

Indonesia

Merak-Bakauheni Ferry Terminal Extension Project (2)

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Field Survey: October 2004

1. Project Profile and Japan's ODA Loan



Project site location map



No. 3 berth at Merak Port

1.1 Background

The ferry service (approx. 28km¹) that links Merak on the western tip of Java and Bakauheni on the southern tip of Sumatra is an essential intra-island route connecting Java, home to the capital Jakarta and the center of national economic activity, and Sumatra with its abundant natural resources, and plays a key role in the movement of passengers and freight between the two islands (at the time, of the 39 shipping routes in Indonesia, the Merak-Bakauheni line carried the second highest number of passengers and the highest volume of freight). At the appraisal, further growth in inter-island trade was expected, and the government, seeking to stay abreast of the construction of the Jakarta-Merak highway and the development of the road network in southern Sumatra, had made expanding transport capacity on the Merak-Bakauheni route a priority issue.

1.2 Objectives

This project's objective was to increase passenger and freight traffic through the construction of third berths at the ferry terminals² in Merak and Bakauheni, thereby

¹ This equates to approximately one quarter of the distance traveled by the Aomori-Hakodate ferry (113km) in Japan.

² The construction of both ferry terminals was funded by a 1976 ODA loan project entitled "The Lampung - Merak Road and Ferry Terminal Project (ferry terminal component)" (2,300 million yen, completed 1981), which resulted in single berths being put into operation at the two ports; second berths were completed via a subsequent Japanese ODA loan funded project: "Bakauheni-Merak Ferry Terminal Extension Project" (2,200 million yen, completed 1988) (the construction of wharf for the second berth at the Merak terminal was funded by the government of Indonesia). This project involved the construction of third terminals at the two ports with a view to making further capacity extensions. There are now fourth terminals at both terminals that are owned and operated by a private-sector company (PT. Infiniti Indosakti).

contributing to regional economic growth.

1.3 Borrower/Executing Agency

Government of the Republic of Indonesia/Directorate General of Land Communications under the Ministry of Communications (*Departemen Perhubungan*)

1.4 Outline of Loan Agreement

Loan Amount/Disbursed Amount	5,898 million yen/3,234 million yen
Exchange of Notes/Loan Agreement	October 1993/November 1993
Terms and Conditions	
Interest Rate	2.6%
Repayment Date (Grace Period)	30 years (10 years)
Procurement	General untied
Final Disbursement Date	December 2002
Main Contractors	Kajima Corporation, PT. Dharma Subur Satya (Indonesian company), etc.
Contracted consultants	Pacific Consultants International
Feasibility Studies (F/S), etc.	1970: F/S, Government of Indonesia 1974: L/A signed for Phase 1 project (Engineering Services: E/S) 1976: L/A signed for Phase 1 project 1977: L/A signed for ferry port construction (OECD) 1981: Phase 1 project completed 1985: L/A signed for extension project 1986: Master Plan (M/P), Government of Indonesia (Phase 2: current project) 1988: Extension project completed

2. Results and Evaluation

2.1 Relevance

2.1.1 Relevance of project plans at appraisal

For the domestic shipping industry, Indonesia's fifth five-year development plan (REPELITA V: 1989-1993) put a focus on the necessity of efforts towards improving intra-island transportation services. Specifically, the transport link between Sumatra and West Java represents an essential supply route for traffic in raw materials bound for Jakarta and traffic in a variety of manufactured goods bound for Sumatra, and plays a key role in economic development in the two regions. Accordingly, this project was a high priority undertaking involving the construction of third berths capable of accommodating the large ferries (5,000 GRT class³) that can transport passengers, vehicles and freight in bulk⁴.

³ GRT: Gross Register Tonnage, is the unit most frequently used to express vessel size (capacity) and refers to the total internal capacity of a vessel. A 5,000 GRT vessel has a total tonnage of 5,000 tons. GRT is generally used as the benchmark for calculating port duties, pilotage dues, and the charges for tug boat use, and is also the unit most frequently employed in compiling statistical data.

