SECTOR SYNTHESIS OF POST-EVALUATION FINDINGS

IN THE

PORTS AND SHIPPING SECTOR

June 1996

ABBREVIATIONS

AOTA	-	Advisory and Operational Technical Assistance
AR	-	Appraisal Report
DMCs	-	Developing Member Countries
EA	-	Executing Agency
EIRR	-	Economic Internal Rate of Return
FIRR	-	Financial Internal Rate of Return
OCR	-	Ordinary Capital Resources
PCR	-	Project Completion Report
PEM	-	Postevaluation Mission
PEO	-	Post-Evaluation Office
PPAR	-	Project Performance Audit Report
PPTA	-	Project Preparatory Technical Assistance
SSPF	-	Sector Synthesis of Postevaluation Findings
TA	-	Technical Assistance
TPAR	-	Technical Assistance Performance Audit Report

NOTES

In this Report, "$" refers to U.S. dollars.

SS:PSH-1

I. INTRODUCTION

1. The Sector Synthesis of Postevaluation Findings (SSPF) provides an analysis and synthesis of postevaluation experience, and identifies important issues and lessons learned which can be used in improving the formulation, implementation and performance of future development projects in a sector. This SSPF presents a synthesis of postevaluation findings in the Ports and Shipping Sector and is based on a review of the findings of postevaluation reports prepared by the Post-Evaluation Office (PEO), including Project Performance Audit Reports (PPARs), Impact Evaluation Studies, Technical Assistance Performance Audit Reports (TPARs) and Country Syntheses of Postevaluation Findings. It also takes into account the information and data stored in the PEO's Postevaluation Information System.

II. BANK OPERATIONS IN THE SECTOR

2. Recognizing the importance of adequate port facilities and efficient shipping services in facilitating domestic and international trade in developing member countries (DMCs), the Bank has provided assistance to the ports and shipping sector in line with DMCs' needs and priorities. Bank assistance to the sector has focused on (i) rehabilitating, expanding and improving existing port facilities, (ii) developing new ports to stimulate regional socioeconomic development, (iii) acquiring a wide range of vessels, including tugboats, passenger boats, general cargo ships and oil tankers, and (iv) institutional strengthening and capacity building. In addition, the Bank has provided assistance for the rehabilitation and improvement of inland waterways, landing stages, navigational aids, and ship building facilities.

3. The first Bank loan to the sector, amounting to $5.0 million loan from the Ordinary Capital Resources (OCR), was approved in 1969 for the Kuching Port Expansion Project in Malaysia. As of 31 December 1995, the Bank had approved 55 loans for 50 projects in the sector amounting to $1,511.7 million (see Appendix 1), which represented three per cent of total Bank lending. Of the total lending to the sector, 54 percent went to Group A countries, 29 percent to Group B countries, and 17 percent to Group C countries. India accounted for 33 percent of the share to Group A countries, Indonesia for 17 percent of the share to Group B countries, and Malaysia for 11 percent of the share to Group C countries.

4. Since 1969, Bank lending to the sector has shown marked increases over the past two and half decades. From an average loan size of $7.3 million during 1969-1975, Bank financing rose to $23.0 million during 1976-1985, and to $55.1 million for the last decade ending 1995 (see Table 1). During the last decade, the share of Bank lending in Groups B and C

Table 1: Loan Approvals in the Sector
(in $'000)

Country Group	1969-1975		1976-1985		1986-1995		Total	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
A	4	10,400	7	69,500	12	730,700	23	810,600
B	6	27,300	10	266,100	4	150,400	20	443,800
C	7	86,700	5	170,600	-	-	12	257,300
Total	17	124,400	22	506,200	16	881,100	55	1,511,700

countries decreased, while lending in Group A countries increased by more than tenfold. Earlier Bank-assisted projects in the sector generally covered the construction of additional wharves and provision of necessary supporting facilities such as transit sheds and cargo handling equipment. Later projects covered parts of multi-phased port development master plans, modernization and expansion of existing facilities in line with new technological developments such as containerization and mechanized handling of bulk traffic, construction of new ports, and preparatory work for future port development.

5. Country-specific technical assistance (TA) approvals in the sector amounted to $26.3 million as of 31 December 1995, of which $12.5 million, or 48 percent, had been for project preparatory technical assistance (PPTA) and $13.8 million (52 percent) for advisory and operational technical assistance (AOTA) (see Appendix 2). Group A countries received 39 percent of PPTAs and 74 percent of AOTAs, or an overall share of about 57 percent. Group B countries had 40 percent share of overall TA lending, while Group C countries received about 3 percent. Indonesia received the largest individual country share of TAs, representing 23 per cent of total TA approvals.

III. IMPLEMENTATION EXPERIENCE AND PERFORMANCE RESULTS

6. This section examines the performance results, as well as the implementation experience and efficiency of postevaluated Bank-financed projects in the sector. An assessment is also made of the extent to which Bank-assisted projects achieved their objectives in terms of physical achievements, operational performance, institutional development, financial performance and economic results, as well as socioeconomic and environmental impacts. The assessment discusses the efficiency of implementation arrangements as well as overall performance results, and the major factors affecting implementation and performance of projects. A list of Postevaluation Reports prepared for the sector and a summary of postevaluation results are provided in Appendixes 3 and 4.

