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Report No: ICR00004885

IMPLEMENTATION COMPLETION AND RESULTS REPORT

ON A

LOAN

IN THE AMOUNT OF US$50 MILLION

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR A

CHINA: FUJIAN MEIZHOU BAY NAVIGATION IMPROVEMENT PROJECT

December 20, 2019

Transport Global Practice
East Asia And Pacific Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective July 1, 2019)

Currency Unit =	Renminbi (RMB)
US$1 =	RMB6.89

FISCAL YEAR
July 1 - June 30

Regional Vice President:	Victoria Kwakwa
Country Director:	Martin Raiser
Senior Global Practice Director:	Ranjit J. Lamech
Practice Manager:	Binyam Reja
Task Team Leader(s):	Weimin Zhou
ICR Main Contributor:	Zijing Niu

ABBREVIATIONS AND ACRONYMS

CNAO	China National Audit Office
CPS	Country Partnership Strategy
DA	Designated Account
DMMP	Dredged Material Management Plan
DWT/dwt	Deadweight Tons
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EIRR	Economic internal rate of return
EMP	Environmental Management Plan
FESI	Fujian Environmental Sciences Institute
FPAO	Fujian Provincial Audit Office
FPDRC	Fujian Provincial Development Reform Commission
FPFD	Fujian Provincial Finance Department
FPMO	Fujian Project Management Office
FPTD	Fujian Provincial Transport Department
ICB	International Competitive Bidding
IFR	Interim Financial Reports
MBHAB	Meizhou Bay Harbor Administration Bureau
MOF	Ministry of Finance
MOT	Ministry of Transport
MPCMO	Major Projects Construction Management Office
NCB	National Competitive Bidding
NDRC	National Development and Reform Commissions
OP	Operational Manual
PDO	Project Development Objectives
RP	Resettlement Plan
RPF	Resettlement Policy Framework
SBD	Standard Bidding Document
SIL	Specific Investment Loan
SWEZ	Strait West Economic Zone
TA	Technical Assistance
UMIC	Upper Middle-Income Country

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P124848	China:Fujian Meizhou Bay Navigation Improvement Project
Country	**Financing Instrument**
China	Investment Project Financing
Original EA Category	**Revised EA Category**
Full Assessment (A)	Full Assessment (A)

Organizations

Borrower	Implementing Agency
International Economic and Financial Cooperation Department, Ministry of Finance	Fujian Provincial Department of Transportation

Project Development Objective (PDO)

Original PDO

To improve the capacity of the main navigation channel in Meizhou Bay and enhance the management capacity of Meizhou Bay Harbor Administration Bureau.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
IBRD-82270	50,000,000	49,566,277	49,566,277
Total	**50,000,000**	**49,566,277**	**49,566,277**
Non-World Bank Financing			
Borrower/Recipient	88,160,000	88,160,000	48,201,001
Total	**88,160,000**	**88,160,000**	**48,201,001**
Total Project Cost	**138,160,000**	**137,726,277**	**97,767,278**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
28-Feb-2013	13-Jun-2013	04-Jun-2018	30-Jun-2018	30-Jun-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
29-Jan-2018	21.90	Change in Results Framework Change in Loan Closing Date(s) Reallocation between Disbursement Categories

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Modest

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	24-May-2013	Satisfactory	Satisfactory	0
02	18-Dec-2013	Satisfactory	Satisfactory	0

03	21-Jun-2014	Satisfactory	Satisfactory	0
04	16-Dec-2014	Satisfactory	Satisfactory	0
05	19-Jun-2015	Satisfactory	Moderately Satisfactory	3.00
06	11-Dec-2015	Satisfactory	Moderately Satisfactory	6.30
07	26-May-2016	Satisfactory	Moderately Satisfactory	6.90
08	11-Dec-2016	Satisfactory	Moderately Satisfactory	17.02
09	13-Jun-2017	Satisfactory	Moderately Satisfactory	21.18
10	07-Dec-2017	Satisfactory	Moderately Satisfactory	21.32
11	20-Jun-2018	Satisfactory	Moderately Satisfactory	38.24
12	16-Dec-2018	Satisfactory	Satisfactory	39.83

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Transportation	**100**
Ports/Waterways	100

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Economic Policy	**50**
Trade	50
Trade Facilitation	50
Private Sector Development	**50**
Regional Integration	50

ADM STAFF

Role	At Approval	At ICR
Regional Vice President:	Pamela Cox	Victoria Kwakwa
Country Director:	Klaus Rohland	Martin Raiser

Director:	John A. Roome	Ranjit J. Lamech
Practice Manager:	Mark R. Lundell	Binyam Reja
Task Team Leader(s):	Binyam Reja	Weimin Zhou
ICR Contributing Author:		Zijing Niu

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. China's industrialization was export-oriented and used international trade to access technology and other inputs and global competition to energize domestic players, especially those in or close to the coastal region. China's overseas trade increased in value by over eighteen times from 1990 to 2009. In the same period, the total tonnage handled by China's seaports increased by almost ten times from 483 million tons in 1990 to 4.9 billion tons in 2009. Nine out of the twenty busiest seaports in the world (by annual throughput) were in China. Expansion of port capacity was a prominent economic and environmental challenge for China, and the strategy set out in China's National Seaports Plan since 2006 aimed to ensure sufficient port capacity to sustain growth in industrial production and international trade. Such capacity was to be provided in strategic hubs with specialization of roles, modern port infrastructure and economy of scale to avoid widespread degradation of the coastline caused by the proliferation of burgeoning small ports. Moreover, the Plan supported seaports to transition to more efficient, green and competitive seaports.

2. Meizhou Bay Port was one of the three main integrated seaport groups in Fujian Province. Being a substantial bulk cargo port for raw materials to and from industries in Fujian, Jiangxi and Hunan provinces, Meizhou Bay had a throughput of 40 million tons of freight in 2010. Meizhou Bay's development as a hub port in China's southeast coastline was an integral part of the National Seaport Plan, and the Regional Development Plan for the Strait West Economic Zone (the 'SWEZ Regional Plan') to boost economic and social development in a 270,000 square kilometer area, covering the four provinces of Fujian, Jiangxi, Hunan and Guangdong.

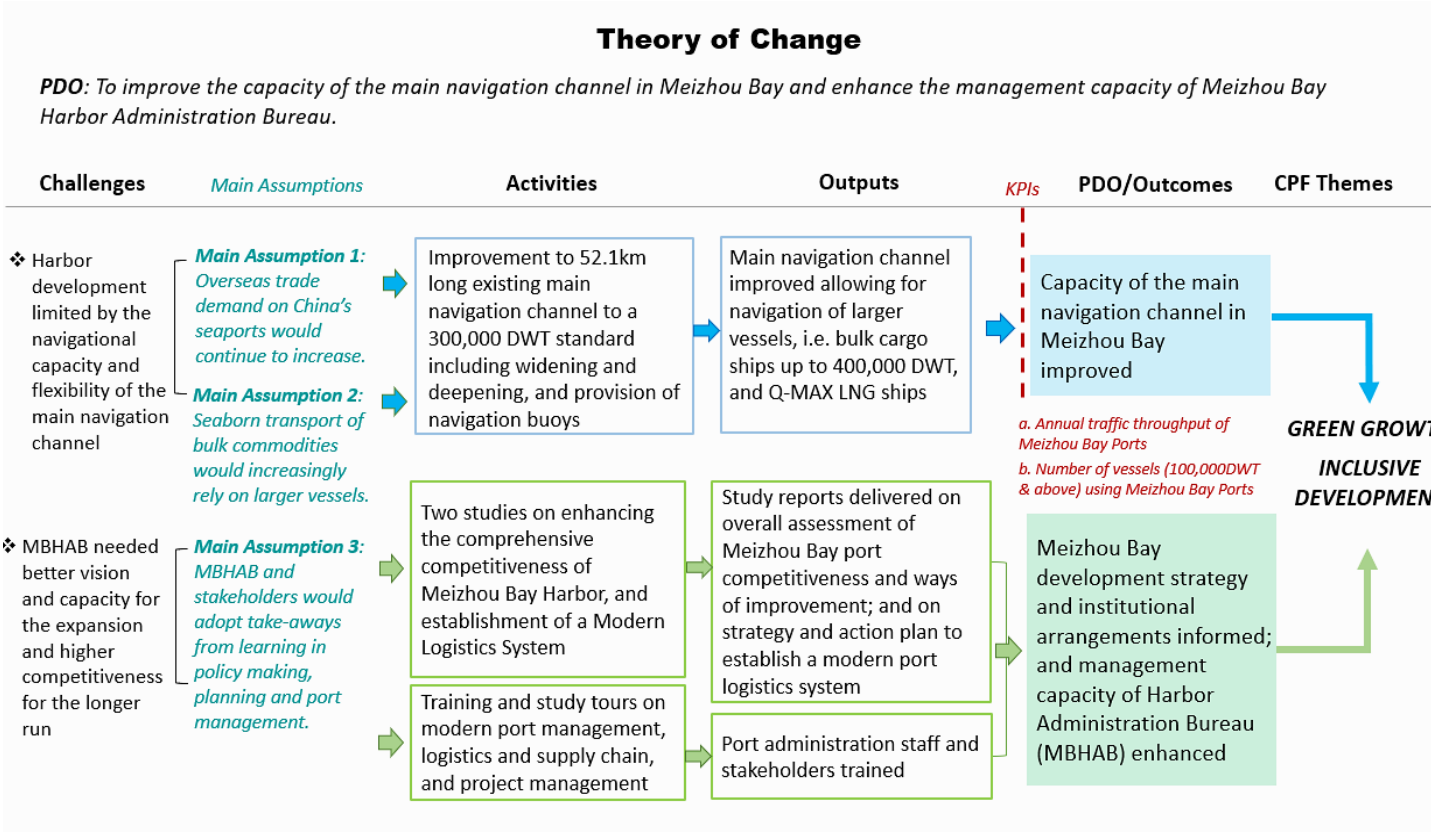
3. The development of Meizhou Bay as a hub port was intended to serve the longer-term industrial production trends in the region and the inland supply chains, particularly those of crude oil, coal and steel in Fujian, Jiangxi and Hunan provinces. The expanded navigational capacity at Meizhou Bay could provide average savings in the lengths of transport to and from the nine main steelworks in the three provinces for inward movement of iron ore and exports of iron and steel by: 180 km compared to the port of Xiamen, 487 km compared to the port of Ningbo, and 649 km compared to the port of Zhanjiang, the three nearest alternate ports. Improved navigational effectiveness could allow the use of larger-size vessels and reduce wait time, leading to reductions in cost and GHG emissions. Infrastructure upgrading needed to be accompanied by stronger institutions and efficient management, in order to ensure that Meizhou Bay Port performs at a level that commensurate with its scale.