⁴ The second berths completed in 1988 ahead of this project were originally designed to accommodate 2,000 GRT vessels, but the plans were revised in order to build berths capable of accommodating the 5,000 GRT

2.1.2 Relevance of project plans at evaluation

The expansion of transportation services is the stated goal of the transport facilities and infrastructure development program that has been incorporated into PROPENAS (2000-2004), Indonesia's current development plan. As at appraisal, the Sumatra-West Java transport route continues to constitute an essential inter-island link and to play a critical role in economic development in the two regions. The significance of this project, which involved the completion of third berths capable of accommodating large ferries (5,000 GRT class) with bulk transportation capacity, remains high.

2.2 Efficiency

2.2.1 Outputs

A comparison of planned and actual project outputs is given in Table 1. The construction of new (third) berths at the two ports - this project's primary objective - was completed as planned, as was the construction of access roads, car parking facilities and bus terminals, which were incorporated into project plans in order to accommodate projected increases in vehicular and passenger traffic passing through the ports.

Table 1: Comparison of Planned and Actual Outputs

	Planned	Actual
Merak Port	[Original outputs] <ul style="list-style-type: none"> • Construction of 3rd berth (5,000 GRT class) • Construction of breakwater • Construction of new passenger terminal • Construction of waste oil disposal facilities • Development of access roads, parking areas and a bus terminal 	<ul style="list-style-type: none"> • As planned • Cancelled • Changed to construction of waiting lounge facilities for the bus terminal • Cancelled • As planned
		[Additional outputs] <ul style="list-style-type: none"> • Dredging of the (existing) No. 1 berth • Additional paving of access roads
Bakauheni Port	[Original outputs] <ul style="list-style-type: none"> • Construction of 3rd berth (5,000 GRT class) • Construction of new passenger terminal • Development of access roads, parking areas, and a bus terminal 	<ul style="list-style-type: none"> • As planned • Changed to construction of waiting lounge facilities for the bus terminal • As planned
		[Additional outputs] <ul style="list-style-type: none"> • Rehabilitation of the floating pier for small high-speed vessels

For the following reasons, outputs for the two ports were either cancelled or revised.

vessels that were already starting to be run by some private-sector ferry operators.

- Merak Port ... [Breakwater construction] The Master Plan drawn up in 1986 included plans for the construction of a breakwater to protect the No. 3 berth from ocean waves, but when the detailed design (D/D) for this project was being developed, findings from a more detailed wave analysis revealed that the waves hitting the berth were not sufficiently strong to necessitate a breakwater and the component was cancelled as a result. The cancellation of this component has not had any appreciable impact on project performance at the present time.
- ... [Construction of a new passenger terminal] At the D/D stage, the content of the Master Plan was reviewed and the feasibility of constructing this facility was investigated. Having looked at the balance between adjacent facilities and the proposed site for the terminal building, it was determined that it would prove difficult to secure the necessary land near the berth, and the construction of a waiting room near the bus terminal was put forward as an alternative.
- ... [Construction of waste oil disposal facilities] The component was cancelled because the government-run transport company responsible for operating and managing the ferry terminal decided that to outsource the replacement of engine oil in company ferries to Tanjung Priok docklands in Jakarta instead of performing the work in-house.
- ... [Dredging of the No. 1 berth: additional output] The dredging work was added to deal with sand deposits in the existing No. 1 berth (completed in 1988), and the access road paving work component was expanded its target.
- Bakauheni Port ... [Construction of a new passenger terminal] There were also plans to build a passenger terminal at Bakauheni Port, but this component was canceled for the same reason as given for Merak Port, and the plans changed to incorporate the construction of a waiting room adjacent to the bus terminal.
- ... [Rehabilitation of the floating pier for small, high-speed vessels: additional output] This pier that had deteriorated due to aging and its rehabilitation (replacement) was undertaken as an additional component.