A. Postevaluation Coverage

7. Of the 50 Bank-financed projects in the ports and shipping sector, 41 have been completed and 24 have been postevaluated. These postevaluated projects involved a total actual investment of $1,498.8 million, with Bank financing of $321.0 million, and covered 22 ports and 2 shipping projects. They were approved between 1969 and 1988 and completed mostly during the mid-seventies through the 1980s. The postevaluated projects comprised 6 projects in Group A countries (one each in Bangladesh, Kiribati, Pakistan and Solomon Islands, and two in Maldives), 8 projects in Group B countries (three in Indonesia, one in Papua New Guinea, three in the Philippines, and one in Thailand), and 10 projects in Group C countries (one each in Fiji and Korea, six in Malaysia, and two in Singapore).

B. Objectives and Scope of Postevaluated Projects

8. The main objectives of the postevaluated ports projects were to (i) reduce port congestion, (ii) optimize the ports' cargo handling capacities and improve cargo handling efficiency to enable them to handle increases in traffic volumes, (iii) reduce ship waiting time and associated

costs, and (iv) support the countries' economic and social development objectives through the development of new ports. The postevaluated shipping projects aimed at (i) introducing reliable and efficient interisland transport services, and (ii) improving the economic life of local vessels through shipyard rehabilitation and improved maintenance and repair. Other important project objectives in the sector included improvement of the efficiency of fish landing and marketing systems. These objectives were to be achieved by appropriate provisions for the rehabilitation and expansion of wharf facilities, construction of new berthing facilities, construction of warehouses, transit sheds, breakwaters and access roads, procurement of cargo handling, ship repair equipment and navigational aids, construction of specially designed cargo-cum-deck passenger motorized ships, and upgrading of shipyard facilities. A number of these projects also involved upgrading of existing port facilities to cater to a growing trend of containerization.

C. Attainment of Project Objectives

1. Physical Achievements

9. The project facilities were constructed and installed generally as envisaged. Construction of facilities, however, experienced delays, most of which were substantial. Physical works were completed, as revised, for those projects where major modifications in design and in scope became necessary during implementation, and essential remedial works were performed effectively. Overall, the project structures were well laid out and constructed to satisfactory standards. Procurement of equipment and materials was carried out generally in accordance with specifications and with the Bank's procurement guidelines. However, existing supplies of equipment sometimes exceeded the number required because more equipment was procured than originally expected. This was attributed to lack of central coordination on procurement during project implementation. Additional facilities, not financed by the Bank's loans, were also provided in some instances by governments. The construction delays were brought about by design modifications and scope adjustments, site conditions and shortage of local funds. In the shipping projects, there was much improvement in the quality of ship repair, but significant deviations were noted from the principal specifications of the interisland project ships.

2. Operational Performance

10. The operational performance of projects was mixed. In more than sixty percent of the port projects, operations improved significantly after completion of project facilities. Project facilities enabled the handling of larger container traffic and permitted higher carrying loads and faster handling. The cargo-handling capacities of ports in terms of tons handled per gang-hour increased markedly, resulting in lower cargo handling costs and reduced ship service times. Average ship waiting times and average turnaround times were reduced. Overall port productivity of these projects at postevaluation generally indicated a more efficient utilization of the ports' expanded or rehabilitated facilities resulting from the streamlining of handling arrangements, the mechanization of cargo handling equipment, and appropriate training of stevedoring gangs.

11. Port operations were, however, influenced significantly by actual cargo throughputs. While in some projects the volume of international and domestic cargo rose, exceeding expectations for total cargo throughput, the substantial increases in traffic projected at appraisal

often did not materialize. The shortfalls were ascribed to the countries' slower than expected growth in economy due to the worldwide recession in 1983, change in the types of commodities handled at the ports, as well as to overoptimistic projections. Other considerations were the necessary "lead time" to attract shippers and shipping companies to newly established ports and the throughput lost by new ports to other more established ports. The low levels of throughput relative to capacity directly affected port operating efficiency in terms of cargo handling rates and berth occupancy. Since traffic remained substantially below the designed capacity in the case of certain projects, the ports, although functioning smoothly at postevaluation, had not as yet been put under pressure or exposed to a long term operational test.

12. The introduction of mechanical equipment in some projects, however, did not appear to have had much impact on port productivity. This was accounted for by the fact that only a small proportion of total cargo could readily be handled by forklift. Because of lack of anticipated demand, the need for heavy equipment like forklifts and cranes envisioned at appraisal did not materialize, resulting in oversupply and underutilization of these equipment. It was noted that because of the adoption of labor-intensive methods at some ports where there was very little palletization, the actual use of equipment in cargo-handling operations was low. Direct handling and loading of cargo to/from trucks also limited the use of the open storage areas, and ship handling operations were possible only during the working hours of the warehouses supplying or receiving cargo. Project facilities and equipment were generally well maintained and adequate facilities for maintenance were provided as part of the projects. Some facilities and equipment, however, were found to be in an unsatisfactory state of repair, and the poor condition of the facilities discouraged greater mechanization and efficient operation.