4. The project was well aligned with the World Bank Group's China Country Partnership Strategy (CPS) for FY2013 - FY2016. The project addressed the CPS themes of "Supporting Green Growth" by optimizing energy use by reducing land transport distances needed to serve inland areas, and "Promoting More Inclusive Development" by improving transport connectivity of the land-locked western Fujian, Jiangxi and Hunan provinces with ports and cities in the more economically dynamic coastal region.

Theory of Change (Results Chain)

5. The project's Results Chain is illustrated below.

Figure 1. Results Chain



Project Development Objectives (PDOs)

6. The PDOs in both the PAD and the loan agreement were to improve the capacity of the main navigation channel in Meizhou Bay and enhance the management capacity of Meizhou Bay Harbor Administration Bureau.

Key Expected Outcomes and Outcome Indicators

7. The achievement of the PDOs was to be measured by the following Key Performance Indicators (KPIs):

(a) Annual traffic throughput of Meizhou Bay Port (total tons loaded and unloaded)

(b) Number of vessels of 100,000 DWT and above using Meizhou Bay ports

Components

The project had two components at approval:

8. **Component 1: Improvement of main navigation channel (estimated cost at appraisal: US$128.01 million, including US$48.88 million loan finance; while actual cost at project closing was US$94.38 million, including US$47.60 million loan finance).** This component included physical upgrading to the 51.2 km long main navigation channel to a 300,000 DWT standard, to allow for unidirectional tide-independent navigation of Q-MAX LNG ships and unidirectional tide-dependent navigation for 400,000 DWT bulk cargo vessels. Construction and installation works included: (i) deepening and widening of the navigation channel by dredging and rock blasting; (ii) installation of navigation buoys; and (iii) sand/gravel clearing and disposal by out-dumping and landfilling for berths under construction in Meizhou Bay.

9. **Component 2: Capacity building to enhance management capacity (estimated cost at appraisal: US$1.38 million, including US$1.00 million loan finance; while the actual cost at project closing was US$1.17 million, including US$0.79 million loan finance).** This component included delivery of two technical studies and the provision of training programs, as follows:

   1) Technical study on Strengthening Comprehensive Competitiveness of Meizhou Bay Harbor to (i) identify strengths and weaknesses of Meizhou Bay Harbor (overall and bulk cargos) using a competitiveness index model and comparison with peer ports in China; and (ii) recommend strategies and solutions to comprehensively enhance the competitiveness of the Harbor.

   2) Technical study on the Establishment of a Modern Logistics System in Meizhou Bay Harbor using the Supply Chain Integration theory to provide a strategic target, business orientation and implementation focus.

   3) Training and domestic/overseas study tours covering aspects of modern port construction and operation, modern logistics and supply chains, and project management. Documentation of key takeaways and outcomes of the learning activities.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

10. No changes were made to the PDO throughout the project lifecycle. No changes were also made to the PDO level indicators. However, revisions were made to outcome target values of the two PDO-level Indicators for 2015-2018 and one Intermediate Result Indicator for 2014-2018, as in the approved project Restructuring Paper (RP) dated January 29, 2018. The end of project target values of the two PDO-level Indicators – annual throughput and number of vessels of 100,000 DWT and above using Fujian Bay ports – were revised downwards to take account of the global economic downturn and China's transition from a high-speed to high-quality growth model from 2014. The original and revised PDO indicator targets are shown in Annex 1 and discussed in the Efficacy section.

Revised PDO Indicators
n/a

Revised Components
n/a

Other Changes

11. **Changes loan disbursement percentage.** As part of Project Restructuring, the loan disbursement percentage for the category of 'Works, non-consulting services and goods under Part A of the Project' was increased from 60% to 100%, with retroactive application from November 1, 2016. Fujian had prioritized the use of co-finance and subsidies from the central and provincial government in the first half of implementation, which resulted in slow disbursement of the loan. The increase in loan disbursement percentage was to ensure smooth completion of project activities when counterpart funds from national and provincial sources came under stress during the second half of implementation.

12. **Changes in loan closing date and implementation schedule.** The original loan closing date (June 30, 2018) was extended by 12 months to accommodate intermittent construction delays caused by factors such as typhoons, navigation control, and government ban on explosives during national holidays and important state events. The implementation schedule and loan disbursement projections were revised accordingly.

Rationale for Changes and Their Implication on the Original Theory of Change

13. The above changes were in line with the original Theory of Change and provided more prudent targets and timeframe for achieving the PDO.

II. OUTCOME

A. RELEVANCE OF PDOs
Rating: Substantial

Assessment of Relevance of PDOs and Rating

14. At appraisal, the PDOs were well aligned with the World Bank Group's Country Partnership Strategy (CPS) in China for the period of FY2013 - FY2016. With the achievement of the PDOs, the project addressed the CPS themes of "Supporting Green Growth" (by optimizing energy use by reducing land transport distances needed to serve inland areas), and "Promoting More Inclusive Development" (by improving transport connectivity between the land-locked western Fujian, Jiangxi and Hunan provinces, with ports and cities in the more economically dynamic coastal region). At completion, the project outcomes are relevant to the World Bank Group's China CPF for FY2020 - FY2025, for the pillar of "Promoting Greener Growth" under engagement area #2.5 Promoting low-carbon transport and cities.

15. At project completion, the PDOs remain in line with the China's 13th Five-Year Programme (2016-2020) to create a less energy-intensive transport system by reducing the average length of haul between inland traffic

generating activities and their seaports of import/export. **They continue to remain aligned with the National Seaport Plan and the Regional Development Plan for the Strait West Economic Zone mentioned in Paragraph 2.**

16. The project supports the World Bank transport strategy Sustainable Mobility for All (Sum4All)[1], and is aligned with Sum4All's pillars: Efficient – optimize the predictability, reliability and cost effectiveness of mobility; and Green – minimize the environmental footprint of mobility (GHG emissions, noise and air pollution).

B. ACHIEVEMENT OF PDOs (EFFICACY)

Rating: Substantial

Assessment of Achievement of Each Objective/Outcome

17. The PDOs comprise two elements: (a) improving the capacity of the main navigation channel in Meizhou Bay; and (b) enhancing the management capacity of Meizhou Bay Harbor Administration Bureau. The achievement of each PDO element is discussed below.

18. **PDO(a): Improving Capacity of the Main Navigation Channel in Meizhou Bay.** As indicated in the Theory of Change, Component 1 activities were to result in improving the main navigation channel, which would in turn contribute to an increase in: (a) annual traffic throughput of Meizhou Bay ports; and (b) number of vessels of 100,000 DWT and above using Meizhou Bay ports.

19. Civil works commenced in August 2014 and the main navigation channel (52.1km) - comprised two sections: (a) a 34.6 km long, 500 m wide and 23 m deep section (outside the bay) and (b) a 17.5 km long, 350 m wide, and 21.5 m deep section within the bay - was upgraded to 300,000 DWT standard and *fully* commissioned on May 24, 2019. By end of 2018 - which was the end year in the RF - improvement to the main navigation channel was 90% complete and the channel was partially operational. By end 2018, the annual throughput had reached 83.71 million tons (narrowly missing the revised end - i.e., 2018 - target of 85 million tons). The number of vessels of 100,000DWT and above using Meizhou Bay outperforming the revised end target (369 to 350). In the three months since full commissioning of the channel, i.e., from June to August 2019, throughput increased 25.2% compared to the quarterly average in 2018 (significantly exceeding the 2018 annual target). In addition, the number of vessels 100,000 DWT and above increased further to an annualized figure of 392. Table 1 provides a summary of PDO and Intermediate indicator targets and achievements relating to PDO element (a).

[1] Sum4All, a global multi-stakeholder partnership initiated by the World Bank, aims to improve the lives of people around the world – their health, their environment, and their quality of life – and help minimize the effects of climate change.

Table 1. Achievement of Indicator Targets for PDO Element (a)

Indicator	Unit	Baseline (2010)	Target Values/ Actual						
			2013	2014	2015	2016	2017	2018 (Revised End Target)	Actual 2019.6 – 2019.8 (whole year estimate)
PDO-Level Indicators									
Annual traffic throughput of Meizhou Bay ports	Metric ton (million)	39.07	55/ 57.58	70/ 70.89	75/77.92	78/78.37	80/82.31	85 (revised from 110)/ 83.71	26.21 (104.81)
Number of vessels of 100,000DWT and above using Meizhou Bay ports	Number	110	200/202	220/228	310/313	330/339	330/305	350 (revised from 650)/369	98 (392) *Including 30 (120) vessels above 100,000DWT*
Intermediate Results Indicators									
Improved main navigation channel follow technical parameters	kilometer	-	-	-	-	-	34 (revised from 40) /34.6	52.1/ 34.6	52.1/ 52.1

20. The increase in port throughput is also attributable to the improved navigational flexibility in the upgraded main channel, as it allows larger carriers to use the Bay: 300,000 DWT in all tide conditions and 400,000 DWT tide-dependent. With the improvement of the navigation channel, several major port companies invested in larger berths (100,000 DWT to 400,000 DWT) for future use by larger vessels. The provincial transport department estimates that the number of ships in the 180,000 DWT - 300,000 DWT range using the main navigation channel would reach 185 in 2025, and 255 in 2035; and the number of 100,000 DWT ships would reach 370 in 2025, and 510 in 2035.