2.2.2 Project Period

The project was completed more than four years behind schedule due to delays (8 months) related to changes in the consultant selection procedure (from as-needed contracts to short-listing), holdups in procurement procedures due to the effects of the

currency crisis (12 months), and holdups in construction work (the removal of old rail facilities from the proposed site for berth #3 construction at Merak Port and difficulties⁵ encountered with wharf work at the two ports)⁶.

Table 2: Comparison of Planned and Actual Implementation Schedules

	Planned	Actual
Loan agreement	November 1993	As left
Consultant selection	Jul. 1993–Jun. 1994	Jun. 1994–Feb. 1995
Contractor selection (bidding, contracts)	Jan. 1995–Jun. 1996	Sept. 1995–Feb. 1998
Construction work at Merak Port	Jul. 1996–Jun. 1998	Mar. 1998–Jul. 2001
Construction work at Bakauheni Port	Jul. 1996–Jun. 1998	Mar. 1998–Jul. 2001
Additional works	---	Aug. 2001–Jul. 2002
Consulting services	Jul. 1994–Jun. 1998	Mar. 1995–Jul. 2002
Project completion	June 1998	July 2002

2.2.3 Project cost

The total cost of the project was kept to within around 70% of the initially estimated budget predominantly because depreciation of the local currency (Rupiah) exceeded inflation and competition enabled equipment to be procured efficiently, which trimmed the overall construction costs⁷.

Table 3: Comparison of Planned and Actual Project Costs

	Planned	Actual
Total	6,939 million yen	4,579 million yen
(ODA loan portion)	(5,898 million yen)	(3,234 million yen)
Foreign currency	3,770 million yen	3,470 million yen
Local currency	3,169 million yen (53,717 million Rupiah)	1,109 million yen (29,981 million Rupiah)
Exchange rate	Rp. 1 = 0.059 yen	Rp. 1 = 0.037 yen*

Note: Average for appraisal (1993 average) and completion (2002 average)

2.3 Effectiveness

2.3.1 Improving the bulk transportation system

The construction of third berths at the two ferry terminals has made it possible for the two ports to operate services using large 5,000 GRT vessels and the gross number of crossings has also increased. Table 4 shows a comparison of the number of ferries crossing between Merak and Bakauheni at appraisal (1994) and after the completion of this project (2003) by GRT class.

⁵ The wharf work at the two ports took time especially for the basic work components.

⁶ Even omitting the additional components, the project was subject to an overrun of approximately three years (66%).

⁷ These cuts include approximately 10% from the cancellation of various output components.

Table 4: Number of Ferries by GRT Class

GRT Class	Appraisal (1993)	Post-completion (2003)
3,000GRT or less	2	2
3,000GRT-5,000GRT	9	14
5,000GRT or more	0	10 ^(Note)
Total	11	26

Source: PT.ASDP (public ferry terminal operator)

Note: Includes one of the largest 12,500GRT class ferries.

In 1993, the largest vessels running the Merak-Bakauheni route were 5,000 GRT craft (capable of carrying 720 passengers and 75 vehicles), but an increasing number of larger ferries have introduced by private-sector operators during the ensuing decade⁸ and today 5,000 GRT and larger craft account for around 40% of the entire fleet. The new berths at both ports are capable of accommodating 5,000 GRT vessels, but some private-sector ferries exceed 10,000 GRT⁹ and the project facilities cannot fully accommodate the berthing needs of these vessels.

There have also been substantial increases in the average number of ferries traversing the route on a day-to-day basis: from 64/day in 1993, to 94/day in 2001 and 120/day in 2002.

Fig. 1: A ferry docked at the No. 3 berth, Merak Port



2.3.2 Performance for passenger numbers, vehicle numbers and freight volumes

Figure 5 compares the appraisal targets set for passenger numbers, vehicle numbers and freight volumes on the ferry route between Merak and Bakauheni with the results through 2003. The figures show that fiscal 2000 marked a turning point for trends in the use of this ferry service. Up to that point, cargo volumes were on a par with initial estimates, while passenger and vehicle numbers were increasing at faster rates. However, passenger numbers began declining in 2001, although vehicle numbers and freight volumes have stayed at 2000 levels.