13. Beginning in the late 1970s and well into the 1980s, during which many of the postevaluated projects were being approved and implemented, containerization was being rapidly experienced as a worldwide phenomenon in the shipping industry. This new feature in shipping technology required new and different port facilities and acquisition of appropriate knowledge and skills by port staff. As the emerging trends in containerization were not fully taken into account in the formulation of most of the projects, the lack of appropriate facilities and equipment to cope with the new technology hindered port efficiency to handle the growing container traffic. The upsurge of container traffic created a need for interim and long-term facilities to be developed at the ports. A number of postevaluated projects, including the more recent ones, aimed to cater to projected container traffic by providing for container terminals and container handling facilities and equipment. In response to the new demands, the designs of some ongoing projects were modified to incorporate container handling capability. The Bank's flexible approach during implementation of these projects proved to be beneficial and contributed to the overall project objectives.

14. Other factors adversely affecting operating performance included, for port projects, the lack of management reporting systems for assessing port operating efficiency, the high non-operational or idle times observed because of limited hours of operation and the practice of direct loading to/from trucks, and congestion problems created by the presence of inactive or sunken vessels moored at the berthing piers. In the case of the two failed shipping projects in Kiribati and Maldives, high operating costs and low cargo activity and revenue, as well as the lack of competitiveness in new boat construction and new interisland transport schemes led to heavy operating losses.

3. Institutional Development

15. While the project ports were owned and managed by governments which were

responsible for their overall policy, financial viability and staffing, some were given wide powers normally conferred on autonomous port authorities. These entities were organized to operate on the basis of commercial principles, under the guidance of a board of directors. In practice, however, although they were largely autonomous, overall control continued to be exercised by governments particularly in matters relating to finance, annual budgets, tariffs, and the creation of staff positions. Consequently, there were administrative constraints which prevented timely action by port authorities on the demands for their services.

16. The port entities were in general well organized and had records of proven efficiency. Two examples of well managed and operated ports - the Manila Port in the Philippines and the Songkhla and Phuket Ports in Thailand - both involved the private sector in their operations without relinquishing government ownership of the ports' facilities. Experience from the two projects highlighted the soundness of such institutional arrangement and the importance of selecting competent private operators. However, an important institutional constraint identified at postevaluation was the lack of strong planning capability in terms of long-term operational planning based on traffic forecasts on one hand, and of master planning for the coordinated development of the country's port facilities, on the other. There was also a need to achieve further efficiency in operational performance through the introduction of performance indicators, which would enable close monitoring of the operational and financial performance of each facility or service in the port.

17. Historically, the accounting system practiced in the projects was based on cash accounting. This system did not allow for ready monitoring on the performance of disaggregated costs, and consequently, for developing cost-related tariffs. The Bank therefore endeavored to provide technical assistance for the development and introduction of effective financial management, including commercial accounting, budgeting and restructuring of port tariffs. This led to marked improvements in the financial management systems of ports. In particular, the Bank's continuing association with port development in Indonesia since its first loan to the sector in 1972 has significantly enhanced the Indonesian project ports' institutional development in managerial, operational and accounting systems. However, despite the substantial progress, need for their further strengthening remained.

18. Although the impact of in-house and other training and the introduction of more modern approaches and techniques contributed to operational improvements, institutional weaknesses prevailed in the area of human resource management. Project-related training appeared to be less successful, particularly in strengthening in-house engineering capability. Project training tended to be ad hoc, diffused and limited in scope. Adequate attention was not given to recruiting, training and retaining qualified staff, and a number of projects suffered from high turnover of trained personnel. Postevaluation highlighted the need for designing and implementing an appropriate manpower program for port personnel based on changing operational needs. In particular, there was perceived lack of training for managers and supervisors to enable them to play a more positive supervisory role for efficient port operation. Longer-term participation by consultants in carrying out on-the-job training during the initial years of port operations was also recommended to complement the assistance provided during implementation.

19. Management information systems were developed, but weaknesses in their operation led to unreliable outputs. This stemmed mainly from excessive complexity of the systems and lack of in-house programming expertise. The limited effectiveness of MIS management in providing adequate port operational data underscored the need to improve basic staff awareness and understanding of their jobs and their capabilities to operate computer and information systems.