21. Five railway branch lines are currently in operation connecting with ports inside Meizhou Bay, and four of them were constructed in the last five years to accommodate the greater capacity of the navigation channel. According to the Borrower's ICR, the total transshipment volume of bulk cargo at Meizhou Bay ports has gone up rapidly: from January to September 2019, total sea-rail and sea-inland-waterway transport increased respectively by 73% and 29% year on year.

22. ***PDO(b): Enhancing Management Capacity of Meizhou Bay Harbor Administration Bureau.*** Achievement of this PDO element is measured by: (a) the delivery of two technical studies on Strengthening Comprehensive Competitiveness of Meizhou Bay Harbor, and on the Establishment of Modern Logistics System for Meizhou Bay Harbor; and (b) study tours and training events for port administration staff. Table 2 below summarizes the achievement of indicator targets for PDO element (b).

Table 2. Achievement of Indicator Targets for PDO Element (b)

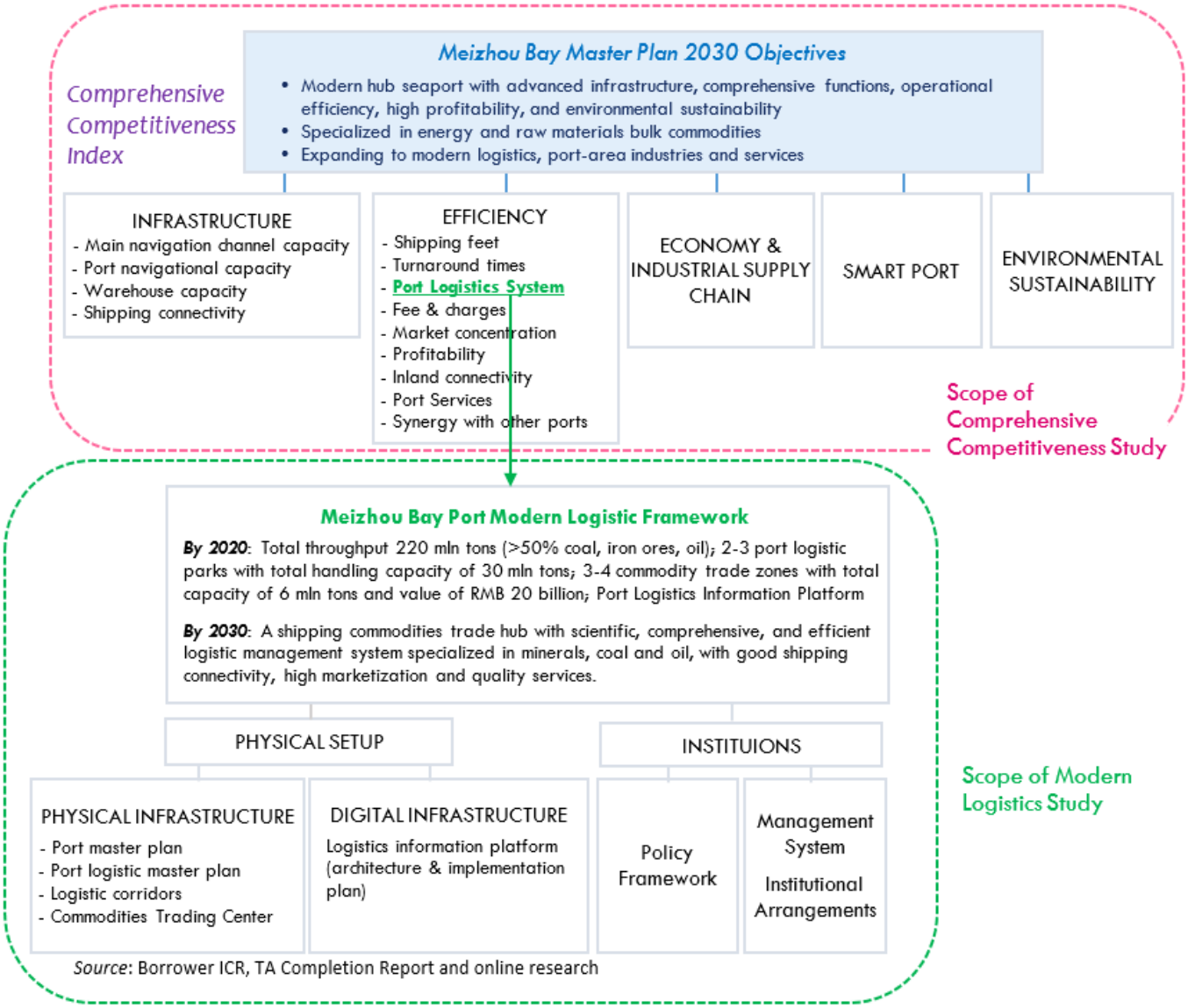
Indicator	Unit	Baseline (2010)	Cumulative Target Values/ Actual					
			2013	2014	2015	2016	2017	2018 (End Target)
Intermediate Results Indicators								
Submission of deliverables of technical studies	Number	-	-	2/2	2/2	2/2	2/2	2/2
Number of trainees who attended training and study tours	Person-month	-	22.5	35/ 37.1	48/49.4	55/55.2	60/70.3	70 (revised from 87.5)/ 78.1

23. The *Technical Study on Strengthening Comprehensive Competitiveness of Meizhou Bay Harbor* helped MBHAB to develop a Comprehensive Competitiveness Index System for self-assessment and comparison with peers in the evolving operational landscape. Based on self-diagnostics, the study proposed five strategic dimensions to move port performance to higher levels, including: infrastructure upgrading; optimization of operations; logistics development; alliance with surrounding ports, key industries and cities; and trade promotion. The *Technical study on the Establishment of a Modern Logistics System in Meizhou Bay Harbor* recommended a paradigm shift for Meizhou Bay to transition into a high-productivity and high-quality modern logistics hub and defined a port logistics system that includes aligned logistics infrastructure, logistics information platform and institutions.

24. Based on the recommendations of the two project studies, Meizhou Bay Harbor has defined itself in the Meizhou Bay **Master Plan** as a "modern, efficient, integrated, multi-functional and environment-friendly port specialized in bulk cargos of energy and raw materials, and modern logistics and port industrial services". In 2014, MBHAB created **a new division** responsible for the planning, coordination and implementation of the port's logistics development. By end of December 2016, Meizhou Bay was ready to embark on the **transition to a modern logistics hub** with the completion of a *Meizhou Bay Harbor Logistics Development Master Plan* and a study on the *Establishment of a Commodities Trading Center in Meizhou Bay Area*. Meizhou Bay's development outlook in relation to the two project technical studies is illustrated in Figure 2.

25. Since 2015 Fujian Provincial Transport Department has **institutionalized a programmatic approach to Transport Development Research Series**, funding selected research proposals from affiliate agencies, including MBHAB, on a yearly basis. Currently, MBHAB has two studies underway supported by this program.

Figure 2. Meizhou Bay Development Outlook 2030 and Project TA Coverage



26. **Training**. By project closing, a total of 27 training events and domestic/overseas study tours were organized and were attended by 672 persons. The training and study tours enhanced substantive and empirical know-how, from within China and abroad, on a full spectrum of topics on modern port management from port planning and construction, financing, connectivity and accessibility, to logistics, operations and services, and trends in green and smart ports. In addition to MBHAB staff, key officials of FPTD and provincial environmental protection agency, as well as from port services and enterprises for strengthening of the port management ecosystem, also benefited from the training.

27. Feedback from (sampled) participants showed that 99% of them found the substance of the capacity building activities highly relevant, and the learning approaches effective. They noted that port development trends and

good practices from other seaports in China and abroad helped them to think of optimal ways to accelerate Meizhou Bay development. While the end target for the result indicator of attendees in capacity building activities was revised to 70 person-months during project restructuring due to the government's stringent control on travels by officials, participation of key officials by project completion still exceeded the revised end target by 11.6%.

Justification of Overall Efficacy Rating

28. Based on the discussion above, it is evident that both elements of the PDO were substantially achieved. The revised indicator end targets were exceeded in both cases, and significant impacts were achieved. The overall efficacy of the project is therefore rated **Substantial**.

C. EFFICIENCY

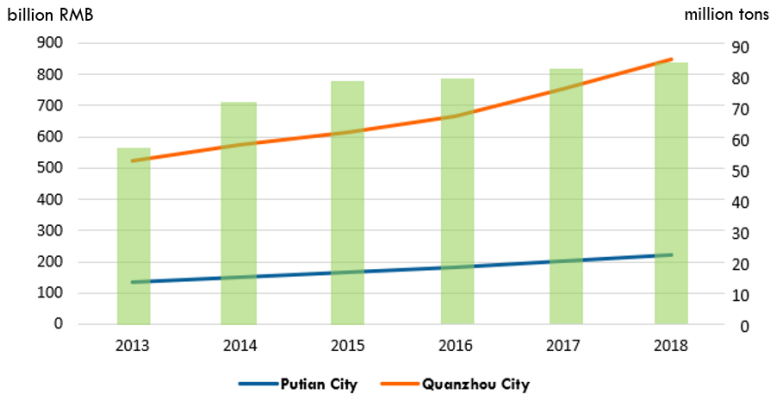
Rating: Substantial

Assessment of Efficiency and Rating

29. **Economic Analysis.** A quantitative economic analysis was conducted at completion, utilizing the methodology and model developed at appraisal. The EIRR at completion is 16.43%, compared to the EIRR at appraisal of 13.2%, while the NPV at completion and appraisal are respectively RMB428.06 million and RMB500.60 million, respectively. The lower NPV at completion is due to the use of 2013 as the baseline year and the one-year extension of the loan closing date. See Annex 4 for details of the efficiency analysis.

30. Development of Meizhou Bay Harbor has directly boosted industries in the surrounding areas, especially chemicals and power, as well as food processing, machinery, equipment manufacturing, and electronics. The interlinked expansion of the Meizhou Bay ports and the surrounding industries has made Quanzhou city and Putian city two direct beneficiaries in terms of economic growth. During 2013-2018, average GDP growth of the two cities reached 10.2% and 10.8% respectively, which were well above the national average of 8.7% (Figure 3). In the same period, total throughput of Meizhou Bay ports grew by more than 8% per year, outperforming the average of 7.3% among other seaports in Fujian province.