⁸ The government-run ferry operator that operates and manages the terminals (PT. ASDP) owns three ferries that run between Merak and Bakauheni; all three are 3,000 GRT medium-sized craft. The private-sector operators, on the other hand, own larger ferries.

⁹ [Reference] The Yotei Maru, which traveled the former Aomori (Honshu) – Hakodate (Hokkaido) ferry route and is now moored and on display at the Museum of Maritime Science in Tokyo, weighs 8,311 GRT (passenger capacity: 1,200; cargo vehicle capacity: 48).

Table 5: Prospects (appraisal) and Results for Passenger No., Vehicle No. and Freight Volumes

Year	Passengers (× 1,000)		Vehicles (× 1,000)		Freight (× 1,000 tons)	
	Prospect	Actual	Prospect	Actual	Prospect	Actual
1993	8,970	9,615	1,140	1,165	4,560	4,389
1994	N/A	11,171	N/A	1,423	N/A	5,046
1995	9,703	12,300	1,306	1,540	5,220	5,600
:	:	:	:	:	:	:
2000	11,248	14,013	1,667	2,630	7,492	6,672
2001	N/A	11,546	N/A	2,200	N/A	6,676
2002	N/A	9,453	N/A	2,215	N/A	7,239
2003	N/A	8,428	N/A	2,149	N/A	7,104

Sources: Prospects were taken from appraisal documents, results were obtained from the government-run ferry operator (PT.ASDP).

The decline in passenger numbers is predominantly the result of the deregulation of the aviation industry, which led to fierce competition between new and established airlines and brought airfares crashing down¹⁰. This is clearly evidenced by a comparison of the fares on two major air routes, for example: the Jakarta - Palembang (the center of commerce in South Sumatra) route and the Jakarta - Medan route (the regional hub of North Sumatra) route pre- and post-deregulation, with the fares for the long-distance bus route (via the Merak Bakauheni ferry crossing). Prior to deregulation the airfares on both routes were at least four times as expensive as the price of a bus ticket; they have now dropped to approximately 1.5 times the bus fare. Paying 1.5 times more for air travel allows for massive savings on time, which is sufficient incentive for both business travelers and members of the middle classes to use the airlines, and suggests that a considerable number of former ferry users have made the switch.

Table 6: Comparison of fares between major cities on Java & Sumatra by transport mode
(Unit: One-way economy class adult fare; Rp./person)

Route	Pre aviation sector deregulation (2000)		Post aviation sector deregulation (2004)	
	Air	Long-distance bus Merak-Bakauheni route	Air	Long-distance bus Merak-Bakauheni route
Jakarta-Palembang	600,000 (1 hour flight)	150,000 (12 hours)	169,000~240,000 (1-hour flight)	175,000 (12 hours)
Jakarta-Medan	1,100,000 (2-hour flight)	250,000 (48 hours)	400,000 (2-hour flight)	250,000 (48 hours)

Source: Based on hearings conducted at a travel agency in Jakarta

The Directorate General of Land Communications (DGLC), which controls domestic ferry services, in 2003 issued an announcement relating to the improvements that would need to be effected in order to maintain/recover passenger numbers. The notification included measures to shorten crossing times and operate additional high-speed vessels and called on the key industry proponents (public and private ferry operators) to bring about the necessary improvements. However, all signs point to the fact that the

¹⁰ The "Survey on Long-term Strategies for Indonesia's Aviation Sector", which was devised by JICA (the Japan International Cooperation Agency) in July 2004, reports that the price of economy class flights on sixteen major domestic routes departing Jakarta dropped by an average 58% between 2000 and 2003 (minimum 33%; maximum 74%).

switchover of ferry users (general passengers) to air travel is no temporary phenomenon but a major environmental change, and the government will need to improve services and revise the fare system simultaneously, focusing on vehicle and freight traffic as well as passenger numbers¹¹.