4. Financial Performance

20. Financial performance data generally showed satisfactory positions which compared favorably with or exceeded appraisal projections. The principal sources of port income were operating revenues, including charges on vessels and non-operational sources, such as property rental and storage. A large part of the increase in revenues and net income was due to several factors, most notably port tariffs, increase in cargo traffic, improved financial management, and expanded capacity for handling containerized cargo which yielded higher net revenues compared with conventional break-bulk cargo. The recalculated FIRRs for the Chittagong Port Project in Bangladesh, the Fifth Port Project in Indonesia, the Bintulu Deepwater Port Project in Malaysia, the Male Port Development Project in Maldives, and the Singapore Port Expansion and Warehousing Project showed better results than at appraisal because of tariff increases, higher actual cargo throughputs and increased revenues arising from the inclusion of container handling capability. The Incheon Port Development Project in Korea, the Lae Port Project in PNG, and the Manila Port Project in the Philippines had recorded lower than expected FIRRs, which were due mainly to slower than anticipated build up in throughputs, low port tariffs, project delays, and higher than forecast project costs.

21. The financial performance of several projects, however, fell substantially short of appraisal expectations. Negative or marginal FIRRs were calculated for the Betio Shipyard Project in Kiribati, the Navotas Fisheries Port Project in the Philippines, the Songkhla and Phuket Ports Project in Thailand, the Fourth Port Project in Indonesia, the Sibu Port Expansion Project in Malaysia, and the Honiara Port Development Project in Solomon Islands. The financial viability of these projects were curbed by low tariffs and traffic levels, high operating and maintenance costs (particularly of dredging), and heavy debt servicing obligations.

22. Postevaluation highlighted the need for appropriate cost-based tariff adjustments to improve project financial performance. Although the financial positions of the projects were generally satisfactory, a cause for concern was the recurring losses in those projects which relied heavily on non-operational sources of income, such as property rental and storage activities. Without these non-operational income, it was not certain whether the projects would remain profitable. Unless cost-related tariffs were introduced to cover operating costs, the financial returns of the projects were not likely to show any significant improvements. Project experience also pointed to the need for strict controls and economy in operational expenditure, the importance of improving billing and collection, need for a regular review of user service fees and the formulation and implementation of appropriate cost recovery policies, and making better efforts, prior to appraisal, of determining the extent and cost of continuous maintenance dredging.

5. Economic Results

23. The basic methodology of project economic evaluation generally adopted by the ARs, PCRs and PPARs in port projects quantifies economic benefits measured mainly as savings in shipping costs due to reduced ship waiting time and service time, relative to without-project situation. The benefits to the economy were to come not only from reduced freight charges of the shipping lines, but also from savings in avoidable major costs, such as (i) the elimination of lighterage costs, (ii) savings in transshipment costs, with larger vessels being handled at the ports than was possible without the projects, (iii) reduced breakage, pilferage and damage as a result of reduction in lighterage handling operations, and containerization, and (iv) savings in road transport costs.

24. Ex-post EIRRs were reestimated for all, except one, postevaluated projects in the sector. About 70 percent of projects for which EIRRs were recalculated had EIRRs of 10 percent or more. Of these, five projects exceeded appraisal expectations. Although PEM estimates were lower than appraisal expectations for about 57 percent of the projects, these projects remained economically viable. The lower ex-post estimates obtained in these projects were attributed mainly to (i) higher than expected project costs, (ii) lower than expected increases in traffic volume projected at appraisal, and (iii) delayed accrual of project benefits due to implementation delays. Conceptual difficulties in the identification and valuation of benefits precluded attempts at economic reevaluation of the two shipping projects, which were classified as unsuccessful.

25. While ARs, PCRs and PPARs were in basic agreement with the methodology used in economic evaluation of projects in the sector, i.e., economic benefits measured by the savings in ship waiting time, there were differences in approach to assessing project financial performance. Aside from the shortfalls in anticipated traffic, the variations in EIRR in the ARs, PCRs and PPARs were brought about by the differences in valuation for ship waiting and service time. Non-availability of relevant data confined to the commissioning of project facilities, inability to verify the details of appraisal assumptions and to replicate the cost and benefit streams with ex-post comparative data, as well as difficulties in estimating the timing of accrual of economic benefits, were some of the problems identified in reestimating the projects' EIRRs. The PPARs noted the importance in future projects of stating clearly the key parameters and assumptions used in economic evaluation and providing the EA with a well-defined format of the methods and procedures needed for the estimation of project returns. The PPARs also noted that the assumption at appraisal of immediate rapid growth of port throughput in newly established ports was unrealistic, given the inherent uncertainties of capital and operational costs and growth of industry and traffic to generate benefits, and highlighted the need for proper sensitivity analysis on traffic volumes in the development of new ports.

6. Socioeconomic Impact

26. The principal socioeconomic benefits attributable to the projects were lower freight rates and cargo handling charges, improved operating and working conditions, enhanced local industries, increased employment, and development of hinterlands. Lower freight rates and cargo handling charges benefited the economy in a general way. The improved facilities enhanced the operating efficiency of fishing vessels and improved returns to the fish producers, as in the case of the fisheries port project in the Philippines. The modernized ports facilitated the distribution of both raw materials and finished products, encouraged the establishment of new industries, and enhanced economic activities in port areas and its hinterlands. The projects provided employment to a number of skilled and unskilled workers. The strategic location of certain ports, such as those in Lae and Penang, provided access to hinterlands and enhanced employment opportunities for local labor at industrial enterprises established in these areas. These enterprises included processing locally available primary products for export and also small-and medium-scale industries producing consumer goods for the domestic market.