Figure 3. GDP Growth Putian and Quanzhou and Total Throughput of Meizhou Bay Port, 2013 - 2018



Source: MBHAB PMO

31. **Financial Analysis.** An ex-post financial analysis upon project completion shows that the FIRR at completion to be 12.16%, and NPV of the net income to be RMB1,941 million. See Annex 4 for details. Annual payments due after project completion are a smaller and diminishing fraction of FPTD's growing revenue, when compared with those during the construction period. Cashflow during project operation shows that MBHAB is able to cover the incremental operational costs.

32. **Administrative Efficiency.** The project was administratively efficient because of: (a) streamlined design, that resulted in efficient project preparation, implementation, and operation; (b) strong client capacity and a stable team; (c) well-resourced technical and project management support by the Bank; and (d) effective risk identification, risk mitigation, and technical optimization from the design stage. The PMO was efficient in the procurement of the two works contracts, and professional in construction management. Some key aspects are detailed in Section III on Key Factors That Affected Implementation and Outcome.

33. The project was completed with a 29% cost saving, which is attributable to: (a) revaluation of the renminbi from 6.33 to the dollar at appraisal to 6.89 at project closing; (b) lower contract prices due to international competitive bidding (from RMB724 million at appraisal to RMB608 million at completion); and (c) optimized design of civil works. As a result of increasing the disbursement percentage, 99.5% of the Bank loan was utilized. The one-year extension of the loan closing date (from five years and four months from approval to closing to six years and four months) is considered reasonable for a Category A infrastructure project. The total Bank administrative cost (from BB) of US$656,182 over ten fiscal years is considered frugal.

Justification of Overall Efficiency Rating

34. Based on the above assessment of economic and administrative efficiency, the overall efficiency of the project is rated Substantial.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Rating: Satisfactory

35. The overall outcome of the project is rated as **Satisfactory**, based on the Substantial ratings for each of Relevance of PDO, Efficacy and Efficiency.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

36. Gender aspects were appropriately addressed in project social safeguards instruments, and women's participation and rights were properly considered in resettlement and public consultation processes. Public consultations with local communities on project design and construction involved 790 people, of which 40% were women. Over 50% of the respondents in the project survey on re-employment training to project affected households were women. The project resettlement agency worked closely with local human resource and social security departments to provide free technical training for women.

Institutional Strengthening

37. The project had institutional strengthening as PDO(b) which was achieved through activities under Component 2. This is discussed in detail under the Efficacy section.

Mobilizing Private Sector Financing

n/a

Poverty Reduction and Shared Prosperity

38. As mentioned in the Context section, the expansion of Meizhou Bay port was an integral part of the regional development plan endorsed by the State Council in 2009. The plan aims to boost economic and social development in the region that includes the provinces of Fujian, Jiangxi and Hunan, which had persistent poverty. Gateway seaports, logistics value chain, and port-dependent industries are among the engines of growth. Though it is hard to quantify the contribution of port capacity expansion to GDP growth in Fujian as well as the inland provinces, the poverty rate in Jiangxi dropped from 9.21% in 2013 to 1.7% in 2018, and in Hunan from 13% in 2013 to 1.49% in 2018 [2].

39. During 2013-2019, the main navigation channel upgrading works created several hundred job opportunities for skilled and unskilled local workers. It is estimated that the operation and maintenance of the port after the project would create around 100 longer-term jobs. The construction and operation of port logistics value chain and industrial agglomeration in the environs of the port are also expected to create a few hundred new skilled and unskilled jobs for the local people in the coming years.

Other Unintended Outcomes and Impacts

40. **Green Port.** The project made great efforts to stress environmental and social sustainability in port operations. Ecological offset programs were adopted to minimize the adverse impacts caused by construction, and the concept of Green Port was introduced through both project components. The Green Port concept has been embraced by Meizhou Bay port in planning, design and operation for environmental impact compensation, reduction in pollution and emissions, higher energy efficiency, and better disaster resilience. Luoyu port (one of the Meizhou Bay ports) has committed itself to be a zero-emission port, and stormwater and domestic wastewater are properly treated and fully reused within the site; a 17 meter high windproof net has been installed for dust control; and engineering and vegetation measures are in place for drainage and landscaping.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

41. **Project Design Optimization.** The project was developed and prepared with a straightforward design to support Meizhou Bay's development through infrastructure investments and forward-looking institutional strengthening. A relatively small Bank loan served as a vehicle for the transfer of global sectoral know-how to a local client in China. The project made special efforts in the optimization of engineering design for the main navigation channel upgrading, based on meticulous assessments of meteorological, geological, and hydrological factors. The initial design was greatly improved through adjustments to the scope of dredging, coordination of dredging and rock

[2] Provincial statistics bureaus.

blasting, disposal of dredged materials, utilization of favorable tide conditions, and employment of advanced construction techniques and machinery.

42. **Operational Risk Assessment and Mitigation.** While the overall risk to achieving the PDO was correctly rated as *Modest,* the environmental and social risk was rightly assessed as *Substantial,* given the scale and nature of construction. The main adverse impacts potentially included: (a) damages to benthic organisms and aquatic habitats, coastal mudflats, water quality and marine hydrodynamics due to dredging/rock blasting operations and disposal of dredge materials; (b) social impacts such as disturbance to or loss of aquaculture farms, and impacts on existing facilities and navigation; and (c) risk of oil/chemical spill and ship waste management during construction and operation.

43. Project Environmental Assessment (EA) incorporated comprehensive legal framework review, environmental/social and marine ecological baseline studies, alternative analysis, cumulative impact assessment, risk assessment and response plan. Worth noting is that a comprehensive marine ecology study was conducted for the preparation of the EA, and its findings were fully captured by the Fujian Provincial Marine Functional Zoning Plan, which is the ecological basis for Meizhou Bay Port infrastructure development. The Environmental Impact Assessment (EIA) has fully addressed environmental acceptability of the dredging practices based on an assessment of the quantity and quality of the dredged materials, related regulatory framework, and implementation requirements. A Dredged Materials Management Plan (DMMP) was prepared and incorporated into the EMP. To offset potential ecological impact to the marine system and mudflat habitats as relevant to project activities, an ecological compensation plan (including fish reproduction and release program and a habitat restoration program at nearby wetland reserve) was developed and implemented as part of the EIA/Environmental Management Plan (EMP).

44. **Readiness for Implementation.** Before this project, the Bank had four lending operations on transport in Fujian that were satisfactorily implemented. When this project was prepared, Fujian Provincial Transport Department (FPTD) already had an established Project Management Office (FPMO) for Bank projects, with designated staff for safeguards, FM, procurement and coordination, and a strong track record of project management. Meizhou Bay Harbor Administration Bureau (MBHAB), which was responsible for the preparation, implementation, and day-to-day coordination of the project, quickly built up its capacity due to timely advice by FPMO, comprehensive guidance by the Bank team, support from consultants hired for environmental management and procurement, and extensive training as in Component 2.

B. KEY FACTORS DURING IMPLEMENTATION

45. **Economic Slowdown.** As discussed in the context section, the global economic slow-down and China's shift in focus to the quality of growth affected the demand for cargo traffic to and from Chinese ports, including Meizhou Bay. The project therefore lowered the target values for both outcome-level indicators in 2015 based on a revised assessment of demand.

46. **Sound Construction Management.** The project engaged a top-notch design institute, a procurement agent, EA/SA/IEMC/EQMC institutions, civil works contractors and an inspection agency in China to guarantee technical quality and accountability in construction. Optimal design revisions, engineering measures and construction machinery were used in dredging and rock blasting operations for better efficiency and for minimizing the impact on navigation safety and the environment. All dredged and rock blasting spoil from the inner bay section was used for land filling of berths under construction at Putou Operation Zones by hydraulic fill without mud

storage pit. Dredged spoil was transported to landfill sites directly without transit and hence reduced the risk of pollution. Construction was suspended for 5-6 hours a day to allow normal navigation. Environmental safety measures were closely tracked by the IEMC and the EQMC in line with the EMP requirements; they also provided environmental technical support to the contractors and conducted comprehensive environmental monitoring during construction.

47. **Unforeseen Disruptions.** Dredging and rock blasting operations experienced unexpected delays due to extreme weather conditions and strict control on the use of explosives. In particular, rock blasting was suspended intermittently due to the government ban on the use of explosives on national holidays and important state events (such as the BRI Summit and CPC conferences). However, because of the overall efficiency of construction management, only a one-year extension was required to the project closing date.

48. **Well-Designed and Implemented TA Activities.** The two technical studies under Component 2 were rolled out in 2013 and completed in January 2015. Their timely completion and high-quality outputs led to the main recommendations being incorporated in key official documents, as discussed in the Efficacy section. A number of training activities and study tours were successfully delivered, as the Bank team worked closely with FPTD in its design and organization. The training program was a synergy of rich substance, cutting-edge knowledge, peer-to-peer exchange, and on-site experience for participants.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

49. The project M&E was designed to measure the achievement of the two elements of the PDO, as well as project outputs. The two PDO-level indicators to measure achievement of PDO (a) - increase in total traffic throughput and the total number of larger vessels (100,000 DWT and above) using Meizhou Bay port – while appropriate, were also dependent on overall traffic demand. As a result, the original end of project targets for these two indicators, which were determined based on historical trends in economic growth in China, proved unrealistic when there was an unanticipated economic slowdown and a change in China's growth strategy. The target values were therefore revised through a project restructuring in 2015.

50. In the case of PDO (b), the RF only included intermediate indicators for the delivery of TA activities and the person-months of training, possibly because it was felt that assessing the impact of Component 2 on the achievement of PDO (b) would be difficult. A further weakness of M&E design was the oversight in not amending the end-target year to 2019, when the closing date was extended to June 2019.