2.3.3 Shorter waiting times for boarding

This project was intended to raise the number of ferry crossings and to enable larger vessels to be put into service on the route; its completion was expected to shorten the time from entering the terminal to boarding for passengers and cargo traffic, in other words, waiting times. Although there are no data to enable a quantitative comparison of the waiting times before and after the completion of the third berths at Merak and Bakauheni, there is no evidence to suggest that the times have increased. However, as Table 5 has shown, in view of the fact that vehicle numbers are increasing above and beyond initial estimates, had the project not been implemented waiting times would have undoubtedly been longer. This suggests that the project has helped to curtail any further increases in the time to boarding.

2.3.4 Recalculation of the Financial Internal Rate of Return (FIRR)

The financial internal rate of return (FIRR) of the project was recalculated using the same method as was employed at appraisal: i.e. using actual outlays (the overall costs for construction of No. 3 berths, access roads, parking facilities, etc., plus post-completion operation and maintenance costs) and revenues, to yield a figure of 7.2%, or lower than the original estimate of 12.8%. Although the initial investment was compressed to around 70% of the budgeted figure, the overall cost performance of the project was reduced by the fact that “passenger numbers have hovered at around 60% of initial projections” and that “the ferries¹² that the public ferry operator was expected to introduce into service from the No. 3 berths are not generating any income”.

2.4 Impact

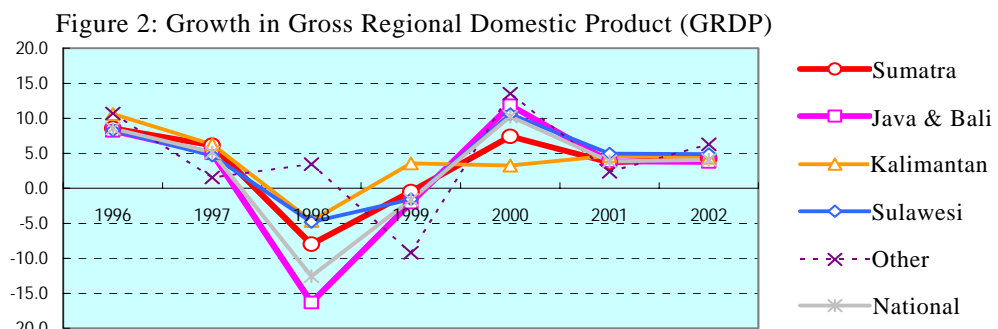
2.4.1 Economic development of hinterlands via expanded distribution between Java and Sumatra

The two regions that are linked by the Merak Bakauheni crossing are important hubs

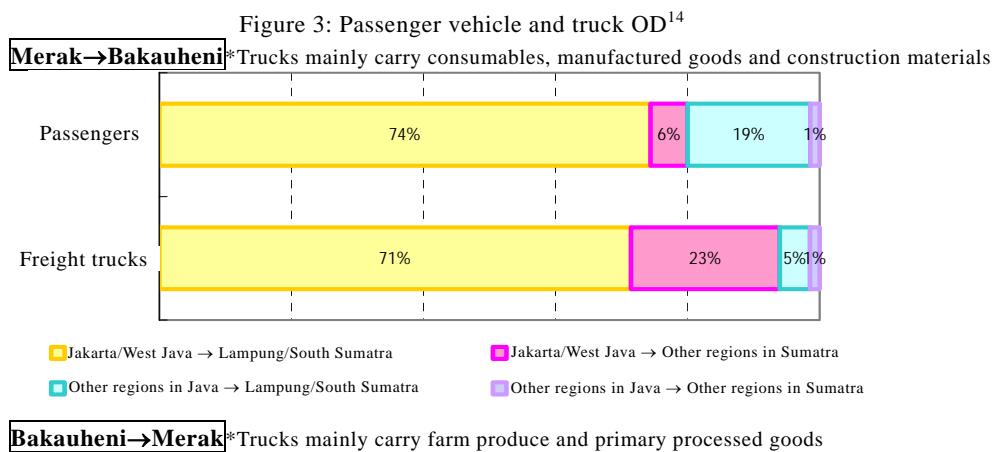
¹¹ [Reference] The system employed in Japan includes a detailed list of ferry terminal charges, which are determined on the basis of the type of cargo on board and length of boarding vehicles and allow operators to charge higher amounts