27. No significant problems were reported except for difficulties during project construction created by the presence of squatter families who resisted government efforts to resettle them in other areas. Since most of the postevaluated projects were prepared before social impact issues were incorporated into the Bank's evaluation procedures, the postevaluation reports did not focus on issues relating to women as primary beneficiaries or participants.

7. Environmental Impact

28. In general, there were no detrimental environmental effects reported or observed. The wharf structures did not cause much change in river current patterns and thus had minimal erosion and sedimentation effects, and there were no obvious instances of pollution resulting from the projects' operations. However, the lack of data prevented the assessment of certain environmental parameters, for example, the impact of dumping dredging spoil on existing flora and fauna in near-shore and lake waters, and the effect of runoff from the sealed port areas and of discharge from waiting ships.

29. In project formulation potential environmental impacts were carefully considered and adequate safeguards were built into the engineering design and construction methods. Various regulations existed and systems were in place for controlling or minimizing detrimental environmental impacts, including provisions for oil pollution combat equipment and erosion protection measures.

30. Improved coastal embankments provided foreshore protection from wave action, while expanded roads and reduced congestion contributed to the general improvement in traffic conditions within the port areas. Improved telecommunications network and the provision of navigational aids, better firefighting and first aid equipment, worker safety clothing and safety training, and preparation of safety guidelines enhanced maritime safety .

D. Implementation Efficiency

31. One of the factors affecting project performance is the efficacy of implementation arrangements. This section examines some of the basic factors that impinge on the implementation process, i.e., changes in scope, implementation delays, and cost variations, in respect of the postevaluated projects. At the same time, this section reviews the effectiveness of the Bank's supervision during project implementation, as well as the extent to which compliance with major loan covenants had been achieved.

1. Changes in Project Scope and Design

32. Although the original objectives were generally maintained, substantial modifications were made to the projects during implementation, many of which resulted from detailed engineering investigations and detailed design completed after project appraisal. Some of the underlying causes of these changes were the rapid growth of containerized cargo which required the establishment of container berths and supporting facilities, cost overruns, and problems associated with land acquisition. Some of the changes proved to be effective to the attainment of project objectives. The design changes introduced in the Fifth Port Project in Indonesia and the Male Port Project in Maldives, in response to the growing trend in containerization, and the transfer of greater managerial authority to private operators through their ownership of equipment and extended lease of the terminal in the Manila Port Project, contributed substantially to the projects' success. Similarly, the enlargement of deepwater wharf in the Jurong Wharves Expansion Project in Singapore was justified by the growth, after project completion, in cargo traffic.

2. Implementation Delays

33. All postevaluated projects, except one, experienced implementation delays averaging three years (see Appendix 5). The average actual implementation period for all postevaluation projects was 6.2 years, compared with the average estimated implementation period of 3.3 years. The longest delays occurred in Group A countries, which averaged about 127 percent longer than expected, compared with 94 percent for Group B countries and 87 percent for Group C countries. The principal causes of the delays were procurement problems involving awarding of contracts, equipment procurement, and cumbersome government procedures; delays in the recruitment of consultants; changes in project scope, redesigning of facilities, and remedial works on failed structures; non-availability of local funds; and the executing agencies' unfamiliarity with the Bank's procedures. Other important factors which contributed to the delays were inadequate field investigation at appraisal, communication problems, weather-related causes, and problems with peace and order situation.

34. The PPARs were of the view that these problems could have been obviated by preparation of detailed plans and pre-appraisal investigations of site conditions, a more realistic assessment of construction schedules, engagement of consultants at an early stage of project preparation, closer monitoring of implementation progress by the Bank, and detailed institutional and coordination arrangements. Project experience underscored the importance of adequate consideration of such factors as government policy on domestic procurement and communication problems typical in South Pacific projects.

3. Cost Variations

35. Fifteen out of the 24 postevaluated projects incurred cost overruns, of which 11 had cost overruns greater than 25 percent (see Appendix 6). The higher than expected costs were accounted for mainly by additional items of work and procurement of additional equipment, unit cost increases resulting from long implementation delays, unanticipated design changes and increase in scope, and initial underestimation of costs. Substantial cost increases were also incurred in remedial works, in the case of the Kuantan and Kuching projects in Malaysia, for the redesign and reconstruction of failed quay structures. Worldwide inflation and volatile currency fluctuations also contributed to cost increases. On the other hand, nine projects had cost underruns ranging from 2 to 47 percent. The cost underruns were attributed to the reductions in project scope, highly competitive tenders, significant amount of substitution by locally produced goods, and general overestimation of costs.