51. Reporting arrangements included: semi-annual/annual implementation progress reports covering all key aspects of project management; reporting on fiduciary aspects and safeguards, including interim financial reports, annual audit reports and external safeguards monitoring reports. M&E Design included appropriate arrangements for data collection, compilation, analysis and reporting.

M&E Implementation

52. The M&E methodology remained unchanged during implementation. Adjustments were made to the RF during the project restructuring approved in January 2018. The changes included: (a) end target year for all

indicators was extended to the end of 2018, given the one-year extension of loan closing date; and (b) target values for the two PDO-level indicators and one Intermediate Result Indicator were revised to a more realistic level from 2015, with the corresponding annual target values between 2015 and 2018 revised accordingly. The PMO provided good quality reports to the Bank on a regular basis as per the agreed schedule. Supplementary data for 2019 for this ICR were collected by the PMO based on operational records of the Meizhou Bay Port.

M&E Utilization

53. Despite the weaknesses mentioned above, the efficient implementation of the M&E system offered both Fujian and the Bank a firm basis to assess progress and make appropriate adjustments, including restructuring of the project.

Justification of Overall Rating of Quality of M&E

Based on the above discussion, M&E quality is rated **Modest**.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

54. ***Safeguards Policies Triggered.*** Three World Bank safeguard policies were triggered by the project: OP4.01 Environmental Assessment (OP/BP4.01); Natural Habitats (OP/BP4.02); and Involuntary Resettlement (OP/BP 4.12).

55. ***Environmental Assessment (EA).*** The project was classified as Category A, given the sensitivity and significance of project-resulted environmental and social impacts. A comprehensive Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) were developed with well-designed environmental mitigation measures that were successfully implemented to address the project's direct, indirect and cumulative impacts through avoidance, minimization, mitigation and offset. The EIA and the EMP were duly disclosed in the project area and in the Bank's InfoShop on September 12, 2012. The public and key stakeholders were well engaged during the project cycle, and the Grievance Redress Mechanism (GRM) was in place. Neither Occupational Health and Safety (OHS) incidents nor environmental non-compliance were reported. EMP implementation was satisfactory and the project was recognized as Best Practice by the Bank's regional safeguards team in the application of environmental and social safeguards policies, particularly in relation to the design and implementation of the ecological offset program, as presented below.

56. ***Natural Habitats.*** During the EA process, the negative impacts of the project on marine ecology and habitats were identified and quantified, and an offset plan was designed as part of the EMP to compensate for the anticipated ecological loss, namely, the fish breeding and release program and the mangrove restoration program. Such offset programs demonstrate ESIA best practice based on scientific impact analysis and the planning of remedial measures by independent professionals, and the implementation and over-fulfilment of offset tasks along with stakeholder consultation, expert supervision, and verification. During project implementation, six rounds of fish fry were released during 2015-2019 for a total of 266.32 million fish/shrimp fries, 31% beyond the planned number. Mangrove restoration was successfully implemented over a total surface of 40.84 ha, 9.8% beyond the original target. The over-accomplishment of the biodiversity offset program can be expected to result in no net loss and a potential net gain in biodiversity. MBHAB has contracted with the Quanzhou Wetland Reserve, which is the location of the restoration program, for

mangrove restoration and maintenance till 2022. Quanzhou Wetland Reserve, as a national-owned institute, receives regular budget for maintenance and management of the wetland.

57. ***Social Safeguards*.** The Bank-financed project caused no physical resettlement to local households. The project and linked activities (construction of berths) affected the livelihoods of a total of 98 households comprising 506 persons; no household relocation was required. The final Resettlement Monitoring Report prepared by the external monitoring agency indicated that all the actions in the Resettlement Plan (RP) of the project had been fully completed by end August 2018; the affected households/people were fully compensated and were satisfied. This report was accepted by the Bank as the Resettlement ICR in May 2019. Project resettlement (including restoration of livelihoods) was completed, and compensation, livelihood restoration, public consultation and GRM were consistent with the RP and with the policies of China and the World Bank.

58. Social aspects of the project were rated highly satisfactory in view of the following good practices: (i) establishment and maintenance of a sound resettlement implementation system within the project, with clear roles and responsibilities assigned, including for the PMO and the external monitoring consultant; (ii) the relevant policies being widely publicized, and the mobilization of the resettled and affected communities to participate in the process to ensure transparent implementation; (iii) developing a specific and feasible implementation plan and being ready to modify it to adapt to the dynamic socioeconomic context; (iv) provision of employment opportunities and vocational training to affected persons; (v) highlighting the importance of internal and external monitoring to collect information on resettlement implementation to improve policies and resolve any issues; (vi) effective documentation of the resettlement process; and (vii) ensuring the effective functioning of a sound grievance redress system (GRM).

59. In addition to the full compensation to the affected persons with transparency and in line with the RP, the resettlement activities also provided the affected with employment opportunities and vocational training. For instance, the PMO via the local labor bureau provided the affected persons with information on job opportunities, recommendations and other help, and provided the affected persons project related work. Training programs, agricultural and nonagricultural, were developed and provided to the affected persons. 640 of the 660 workers in the two affected villages obtained jobs related to construction, transportation, small shops, and community cleaning, and their average annual income increased by RMB5,582 compared to their income prior to the project. It was found that 96% and 100% of the investigated households in the two villages were satisfied with the resettlement policies and their implementation.

Fiduciary Compliance

Procurement

60. Contracts financed by the loan were procured in accordance with the rules and procedures articulated in the Loan Agreement and the Project Agreement. All contracts were procured in a timely manner and below the cost estimates. Work variations and extension of contract durations for unexpected obstructions during contract implementation were professionally examined, and changes were processed in compliance with the terms and conditions of the contracts. Procurement performance of the project is rated satisfactory.

Financial Management

61. Financial management arrangements in place during the project cycle provided assurance that the Bank loan was being used for the intended purposes. All audit reports were issued on time with unqualified (clean)

opinions and did not disclose significant FM related control weaknesses. The FM related issues identified by auditors in audit reports were addressed by the project agencies in a timely manner. Delays in project interim financial reports (IFRs) were flagged by the Bank team and quickly resolved by the project agencies. The IFRs were found of acceptable quality. FM performance of the project is assessed to be satisfactory.

C. BANK PERFORMANCE

Quality at Entry

62. The project design was forward-looking and fully aligned with China's 12th FYP, local government priorities and WBG CPF for FY13-FY16. The PDO of improving physical and institutional capacities of the Meizhou Bay port was to be achieved through well-focused infrastructure investment, analytical support and capacity building in a realistic timeframe.

63. Project preparation was sound and paved the way for efficient implementation. The mostly field-based Bank team worked closely with counterpart agencies to ensure high quality and full compliance with both domestic and Bank requirements on feasibility, design, economic and financial aspects, as well as fiduciary and safeguard considerations. Key operational risks such as safety and environmental sustainability were identified and carefully assessed, and optimal mitigation measures were adopted. The M&E design had some weaknesses in terms of the lack of an outcome-level results indicator(s) for the institutional strengthening element of the PDO, while the target values for throughput of the port and the number of larger vessels using the bay had to be revised when traffic demand for cargo to and from Meizhou Bay ports came down. These were partially addressed during implementation.

Quality of Supervision

64. The Bank provided proactive and effective implementation support to the project through eight missions to the field, four desk reviews, five training events, and as needed guidance to the PMO on Bank policies and standards, reviews and comments to key documents, and clearance of bidding documents. Issues were identified timely and addressed properly. Each Bank supervision mission, comprising technical, fiduciary and safeguard specialists, conducted a comprehensive review of implementation to ensure quality and compliance, and to provide necessary guidance. Delays in dredging and rock blasting operations since 2016 slowed implementation, however the PMO was confident of completing the project by original closing date. By 2017 it became that the project could not be completed on time, and hence an extension to the closing date was initiated in late 2017 and completed in January 2018.

65. There were two changes in TTL after loan approval. The two succeeding TTLs were also field-based, and maintained a strong relationship with counterparts and coordinated day-to-day Bank task management and liaison with client well. An external hydro-engineering expert was hired to assist the task team throughout implementation. Bank fiduciary and safeguards specialists remained stable for a large part of implementation.

66. The Bank team was especially strong in overseeing, providing guidance and coordinating systematic environmental risk mitigation for the dredging and rock blasting operations throughout project implementation. The Bank organized four training workshops on environmental safeguards and sustainability for stakeholder agencies in Fujian from 2013 through 2018, and seven study tours in/outside China with port environmental protection as a key topic. The Bank closely monitored the satisfactory implementation of the EMP and the two biological compensation programs on fish breeding and release, and mangrove rehabilitation.

67. Given the nature of the project and comprehensive appraisal, a mid-term review was not envisaged at appraisal. However, through regular and careful monitoring, the Bank ensured that appropriate changes were made to the project as necessary through restructuring, as approved in January 2018. The Bank discussed and confirmed the operation and management of project-financed infrastructure and the sustainability of project outcomes with the project agencies prior to project completion.

Justification of Overall Rating of Bank Performance

Rating: Satisfactory

68. Overall Bank performance is rated Satisfactory, based on the discussion above on quality at entry and quality of supervision.

D. RISK TO DEVELOPMENT OUTCOME

69. **Operational Risk.** MBHAB has a well-established harbor operation and management system in place with regulations, standards, procedures, a specialized team, and steady cashflows for the safe and sustainable operation of the navigation channel. Its operational capacity was further enhanced through the project. MBHAB's law-enforcement arm is to ensure safety and security of the channel, and the technical and engineering arm would take care of routine maintenance.

70. **Institutional Risk.** The project has strengthened MBHAB's knowledge base, operational capacity and management skills to warrant sustainability of project outcomes. The project has also helped to broaden the vision of the harbor administration to respond to the megatrends in the sector with strategic planning and investments that are closely relevant to the project outcomes. Meizhou Bay Port as a key transport node in China's seaborne trade in the southeast is set to improve its competitiveness in the face of growing demand and competitive pressures. Institutional risk for project outcomes is low.

