessel	Loan	Capitalize Interest	Exchange Ra Variations	Total	Date of Delivery	Amount of Annual Repayment	Due Date
A. Crude Oil Tankers							
1. Netaji Subhas Bose	144.2	7.0	5.8	157.0	11/30/73	9.8	11/30/75
2. Vivekananda	144.2	7.2	5.8	157.2	1/31/74	9.8	1/31/76
3. Chatrapati Shivaji	144.2	7.4	5.8	157.4	4/12/74	9.8	4/12/76
4. BR. Ambedkar	143.7	7.8	5.8	157.3	5/29/74	9.8	5/29/76
	576.3	29.4	23.2	628.9			
B. Products Tankers							
5. Rafi Ahmed Kidwai	58.1	8.8	6.1	73.0	6/25/75	4.7	
6. Jainarain Vyas	29.3	4.8	N/A	N/A	To Be Delivered in December 1975	-	6/25/77
	87.4	13.6	-	-			
TOTAL	663.7						

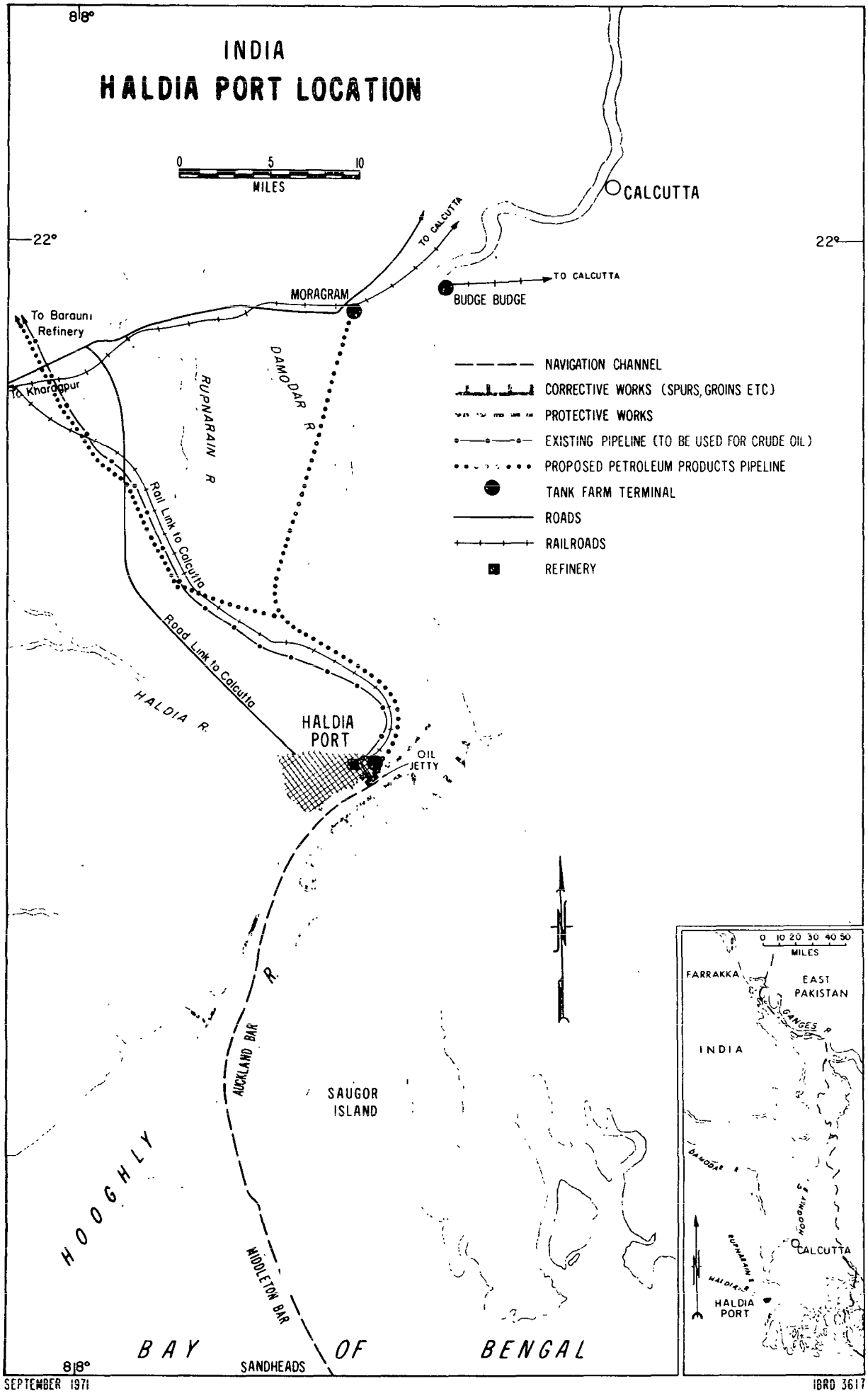
Source: SDFC

TABLE 12



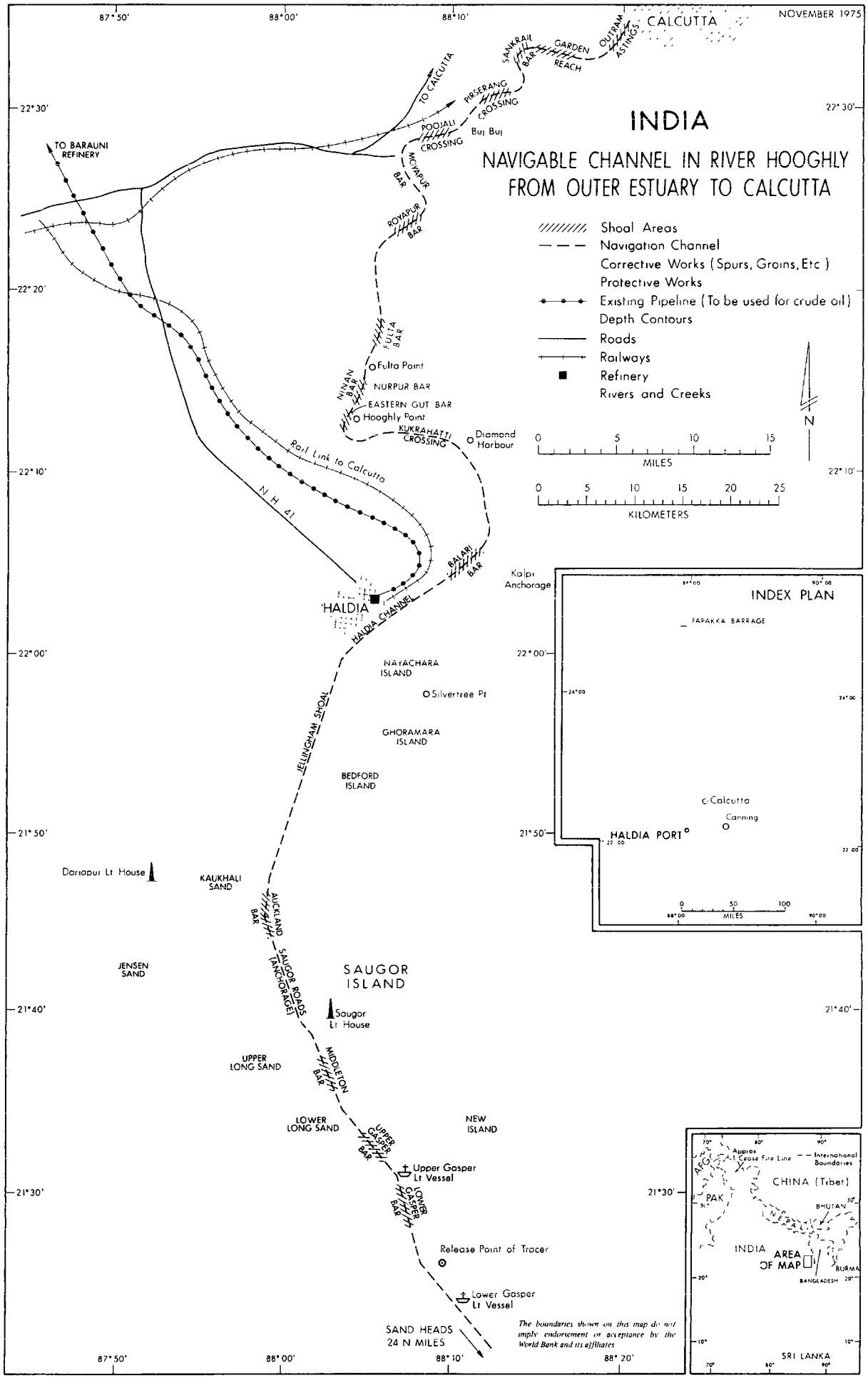
SEPTEMBER 1971

IBRD 3616



SEPTEMBER 1971

IBRD 3617


NOVEMBER 1975
INDIA
NAVIGABLE CHANNEL IN RIVER HOOGHLY
FROM OUTER ESTUARY TO CALCUTTA
Shoal Areas
Navigation Channel
Corrective Works (Spurs, Groins, Etc)
Protective Works
Existing Pipeline (To be used for crude oil)
Depth Contours
Roads
Railways
Refinery
Rivers and Creeks
N
0 5 10 15
MILES
0 5 10 15 20 25