¹² PT.ASDP owns and operates three mid-size ferries and it was understood that the company would add 5,000 GRT class craft to its fleet; however, it was prevented from doing so for financial reasons. In consequence, the charges for revenues from ferry operation that were envisaged at appraisal are not being generated, though the charge for terminal use are generated.

of economic activity within Indonesia, with Java (including Bali) accounting for approximately 60 percent of gross regional domestic product (GRDP), while Sumatra accounts for around 20 percent. As with other regions, both Java and Sumatra experienced negative GRDP growth following the currency crisis of 1997 until 1999, but have been posting positive figures since 2000 (see Figure 2). Further, the exceptionally close correlation between GRDP figures for the two regions between 1998 and 2002 and the number of cargo trucks using the Merak Bakauheni ferry link during the same period¹³ provides incontrovertible evidence of the crucial role that cargo traffic on this shipping route is playing in supporting the economies of the two regions.

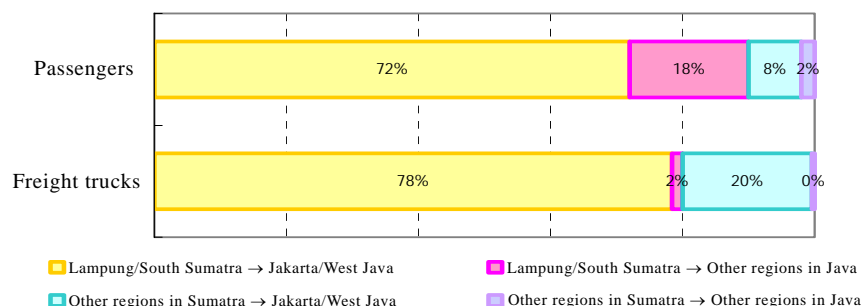


Source: Central Bureau of Statistics (BPS)



¹³ Between 1998-2002, there was a 0.92 coefficient for annual cargo truck numbers and Java's GRDP and a 0.90 coefficient for Sumatra, suggesting a strong correlation between the two parameters in both regions.

¹⁴ The abbreviation for "Origin and Destination", which indicates the beginning and end points of journeys made by vehicles, passengers and freight. OD is estimated based on the Directorate General of Land Communications data



The origin and destination (OD) rates (see Figure 3) for general passengers and trucks traveling between the two regions show that the majority of passengers crossing from Merak (Java) to Bakauheni (Sumatra) are either bound for Lampung Province, which is located on the southern end of Sumatra, or for South Sumatra Province (more than 90%). Similarly, trucks, i.e. freight traffic (mainly consumables, manufactured goods and construction materials) are predominantly bound for destinations in the southern part of Sumatra (approximately 70%), although some are traveling to other destinations on the island (upwards of 20%). By contrast, 80% of passengers traveling from Bakauheni to Merak are bound for Jakarta and other destinations in the province of West Java, while trucks (mainly carrying farm produce and primary processed goods) depart from southern areas of Sumatra (80%) or other regions on the island (20%) to Jakarta and West Java. As this shows, consumables, manufactured goods and other processed products are flowing from Java to Sumatra, while farm produce flows in the opposite direction, suggesting that the Merak Bakauheni route is supporting inter-island trade that is based on the respective economic and industrial characteristics of the two regions.