71. **Environmental Risk.** The project is aligned with China's National Seaports Plan to prevent coastal degradation from the proliferation of small ports. The *Green Port* concept was fully adopted in port planning, design and operation for energy efficiency and disaster resilience. Policies, standards and measures adopted during project implementation helped achieve environmental and ecological sustainability to the best possible extent. Quanzhou Wetland Reserve has been contracted to continue the mangrove restoration and maintenance program.

72. **Competition Risk**. The port would face slower growth if China's economy were to experience a prolonged and significant down-turn. China is further opening-up to mitigate the risks to its economy, which will mitigate this risk. Another risk is the potential competition from other ports in Fujian province. Implementation of the recommendations of the Competitiveness Study under Component 2 (see Efficacy section) would help mitigate the risks from competing ports in China.

V. LESSONS AND RECOMMENDATIONS

73. **Embedding strategic institutional strengthening support in infrastructure lending projects can be a good way to support UMICs address institutional gaps in infrastructure development and service delivery.** The project has demonstrated Bank's value added in strengthening the client's institutions and capacity through an infrastructure investment project. Good practices in project design and implementation worth highlighting are:

(a) Providing timely diagnostic and advisory support for upper-stream institutional design on port competitiveness enhancement and logistic development in the early stage of Meizhou Bay port transition; (b) Convening Bank's international network to provide global megatrends, knowledge, and best practices to the Harbor Administration and local government counterparts through the course of project preparation and implementation to help develop a forward-looking outlook in port planning, operation optimization, and business diversification for greater efficiency and sustainability; and (c) Appling robust E&S standards and measure beyond domestic requirements and simple compliance to Bank polices, emphasizing replicable practices such as the ecological compensation programs.

74. The ICR found these good practices replicable to similar Bank operations in for other clients. Broadly speaking, while institutional strengthening and capacity building are common 'side-dishes' in lending projects, the timing and design of Bank interventions can make a difference for a relatively small amount of loan financing to generate impact beyond the physical infrastructure and the project lifecycle. Especially, in view the Bank's increasing support to China's structural and environmental reforms during 2020-2025 with emphasis on institutional strengthening, it is recommended that Bank teams work closely with central and local counterparts to embed robust TA components for greater impact of lending projects. TA needs to be designed as a diagnostic approach to help client identify institutional and capacity gaps, and an analytical tool to inform upper-stream design and enforcement in a systematic and effective way.

75. **Adopting high standards and effective measures for environmental sustainability in infrastructure development should be mainstreamed for greening China's ports and logistics sector.** The project supported Meizhou Bay's development as a green hub port, and China's national strategy to prevent the degradation of its coastline caused by the proliferation of small ports. With the successful adoption of two biological compensation programs, the project demonstrated best ESIA practice and went beyond China's EA standards and Bank compliance requirements for environmental safeguards. These good practices were documented in a case study and shared in various Bank safeguards events. A video has been posted on the Bank website.

76. Seaport development in China is on a fast track since the 13th Five-Year Period. On November 6, 2019, nine ministries of China jointly released a *Guideline on Accelerating Development of World-Class Ports* which underpins the evolution to green and smart ports. It is recommended that the Bank and other MDB play a proactive role to help China green its seaports by replicating higher standards, measures and international good practice.

77. **Institutionalizing M&E design to measure TA impacts will benefit all projects.** This project shared the common challenge of Bank lending projects on measuring institutional strengthening and capacity building activities beyond the output level, due to the absence of corporate core results indicators on capacity building activities. It is recommended that OPCS develops and makes available the standardized 'core capacity building results indicators' to guide task teams to choose proper indicators during project preparation. This would be a corporate level move and will benefit projects across sectors.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: To improve the capacity of the main navigation channel in Meizhou Bay

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Annual traffic throughput of Meizhou Bay Ports	Metric ton	39.07 31-Dec-2010	110.00 31-Dec-2017	85.00 31-Dec-2018	83.71 30-Jun-2019

Comments (achievements against targets):
The closing date of the project is on June 30, 2019; however, 83.71 million tons are the number of the annual throughput of 2018, narrowly missing the revised end-target of 85 million tons, but the civil works of navigation improvement was not completed at the end of 2018. Based on the sample data collected of throughput from June to August 2019 after the completion of the civil works, the annual throughput of 2019 could reach to about 104 million tons.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of vessels of 100,000DWT and above using	Number	110.00 31-Dec-2010	660.00 31-Dec-2017	350.00 31-Dec-2018	369.00 30-Jun-2019

Meizhou Bay ports					

Comments (achievements against targets):
The number of vessels of 100,000DWT and above using Meizhou Bay was outperformed the revised end target (369 to 350)

A.2 Intermediate Results Indicators

Component: 1: Improvement of main navigation channel

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Length of the main channel which has been improved to the design parameters	Kilometers	0.00 31-Dec-2010	52.10 31-Dec-2017	52.10 31-Dec-2018	52.10 30-Jun-2019

Comments (achievements against targets):
The improved navigation channel was open for operation since May 2019. Therefore, the target (52.1km) was met by the closing date of the project.

Component: 2: Capacity building to enhance management capacity

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

Submission of deliverables of technical studies	Number	0.00 31-Dec-2010	2.00 31-Dec-2017		2.00 30-Jun-2019

Comments (achievements against targets):
The technical study on Strengthening Comprehensive Competitiveness of Meizhou Bay Harbor, and the technical study on the Establishment of a Modern Logistics System in Meizhou Bay Harbor were completed in 2015.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of trainees who attend the training and study tours (person-month)	Number	0.00 31-Dec-2010	87.50 31-Dec-2017	70.00 31-Dec-2018	78.10 30-Jun-2019

Comments (achievements against targets):
By project closing, a total of 27 training events and domestic/overseas study tours were organized, and the participants reached about 78.1 person-months. The revised target was achieved.

A. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1: To improve the capacity of the main navigation channel in Meizhou Bay	
Outcome Indicators	• Annual traffic throughput of Meizhou Bay Ports • Number of vessels (of 100,000 DWT and above) using Meizhou Bay ports
Intermediate Results Indicators	• Length of the main channel which has been improved to the design parameters
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	• Upgraded main navigation channel of Meizhou Bay to a 300,000 DWT standard, allowing for unidirectional tide-dependent navigation of Q-MAX LNG ships and 400,000 DWT bulk cargo ships (a) 51.2 km long main navigation channel widened and deepened (b) Installation of four buoys (c) Disposal of spoils from 16.91 million m^3 dredging and 0.61 million m^3 rock blasting, by out-dumping and landfilling for berths under construction
Objective/Outcome 2: To enhance the management capacity of Meizhou Bay Harbor Administration Bureau	
Outcome Indicators	n/a
Intermediate Results Indicators	• Submission of deliverables of technical studies • Number of trainees who attended training and study tours (person-month)
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	• Two technical studies on (a) comprehensive competitiveness of Meizhou Bay Harbor; and (b) establishment of modern logistics system in Meizhou Bay Harbor • 27 training and domestic/overseas study tours for MBHAB and other stakeholders

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Binyam Reja	Task Team Leader(s)
Jianjun Guo	Procurement Specialist(s)
Haixia Li	Financial Management Specialist
Paul Amos	Team Member
Songling Yao	Social Specialist
Pei Shen Wang	Social Specialist
Ning Yang	Environmental Specialist
Supervision/ICR	
Weimin Zhou	Task Team Leader(s)
Jianjun Guo	Procurement Specialist(s)
Haixia Li	Financial Management Specialist
Songling Yao	Social Specialist
Binyam Reja	Team Member
Ning Yang	Team Member
Yuhui Jiao	Team Member
Xiaodan Huang	Environmental Specialist

A. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY11	7.350	57,767.45
FY12	31.747	164,155.34
FY13	12.900	64,680.28
Total	**52.00**	**286,603.07**
Supervision/ICR		
FY13	1.828	9,162.63
FY14	7.161	37,211.94
FY15	11.602	65,247.75
FY16	10.393	50,438.25
FY17	16.353	52,457.86
FY18	16.300	62,112.27
FY19	13.935	89,457.64
FY20	2.972	20,859.29
Total	**80.54**	**386,947.63**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Total (USD million)			Loan	
	Amount at Approval (US$M)	Actual at Project Closing (US$M)	Percentage of Approval (US$M)	Amount at Approval (US$M)	Actual at Project Closing (US$M)
1: Improvement of Main Navigation Channel	128.01	94.38	73.7%	48.875	48.520
2: Capacity building to enhance management capacity	1.38	1.13	81.9%	1.00	0.922
3. Interest	3.73	2.12	100%	0.00	0.00
4. Front-end fees	0.125	0.125	100%	0.125	0.125
Total	**138.16**	**97.77**	**70.8%**	**50.00**	**49.57**

ANNEX 4. EFFICIENCY ANALYSIS (I will read this in the next version.)

Economic Analysis

Methodology and Conclusion at Project Appraisal & Restructuring

The main benefit of the Project is to improve the navigation capacity of the main shipping channel in Meizhou Bay to increase navigational flexibility and the market effectiveness of the port. In the medium and long term, the project will boost the economic and social development of Fujian, and inland areas such as Jiangxi and Hunan provinces, and contribute to China's objective of creating a less energy-intensive transport system by reducing the average length of haul between inland traffic generating activities and their seaports of import and/or export.

A cost-benefit analysis was employed to examine the economic viability of the project at appraisal. The benefits quantified included: (a) increased *waterway traffic volume* and improved *transport efficiency* due to the increased carrying capacity of the main navigation channel and the use of larger vessels; and (b) savings in *vessel operating costs* by reducing waiting time outside the port. Economic costs of the project were identified as capital investments and operation and maintenance (O&M) costs during project operation. The economic internal rate of return (EIRR) of the Project was estimated to be 13.2%. Sensitivity analysis (assuming 15% increase in costs and 15% decrease in economic benefits) showed that EIRR would be 10.0% under the combined conservative assumptions.

Project Restructuring proposed only an extension of the loan closing date and increase in disbursement percentage for category (1) of the loan. The delay in project implementation postponed both the receiving of project benefits and the delivering of project costs. These changes should not affect the EIRR of the project but may bring changes in the project NPV. No economic analysis was carried out for project restructuring.