4. Bank Supervision

36. While monitoring of project progress was generally adequate, and considerable guidance and support was provided by the Bank through regular review missions, in some respects the Bank's supervisory intervention could have been much more positive. The main factors which hampered the effectiveness of the Bank's monitoring included inadequate communication between the Bank and the Governments, lack of attention paid to problems relating to the operating and maintenance performance of port facilities, inadequate assessment of the institutional strength and capabilities of implementing agencies, absence of target completion dates for various project components, and lack of thorough analysis of draft bid specifications and technical documents. It

was noted that sending of one-man review missions which tended to be engineering-oriented was a contributing factor to inadequate coverage and follow-up of significant issues relating to institutional weaknesses. Bank monitoring of the Interisland Transport Project in Maldives did not provide the extent of assistance, guidance and support which was considered vital for this first Bank-financed project in a small island economy. Postevaluation highlighted the importance of dispatching inception missions or early review missions in overcoming the problems which invariably led to implementation delays and problems in overall project management.

5. Compliance with Loan Covenants

37. The major loan covenants were substantially fulfilled, but compliance was accompanied by considerable delays. The delays usually related to meeting conditions for loan effectiveness, submission of audited accounts and progress reports, appointment of key project personnel, and local currency budgetary support for civil works, such as roads and port buildings. Tariff review and revisions were largely carried out, as required by the tariff covenants, which enabled executing agencies to achieve satisfactory financial performance levels. There were notable achievements in meeting the financial requirements, as well as the financial management and reporting covenants, including the adoption of commercial accounting systems. Significant gains in institutional strengthening were achieved with the implementation of an Action Plan under Bank-assisted advisory TA to strengthen operational and financial performance, such as in the case of the Male Port Development Project in Maldives.

38. While most of the loan covenants were eventually complied with, in some projects, however, non- or partial compliance with key covenants seriously impaired project viability. The main areas of non-compliance in these projects were concerned especially with the setting of adequate tariffs, fulfillment of required financial ratios, cost recovery requirements, submission of quarterly progress reports and financial accounts, and introduction of a commercial accounting system. Other covenants also not complied with covered the maintenance of separate project accounts, procurement of equipment according to Bank guidelines, hiring of competent consultants, provision of adequate local financing during construction, and compliance with specific technical requirements.

39. Although it was considered that the loan covenants were appropriate for the smooth implementation of the projects, in retrospect it was viewed that the complexity of the covenant requirements may have been underestimated at appraisal, which led to the delays and non-compliance. Changing institutional environment hindered the covenants' achievement. Overlapping responsibilities within various agencies constrained compliance with organizational covenants. Postevaluation highlighted the need for covenants to be more firm, clear and time bound. Preparation of formal contracts between the governments and executing agencies, as well as the implementation of an action plan, which has been adopted under more recent projects in the sector, would also have helped considerably.

6. Effectiveness of Technical Assistance

40. Postevaluation of project preparatory and advisory technical assistance to the projects in the ports and shipping sector covered very few projects and included five PPTAs, six AOTAs, and one TA approved under a Technical Assistance Program Loan (TAPL-725) in Indonesia. The PPTAs involved preparation of feasibility studies for improving or expanding port

facilities and second-phase port development. In most of these studies, work was successfully completed and the TAs were considered sufficient and effective, although there were some reservations regarding inaccurate estimate of growth or rate of containerization and lack of alternative options for improving or expanding existing facilities. The advisory TAs covered institutional strengthening of financial and management reporting systems and data processing, preparation of master plan, and feasibility of privatizing the ports. To a limited extent the identification of training needs and implementation of TA programs helped achieve some institutional development. However, lack of staff qualified for training constrained TA implementation. The coverage on and approach for institutional and financial aspects were found to be inadequate, while other aspects, such as master plan preparation and privatization of ports, were considered to be generally well conceived and executed.

41. The postevaluated TA under TAPL-725 was a study to improve the inland waterways in central, south and east Kalimantan in Indonesia, and included preparation of a feasibility study, detailed engineering designs and cost estimates and making recommendations for institutional strengthening. At postevaluation it was concluded that useful data and information on technical, financial and economic aspects of the inland waterways were collected, and measures proposed for institutional strengthening were satisfactory. However, the methodology used for the preparation of the investment project were considered inappropriate because of questionable assumptions used in the economic evaluation. Postevaluation highlighted the importance of close supervision on and interaction with consultants at the early stages to clarify conceptual and methodological issues and the need for considerable care in selecting and formulating development projects for Bank financing based on the least-cost options and determination of economic viability.

E. Performance Results: Summary

42. The Bank's assistance to the sector helped alleviate the problems of port congestion by providing basic or expanded facilities and equipment and augmenting port capacity, and contributed to the general objective of economic growth and the development of the project areas and its hinterlands. The projects provided useful inputs in the area of institutional development, particularly for the improvements of port operating performance, financial management and budgetary control systems. Significant improvements in port operating efficiency were noted in terms of cargo-handling capacities, average ship waiting times and overall port productivity. Important socioeconomic benefits were derived, such as lower freight rates and cargo handling charges, enhanced employment opportunities arising from the growth of industries in the port areas, improved operating and working conditions for port personnel, and increased income resulting from greater efficiency in the distribution of commodities.