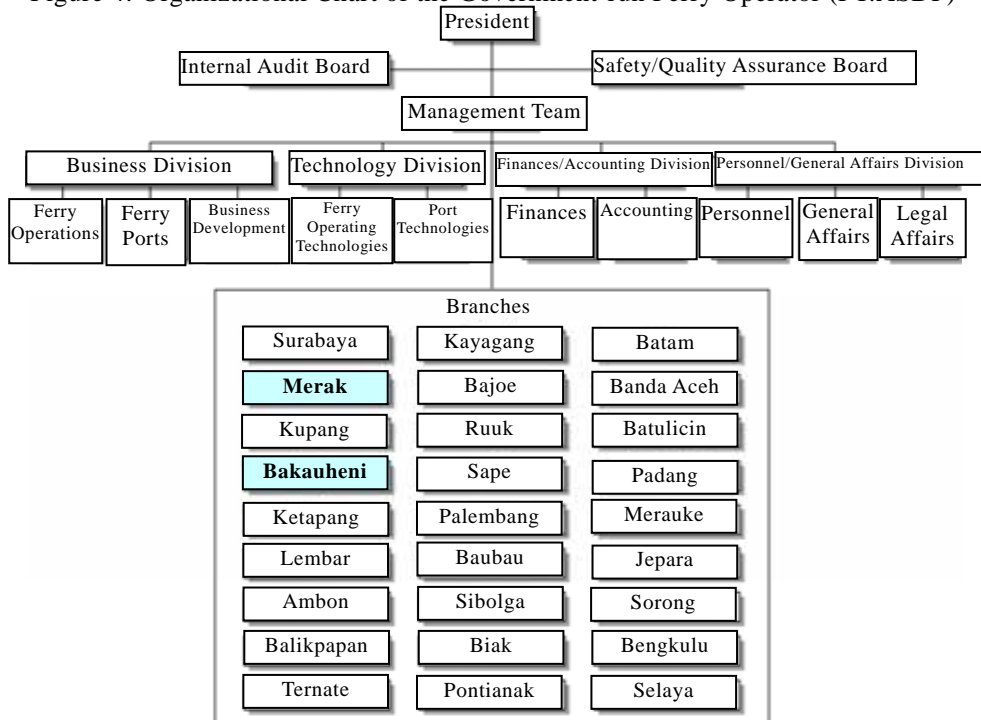
2.5 Sustainability

2.5.1 Executing Agency

2.5.1.1 Technical Capability

Both ferry terminals are operated and managed by the local branch offices (Merak and Bakauheni) of the government-run ferry operator (PT.ASDP), which is headquartered in Jakarta (see Fig. 4).

Figure 4: Organizational Chart of the Government-run Ferry Operator (PT.ASDP)



Source: Compiled from materials supplied by PT.ASDP

The Merak and Bakauheni branch offices are run by twenty administrative staff and approximately one hundred on-site workers each. Monthly routine maintenance checks are carried out for facilities and equipment located inside the terminal on the basis of an ISO-compatible maintenance manual that was formulated and approved by PT.ASDP in 2000 (ISO quality management system: ISO 9001).

2.5.1.2 Operation and Maintenance System

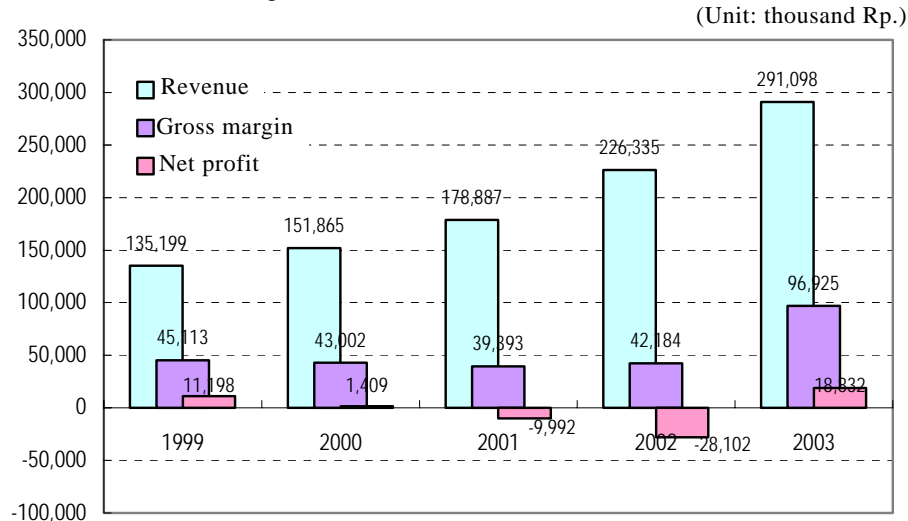
PT.ASDP is supervised by the Directorate General of Land Communications (DGLC) and receives technical supervision and guidance on ferry services, including the operation and maintenance of terminal facilities. DGLC also authorizes the setting and revision of the charges for terminal use and is responsible for regulating/providing incentives for the provision of reasonably-priced, good quality services for facility users.