KILOMETERS
87°50'
88°00'
88°10'
88°20'
22°30'
22°20'
22°10'
22°00'
21°50'
21°40'
21°30'
CALCUTTA
SANKRAIL BAR
GARDEN REACH
OUTRAM
ASTINGS
TO CALCUTTA
PIRSERANG CROSSING
POOJALI CROSSING
Bui Bui
TO BARAUNI REFINERY
MOYAPUR BAR
ROYAPUR BAR
FULTA BAR
NIVAN BAR
Fulta Point
NURPUR BAR
EASTERN GUT BAR
Hooghly Point
KUKRAHATI CROSSING
Diamond Harbour
Rail Link to Calcutta
N H 41
BALARI BAR
HALDIA
HALDIA CHANNEL
NAYACHARA ISLAND
Silvertree Pt
GHORAMARA ISLAND
BEDFORD ISLAND
JELLINGHAM SHOAL
Kalpi Anchorage
Dariapur Lt House
KAUKHALI SAND
AUCKLAND BAR
SAUGOR ROADS (ANCHORAGE)
JENSEN SAND
SAUGOR ISLAND
Saugor Lt House
UPPER LONG SAND
MIDDLETON BAR
LOWER LONG SAND
NEW ISLAND
UPPER GASPER BAR
Upper Gasper Lt Vessel
LOWER GASPER BAR
Release Point of Tracer
Lower Gasper Lt Vessel
SAND HEADS 24 N MILES
The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates
INDEX PLAN
FARAKKA BARRAGE
Calcutta
Canning
HALDIA PORT
0 50 100
MILES
Approx Ceasefire Line
International Boundaries
CHINA (Tibet)
AFG.
PAK.
BHUTAN
NEPAL
INDIA
AREA OF MAP
BURMA
BANGLADESH
SRI LANKA