Economic Analysis at Project Completion

Both benefits and costs of the project were reevaluated at project completion. Adjustments to the original economic analysis reflected the following key changes:

1. The annual traffic throughput of Meizhou Bay ports fluctuates around the target value across years, however the number of vessels of 100,000 DWT[2] and above is 5.4 percent higher than the target in 2018.
2. The transport volume of bulk raw material, especially coal, increased substantially at project completion. The amount of coal transported to Fujian in 2018 increased by 5.6 million tons compared to 2017, while the annual average increase from 2010 to 2017 was only 0.9 million tons; the volume of coal transported to Jiangxi increased by nearly 10 times.
3. The total cost of the project reduced significantly, because of: (a) the change in the value of the RMB from 6.33 to the US dollar at project appraisal to 6.89 at project completion; (b) lower contracts price due to international competitive bidding (from RMB724 million at appraisal to RMB608 million at completion); and (c) improved design of construction activities and consequent savings in project cost.
4. Avoided carbon emissions and pollution due to goods transportation shifting from passing Zhoushan port to Meizhou Bay ports. The impact of reduced railway transport was added to the economic analysis at completion, as pollution reduction is a key benefit of the project.
5. The extension of the project closing date would affect the present value of benefits and the costs of the project.

Summary of Cost Benefit Analysis

The project's cost-benefit analysis compares the "project scenario" and the "non-project scenario". The transport cost savings are caused by: (a) upsizing of vessels; (b) savings in transport distance to and from Fujian and Jiangxi provinces; (c) reduced waiting time of vessels to pass through the ports; and (d) reduced carbon emission due to shortened average length of haul between inland traffic generating activities and their seaports of import and/or export.

The net present value (NPV) of the total net economic benefits of the Project is estimated to be **RMB 428.06 million** and the economic internal rate of return (EIRR) of the Project is **16.43%.** The benefit-cost ratio (BCR) is **1.87**. Results of the analysis are presented in Table 4.1. Sensitivity analysis assumes a 15% increase in total cost, a 15% decrease in total benefits, and the two of them combined. The project EIRR reduces to 14.25%, 13.92% and 12.07% respectively. The detailed economic analysis is in the Project Files.

Table 4.1: Economic Evaluation Summary

Scenarios	NPV in 2013 (mln RMB)	EIRR	B/C Ratio
Baseline	428.06	16.43%	1.87
Sensitivity Test			
1) 15% Increase in total cost	354.07	14.25%	1.62
2) 15% Decrease in total benefit	289.86	13.92%	1.59
3) Both of above happen	220.81	12.07%	1.39

Financial Analysis

FIRR was not calculated at project appraisal since it was considered that the navigation channels are constructed as public goods and serve for economic and social development of the region and beyond in long run.

Financial Analysis at Project Completion

The revenue and expenditure stream of the project throughout project operating years are summarized in Table 4.2. The FIRR is estimated to be 12.16% and the NPV of the net income is estimated to be RMB1,941 million.

Table 4.4: Project Revenue and Expenditure Summary

(Unit: mln RMB) *(Discount rate: 12%)*	PV (in 2013)	Construction Period						Implementation Period (representative years)							
		1	2	3	4	5	6	7	12	17	22	23	24	25	26
		2013	2014	2015	2016	2017	2018	2019	2024	2029	2034	2035	2036	2037	2038
Revenue	469	0.0	0.0	0.0	0.0	0.0	0.0	94.4	119.7	143.2	165.1	169.1	173.1	176.9	180.5
Operating Income Dividend	469	0.0	0.0	0.0	0.0	0.0	0.0	94.4	119.7	143.2	165.1	169.1	173.1	176.9	180.5
including: 1) vessel piloting fee								86.7	109.7	131.2	151.3	155.0	158.6	162.1	165.4
2) vessel resettlement charge								5.0	6.3	7.5	8.7	8.9	9.1	9.3	9.5
3) port service charge								2.8	3.6	4.4	5.1	5.2	5.4	5.5	5.6
Expenditure	855	0.0	0.0	69.9	169.2	172.4	175.6	98.3	29.0	25.2	23.0	23.0	23.0	23.0	-298.7
a) Capital investment	368	0.0	0.0	69.9	167.8	167.8	167.8	69.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
b) Loan Interest due	46	0.0	0.0	0.0	1.3	4.6	7.8	11.1	11.7	7.9	5.7	5.7	5.7	5.7	5.7
c) Operational cost	66	0.0	0.0	0.0	0.0	0.0	0.0	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
d) Residual Value	-17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-321.6
NPV	**1,941**	0.0	0.0	-69.9	-169.2	-172.4	-175.6	-3.9	90.7	117.9	142.1	146.2	150.1	153.9	479.2
FIRR	**12.16%**														
B/C Ratio	**0.5**														

The cash inflow and outflow of the project throughout the operational years is summarized in Table 4.3. Cash inflow of the project exceeds the cash outflow in all operational years. The project is therefore financially sustainable.

Table 4.3: Cash Flows during Operation

(Unit: mln RMB)	Operation Period																			
	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	25
	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038
Cash inflow	94.4	100.1	105.1	110.0	114.9	119.7	124.4	129.2	133.9	138.6	143.2	147.7	152.2	156.6	160.9	165.1	169.1	173.1	176.9	180.5
Operating Income Dividend	94.4	100.1	105.1	110.0	114.9	119.7	124.4	129.2	133.9	138.6	143.2	147.7	152.2	156.6	160.9	165.1	169.1	173.1	176.9	180.5
Cash outflow	17.3	17.3	17.3	17.3	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	56.2	17.3	17.3	17.3	17.3	17.3	17.3	-304.3
a) Operation	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3	17.3
b) Repayment to capital investment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
c) Loan interest due	0.0	0.0	0.0	0.0	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	38.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d) Residual Value	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-321.6
Net Cash Inflow	77.1	82.8	87.8	92.7	58.7	63.5	68.2	73.0	77.7	82.3	86.9	91.5	96.0	139.2	143.5	147.7	151.8	155.8	159.6	484.8

Details of the financial analysis at completion are in the Project Files.

ANNEX 5. SUMMARY OF BORROWER ICR

I. Relevance. The project was developed and implemented in alignment with (a) China's seaport development strategy that underpins higher capacity, lower energy intensity, and less pollution; and (b) the 12th Five-Year Plan for Meizhou Bay Port Development (2011-2015) that aimed to increase total traffic throughput at port to 150 million tons by 2015 through improved navigational capacity especially for larger vessels.

II. Outputs. The PDO as 'to improve the capacity of the main navigation channel in Meizhou Bay and enhance the management capacity of Meizhou Bay Harbor Administration Bureau' was fully achieved, through the implementation of Component 1 – improvement of main navigation channel of 52.1km to 300,000DWT standard, and Component 2 – capacity building to enhance management capacity. All result targets in the (revised) Results Framework were met, as in Table 5.1 below.

Under Component 1, works in the main navigation channel of Meizhou Bay included two sessions/contracts of (a) 34.6km long (outside the bay) with 500m wide and 23m deep; and (b) 17.5km long (within the bay) with 350m wide and 21.5m deep. Total dredging amount was 1.691 million m^3; rock blasting 610,000 m^3; clearing of dredged materials 790,000 m^3; and installation and/or relocation of 8 buoys. Construction period was 44 months commenced from August 2015 and the last phase completed in May 2019. Under component 2, two technical research reports were delivered in January 2015; and a total of 27 training and study tours in/outside China were facilitated and participated by 78.1 person-months.

Table 5.1. Achievement of Revised Results Framework After Restructuring

Indicator	Unit	Baseline (2010)	Target Value/ Actual					
			2013	2014	2015	2016	2017	2018 (End Target)
PDO-level Indicators								
Annual traffic throughput of Meizhou Bay ports	Metric ton (mln)	39.07	55/57.58	70/70.89	75/77.92	78/78.37	80/82.31	85/83.71
Number of vessels of 100,000DWT and above using Meizhou Bay ports	Number	110	200/202	220/228	310/313	330/339	330/305	350/369
Intermediate Results Indicators								
Improved main navigation channel follow technical parameters	kilometer	-	-	-	-	-	34/ 34.6	52.1/ 34.6
Submission of deliverables of technical studies	Number	-	-	2/2	2/2	2/2	2/2	2/2
Number of trainees who attended training and study tours	Person-month	-	22.5	35/37.1	48/49.4	55/55.2	60/70.3	70/78.1

III. Economic Analysis. Total project cost at completion was US$97.77 millon (or RMB 618.86 million) which included 56% from Bank loan, 24% central government subsidies from MOR, 19% provincial government subsidies, and 1% from MBHAB. Suffiicent government co-finance was a strong support in project implemetation. A 29% cost saving was achieved compare with estimate at appraisal, due to three main factors during implementation - ICB, Renminbi revaluation and engineering design optimiatoin. See total project cost in Table 5.2.

Table 5.2. Project Total Cost

Project Cost	Estimate at Appraisal Total 10,000 RMB	Actual at Completion Total 10,000 RMB
A. Improvement of Main Navigation Channel	**81029**	**59743.39**
1. Civil Works	72428	56173.67
2. Resettlement	1000	0
3. Supervision of Constructions	1460	765.67
4. Design and consulting services	3269	1060
5. Other	2872	1744.05
B. Capacity Building	**873**	**717.11**
1. Technical Studies	240	132
(i) Comprehensive Competitiveness	120	57
(ii) Modern Logistics System	120	75
2.Training & Study Tours	633	585.11
(i) Domestic training and study tours	63	42.74
(ii) Overseas training and study tours	570	542.37
Total Base Cost	**81902**	**60460.5**
Contingency for Works and Price	3112	0
Total Project Cost	**85014**	**60460.5**
Interest	2362	1339.86
Front-end Fees	79	85.79
TOTAL	**87455**	**61886.15**

Navigation channels are public transport infrastructure which mainly serve the long-term economic objectives of the country and development of the regional economy. They do not produce direct financial benefits. The benefits produced are mainly from the reduced transport costs and transshipment costs. They are generally invested by the central government and local governments not for profit purpose, so this Report only analyzes

the economic benefits of the project.