2.5.1.3 Financial Status

All revenues received from passengers and vehicles entering the two terminals, and fees paid by private-sector ferry operators for berth use are initially processed by the financial affairs division at PT.ASDP headquarters before necessary funds are allocated to individual branch offices. For example, a comparison of budgeted and actual spending on routine maintenance work at Bakauheni Port during fiscal 2003 reveals that Rp. 1,329 million was spent (budget allocation) against an initial estimate (budget request) of Rp.

1,390 million, i.e. essentially the entire amount, which suggests that the company's finances are in favorable condition.

Figure 5: Profit & Loss Status of PT.ASDP



Source: Compiled from materials provided by PT.ASDP

Figure 5 gives revenue, gross margin (gross operating income: GOI) and net profit (net operating income: NOI) figures for PT.ASDP for the five-year period spanning 1999-2003. The company's earnings are derived from two sources: the charges for terminal use and revenues from ferry operations, with the two fluctuating in a ratio of 1:2. While revenues are rising overall, GOI fell sharply in 2001 and 2002 (from around 30% to 20%), which put NOI into negative territory. This was because the Rupiah was devalued in both years (as the result of political and social instability caused by regime changes and the enactment of the decentralization policies during 1999 and 2000), which pushed the fuel prices necessary for ferry operation through the roof. The exchange rate returned to 2000 levels in 2003, and both GOI and NOI recovered as a result. Further, the company's capital adequacy ratio, which is said to indicate operational stability, was 40.6% in 2002 and 38.9% in 2003, and is being maintained at a high level of around 40%.

2.5.2 Operation and Maintenance Status

The third berths and additional facilities access roads and so forth, that were constructed at Merak Port and Bakauheni Port continue to be operated and maintained in good working order.

3. Feedback

3.1 Lessons learned: Nothing specific

3.2 Recommendations: Nothing specific

Comparison of Original and Actual Scope

Item	Planned	Actual
(1) Outputs		
Merak Port	[Original outputs] <ul style="list-style-type: none"> • Construction of 3rd berth (5,000 GRT class) • Construction of breakwater • Construction of new passenger terminal <ul style="list-style-type: none"> • Construction of waste oil disposal facilities • Development of access roads, parking areas and a bus terminal 	<ul style="list-style-type: none"> • As planned • Cancelled • Changed to construction of waiting lounge facilities for the bus terminal • Cancelled • As planned
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	[Additional outputs]	<ul style="list-style-type: none"> • Rehabilitation of the floating pier for small high-speed vessels
(2) Project period		
-L/A signing	November 1993	As left
-Consultant selection	Jul. 1993 Jun. 1994	Jun. 1994 Feb. 1995
-Contractor selection (bidding, contracts)	Jan. 1995 Jun. 1996	Sept. 1995 Feb. 1998
-Construction work at Merak Port	Jul. 1996 Jun. 1998	Mar. 1998 Jul. 2001
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-Additional works	---	Aug. 2001 Jul. 2002
-Consulting services	Jul. 1994 Jun. 1998	Mar. 1995 Jul. 2002
-Project completion	June 1998	July 2002
(3) Project cost		
Foreign currency	3,770 million yen	3,470 million yen
Local currency	3,169 million yen (53,717 million Rupiah)	1,109 million yen (29,981 million Rupiah)
Total	6,939 million yen	4,579 million yen
ODA loan portion	5,898 million yen	3,234 million yen
Exchange rate	Rp. 1 = 0.059 yen (April 1993)	Rp. 1 = 0.037 yen (Average for 1993-2002)