43. Project implementation, however, was greatly influenced by a number of factors, both internal and external, including substantial time and cost overruns, slower than expected growth in traffic, and inappropriate levels of tariff, which affected the projects' economic and financial viability. Based on postevaluation findings, the main sources of these implementation problems may be attributable to (i) inadequate project preparation which resulted in major remedial works, (ii) significant project changes realized at the detailed design phase, (iii) inadequate capability of executing agencies, (iv) lack of understanding of factors affecting the demand of facilities which led to unrealistic traffic projections, (v) the worldwide recession experienced in the early eighties, and (vi) institutional shortcomings including lack of autonomy of port utilities to set appropriate cost-based tariffs.

44. The Bank's overall experience in the ports and shipping sector has generally been favorable, with 17 or 71 percent of the postevaluated projects being rated generally successful. One project, the Kuantan Port Project in Malaysia, was assessed at postevaluation as unsuccessful. It was, however, reevaluated at a more advanced stage of its operations and was reclassified as partly successful because of its significantly improved operational performance and favorable prospects for sustainability.

45. Three of the six projects (50 percent) in Group A countries, six of the eight (75 percent) in Group B, and eight of the 10 projects (80 percent) in Group C were generally successful (see Appendix 7). Two projects in Group A were assessed as unsuccessful. The rest consisted of projects which were rated partly successful. In terms of investment costs, the generally successful projects comprised 46 percent, partly successful projects 54 percent, and unsuccessful projects less than one percent. By amounts of loans disbursed, generally successful projects made up 57 percent, partly successful 43 percent, and unsuccessful projects less than one percent.

IV. ISSUES AND LESSONS LEARNED

46. This section summarizes the critical sectoral issues and major lessons learned from postevaluation experience in the ports and shipping sector. A list of these issues and findings that need to be addressed during preparation and design of future projects in the sector is given in Appendix 8.

A. Key Issues

47. Based on the findings and results of postevaluation studies undertaken in the sector, some key issues for the future include project preparation and design, forecasting methodology, port pricing policy, port management, and private sector participation.

1. Project Preparation and Design

48. Inadequacies of design were evident during implementation, some of which required substantial revisions leading to cost and time overruns. Examples of these were the failed quay structures in the Kuantan and Kuching projects in Malaysia, and the technical problems experienced by the Suva and Cotabato projects in Fiji and the Philippines, respectively. The Interisland Transport Project in Maldives was formulated on the mistaken assessment that the new technology being introduced by the steel-hulled project ships was more efficient than the existing, time-tested motorized wooden-hulled fishing dhonis and diesel boats. These illustrations reflect ultimately the quality of project preparation. Project experience underscored the desirability for projects to be appraised on the basis of detailed engineering design, including extensive geotechnical and soil investigations. It demonstrated the need to critically assess design assumptions in introducing new technology in relation to the merits of traditional systems, as well as to carefully evaluate existing institutional capabilities for project implementation. The difficulties encountered in the relocation of squatters from project sites also suggest the importance of

incorporating key resettlement activities as part of the project design to enable the Bank to have a greater influence over project outcome.

2. Forecasting Methodology

49. There were a number of methodological shortcomings in traffic and throughput forecasting, particularly for projects approved in the 1970s, which led to overestimation of traffic at appraisal. Evidently the forecasting results, which proved to be unrealistic, were affected by the quality of data base. The situation typifies the vulnerability of long-term forecasts of port traffic to factors over which a port has little or no control. Shortfalls in traffic have a vital impact on the economic viability of port projects and the experience in these projects underscores the need, in future port projects, for a critical assessment of assumptions at the time of preparation of initial traffic forecasts. The view that port policies and development plans should take into account the entire transport system rather than separate plans for each port considered in isolation from others has implications for cargo forecasting methodology. Since long-term traffic forecasts are often surrounded by uncertainties, there is a need for project appraisal to be based on different levels of demand estimates and consideration of alternative solutions. Provision should also be given for a more flexible or phased project design that would allow adjustment to changing circumstances. Updating of traffic forecasts would be useful for meaningful performance monitoring. In recent Bank projects, however, a very conservative approach during project processing has tended to be adopted to avoid the overestimation. Continued efforts should be made to refine forecasting methods for future traffic demand.

3. Port Pricing Policy

50. It is recognized that there is need to introduce cost-linked tariffs in order to reduce the ports' vulnerability to adverse market conditions. Governments have endeavored to ensure that upward revisions of tariffs are cost-related. However, the fixing of tariffs based on mere accounting figures often proved adverse to the utilization of ports in that it discouraged traffic and resulted in loss of revenue. To become financially viable, the port has to attract new traffic. Attraction and growth of traffic and optimum utilization of facilities, especially for ports at new sites, take a number of years. During this period, promotional rather than cost-based tariffs may be required initially, keeping in view the levels at competing ports. The Bank's financial covenants on tariffs did not provide for such promotional tariffs. Tariff covenants for future port projects need to be carefully reviewed, taking into account the commercial setting, and could provide for an appropriate period of promotional tariffs before providing for progressive introduction of full cost-related tariffs.

4. Port Management

51. Many of the pre-project operational inefficiencies still exist in Bank-assisted port projects. These include the predominant use of manual rather than mechanized cargo handling, direct cargo discharging into trucks, non-unitized cargo, cumbersome customs procedures, and poor physical conditions. While construction of new facilities can reduce port congestion, expansion of port capacity could be achieved without undertaking new construction by removing these constraints. Future prevention of congestion must rely upon the effectiveness of regulations regarding the use of the existing harbors, and the achievement of further operational improvements, in particular, the

establishment of a clearer line of authority in port management, the upgrading of cargo handling equipment by the stevedoring companies, and the structuring of tariffs. An essential factor is the upgrading of institutional capacity of port authorities through a comprehensive manpower development program to respond to the changing operational needs over time.

5. Private Sector Participation

52. In recent years, governments as a matter of policy have increasingly focused on divesting themselves of full or majority ownership of government-owned enterprises, either by transfer to the private sector of both ownership and management or by transfer of only management. The objective of privatization was to introduce functional efficiency in the use of the ports by having the private sector operate them. The value of competition among private operators, the importance of government commitment, need for adequate incentives to attract reputable private operators, and transparent procedures for selecting competent operators, are highlighted by project experience. The competence of private port management has yielded benefits to projects, as evidenced in the Manila Port in the Philippines and the Songkhla and Phuket Ports in Thailand. For others, like the Lae Port Project in Papua New Guinea and the Betio Shipyard Project in Kiribati, policy decisions on privatization held back implementation, but privatization remained the ultimate aim. The Manila Port experience illustrated that alternative management arrangements where the private operator provided part of the infrastructure as well as equipment for the said project, should be taken into consideration in formulating future port projects, and sent a clear message on the viability of public service management by the private sector.

B. Lessons Learned

53. The major findings and lessons from the postevaluation of projects in the sector are summarized below.

(i) Project experience in the sector demonstrated the importance of maintaining an appropriate degree of flexibility in project design to respond to changing circumstances during implementation. Beneficial changes in design and scope, such as the conversion of general cargo wharves to container terminals to accommodate unexpected increases in container traffic, contributed to project success.

(ii) Project experience underscored the need to critically assess assumptions underlying long-term traffic forecasts which are vulnerable to extraneous factors. Demand forecasting for port facilities need to be implemented with care, as fluctuations in traffic are crucial to the financial and economic viability of port projects. Experience has shown the importance of careful traffic forecasting particularly for the development of new ports. Since it takes time for new ports to capture potential traffic, careful analysis of the timing and size of a new port should be done to reduce the risks and costs associated with delays in developing traffic.

(iii) Institutional changes were crucial to improving port efficiency. Modifications to operational and administrative policies and institution of performance-oriented staff training programs enhanced port productivity. Introduction of cost-accounting systems and performance indicators and further refinements of data processing systems

improved the financial management and administration of executing agencies. The participation of the private sector in port management proved beneficial to the projects and demonstrated the viability of private management of public service facilities such as ports. The concept of a single authority to be responsible for all port activities fostered interport coordination which contributed to improved port operations. Project experience also indicated the need to establish suitable machinery for coordinating port investments to avoid over-investment or duplication of facilities at the various ports and to ensure a well-coordinated port development in the respective countries.

(iv) Project performance was hampered by inadequate pre-appraisal investigations. Several projects entailed costly corrective measures and extensive delays as a result of inadequate soil investigations. The lessons derived from project experience illustrate that it would be a sound practice to carry out detailed site investigations as part of the design before cost estimates are prepared and a project appraised.

(v) Executing agency weaknesses were evident. Inadequate experience and weak technical capability in project implementation, including the lack of familiarity by executing agencies with the Bank's procurement procedures, led to start-up delays. Project experience demonstrates the need for the executing agencies to achieve further efficiency in operational performance through modifications in operational and administrative policies and procedures, introduction of more modern approaches and techniques into the ports' operational systems, development of engineering skills, improvement of financial and management systems, and strengthening of planning capability, all of which are essential for providing a basis for sustained growth in the future. Project experience confirms the importance of assessing the institutional capability of the executing agency and ensuring that effective familiarization with the Bank's procedures is conducted or, where necessary, that appropriate consultant support is provided.

(vi) Project experience indicates that serious efforts must be exerted at appraisal to design realistic timetables which provide adequate time for key activities based on detailed planning, sound technical studies and lessons from experience reflecting the particular circumstances prevailing in the respective countries.

(vii) The Bank's experience showed that in small and less developed countries, due consideration should be given, in the process of project selection, to the sociocultural setting and the institutional capacity to absorb new technology. This is well illustrated in Maldives where project ships, expected to replace the existing motorized fishing dhonis and diesel boats, did not prove superior to traditional systems.

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