Cost-Benefit Analysis. From August 2015 to May 2019, the construction period of the whole project is 46 months in a duration of 5 years. Based on an operation period of 20 years, the calculation period is 25 years, at the social discount rate of 8%. The actual expenditure of this project is RMB 618.8615 million (incl. RMB 561.7367 million for civil works, RMB 13.3986 million for loan interest and RMB 43.7262 million for other expenses). The annual operating and maintenance cost of this project is RMB 17.327 million.

At completion of the project, the benefits will be allocated between terminal and channel by 90% and 10%. The main benefit of projects includes (1) benefit from the increase of navigation times for owner of terminals and the ship transport enterprise in the bay; (2) benefit from cost savings by reducing tide waiting for ships; and (3) reduced shipping costs given the larger vessels used. It is projected that bulk cargo handling capacity of Meizhou Bay in 2025 and 2030 will reach 74 million tons, 102 million tons respectively (50% will be transported by 180,000-300,000 DWT ships); its LNG handling capacity will be 7 million tons, 12 million tons respectively. After comparing the difference value, we can see that due to the increase of ship size, RMB 1755.6 million, RMB 2452.8 million of transportation costs will be saved respectively in 2025 and 2035.

At the exchange rate of US$1: RMB7, total benefit of the project is RMB 1,859.755 million in 2025, and RMB 2,596.365 million in 2035. Considering the benefits mainly comes from docks, shipping enterprises and channels, and the investment from shareholders, such as docks and shipping enterprises significantly outweighs investment in channel, benefit allocation will be 9:1 (docks and shipping enterprises to channel). Therefore, the channel benefit in this project will be RMB 185.9755 million in 2025 and RMB 259.6365 million in 2035.

The direct economic benefits include net annual present value is RMB 709.9436 million. EIRR is 17.9%, higher than the benchmark discount rate 8% and the payback period being 10.3 years. See results the National Economic Benefit Cost Flow in Table 5.3.

Table 5.3 National Economic Benefit Cost Flow

No.	Phase	Construction period					Put to operation period							
	Year	2015.8	2016	2017	2018	2019.5	2020	2021	2022	2023	2024	2025	2026	2027
	Item	1	2	3	4	5	6	7	8	9	10	11	12	13
1	Benefit Flow						15739.9	16273.9	16826.1	17397.0	17987.2	18597.6	19228.6	19881.0
2	Cost Flow	6992.3	16781.4	16781.4	16781.4	6992.3	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7
2.1	Fixed asset investment	6992.3	16781.4	16781.4	16781.4	6992.3								
2.2	Channel operation & maintenance cost						1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7
3	Net Benefit Flow (1-2)	-6992.3	-16781.4	-16781.4	-16781.4	-6992.3	14007.2	14541.2	15093.4	15664.3	16254.5	16864.9	17495.9	18148.3
4	Cumulative net benefit flow	-6992.3	-23773.7	-40555.2	-57336.6	-64328.9	-50321.7	-35780.5	-20687.1	-5022.9	11231.7	28096.5	45592.4	63740.7
No.	Phase	Put to operation period												
	Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
	Item	14	15	16	17	18	19	20	21	22	23	24	25	
1	Benefit flow	20555.5	21253.0	21974.1	22719.7	23490.5	24287.6	25111.6	25963.7	25963.7	25963.7	25963.7	25963.7	
2	Cost flow	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	
2.1	Fixed asset investment													
2.2	Channel opeartion & maintenance cost	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	1732.7	
3	Net benefit flow (1-2)	18822.8	19520.3	20241.4	20987.0	21757.8	22554.9	23378.9	24231.0	24231.0	24231.0	24231.0	24231.0	
4	Cumulative net benefit flow	82563.5	102083.8	122325.2	143312.1	165069.9	187624.8	211003.7	235234.7	259465.6	283696.6	307927.5	332158.5	
Calculation indicators														
EIRR		17.9%												
ENPV (is=8%)		709.943 million												
Investment return period (calculated starting from commencement year)		10.31 years												

Sensitivity analysis results are in Table 5.4. The greatest impact on the project is that benefits decrease 15%, and the second greatest impact is that fixed asset investment increase 15%, while the internal rate of return

also bigger than 8%. Therefore, the project construction will produce good national economic benefits.

Table 5.4 National Economic Sensitivity Analysis

No.	Analysis Items	Increase (+) or Decrease (-)	Analysis Indicators	
			EIRR (%)	ENPV (RMB 10,000)
1	Recommended scheme		17.9%	70994.36
2	Benefit Decrease	-15%	15.5%	50916.95
	Benefit Decrease	-5%	17.1%	64301.89
3	Benefit Increase	+5%	18.6%	77686.83
	Benefit Increase	+15%	20.0%	91071.77
4	Cost Decrease	-15%	18.1%	72731.06
	Cost Decrease	-5%	17.9%	71573.26
5	Cost Increase	+5%	17.8%	70415.46
	Cost Increase	+15%	17.7%	69257.66
6	Fixed asset investment decrease	-15%	20.1%	78685.92
	Fixed asset investment decrease	-5%	18.6%	73558.21
7	Fixed asset investment increase	+5%	17.2%	68430.51
	Fixed asset investment increase	+15%	16.1%	63302.80

IV. Environmental, Social and Fiduciary. In terms of environmental management and resettlement, project development and implementation met both domestic and World Bank compliance requirements. The project triggered three World Bank safeguards policies - OP4.01 Environmental Assessment (OP/BP4.01), Natural Habitats (OP/BP4.02) and OP4.12 Involuntary Resettlement (OP/BP 4.12).

In terms of Environmental Assessment (EA), the project was classified as Category A and conducted a comprehensive Environmental Impact Assessment (EIA) to encompass mitigation measures developed in the Environmental Management Plan (EMP). The EA helped identify and quantify possible negative impacts of the project to marine ecology and habitats, and an offset plan was designed as part of the EMP to compensate the anticipated ecological loss, comprising a fish breeding and release program and a mangrove restoration program. During 2015-2019, six rounds of fish fry release were conducted. A total of 266.32million fish/shrimp fries were released, exceeding target amount by 31%. Mangrove habitat restoration was implemented in three phases over a total area of 612.6mu, 9.8% beyond the original target of 558mu. MBHAB has engaged Quanzhou Wetland Reserve, which is the location of the restoration program, for mangrove restoration and maintenance till 2022. See implementation of both programs in phases in Table 5.4 below.

Table 5.4 Fish Breeding/Frying Timetable

Year	Species	Planned Amount	Actual Amount
Aug 2015	长毛明对虾	101,000,000	113,236,000
Jun 2016	真鲷	75,000,000	32,289,600
Jun 2017			45,228,700
Aug 2017	日本囊对虾	101,000,000	151,000,000
May 2018	黑鲷	75,000,000	80,162,700

Apr 2019	黄鳍鲷	48,000,000	50,000,000
	Total	203,980,000	266,318,310

Mangrove Restoration Timetable

Year	Part	Actual Amount
May 2015	I	159 mu
Jun 2015	II	302 mu
Sept 2016	III	250 mu
Sept 2017	Inspection	612.6 mu (qualified area)

(Photos: mangrove rehabilitation area, before and after)

Resettlement. Under the project finance by World Bank loan, only one household with 10 persons was affected by acquisition of its fishing farming facilities. The linked activities[3] involved 2040 mu of sea areas reclaimed by the government, which affected 5006 persons in 986 households. In total, the project affected the livelihood of 5016 persons from 987 households, without household relocation. The last Resettlement Monitoring Report prepared by the external monitoring agency was cleared by the World Bank in May 2019. The World Bank acknowledged that all the actions in the project Resettlement Plan were fully completed by end August 2018, and the affected households/people have been arranged with satisfaction. That means that the implementation of project resettlement (all related to affected livelihood) was fully completed, and compensation, livelihood restoration, public consultation and GRM was consistent with the Resettlement Plan, as well as relevant policies of China and the World Bank.

Financial Management. Project financial management and fund flow followed the standards and procedures of WB loan-finance projects in China. Expenses and a total of 13 loan withdrawals from April 2015 to June 2019 were reviewed by the FPTD PPMO and endorsed by provincial Finance Development.

Procurement. Procurement of contracts funded by the loan closely followed the rules and procedures in the project legal documents, and the Project Procurement Management Manual which the PMO had developed under the guidance of World Bank experts in 2012. Procurement agent and construction supervision agent were hired. ICB approach was employed in procurement of the two contracts financed by the loan for main

[3] Linked activities refer to Meizhou Bay Navigation Phase I and II, No. 5 and 6 berths in Xiaocuo Operation Area, and No. 1-6 berths in Putou Operation Area.

navigation channel improvement (MZW-HD01 and MZW-HD02), that involved dredging, rock blasting and clearing operations. Both contracts were procured in a timely manner and below the cost estimates. Work variation, extensions of work period and price adjustment were communicated with the World Bank, and no objections were received timely.

V. Sustainability. The project is financially sustainable because FPTD and MBHAB have enough cashflow for repayment of the World Bank loan, which is the only debt financing of total project investment. MBHAB has well-established operation, maintenance and safety systems, as well as follow-up plan to further upgrade the main navigation channel against reliable funding. Therefore, the project outcomes are operationally sustainable. In terms of environmental sustainability, the project was helped enhanced Meizhou Bay port's performance as it is consistent with China's National Seaports Plan to improve efficiency of seaborn transportation, reduce GHG emissions, and prevent coastline degradation caused by the proliferation of small ports development. On social side, resettlement in terms of training and reemployment for population whose livelihoods were affected by linked projects were well implemented. The continued port expansion, booming logistics, and industrial conglomeration in the environ of Meizhou Bay port will boost local economic growth and benefit local population.

VI. Lessons Learned. The project offered a valuable learning opportunity for all local agencies and people involved. Key lessons learned include: (i) To date, Fujian province had implemented 5 transport operations financed by World Bank loans in total amount of US$760 million, and should continue leveraging the capital, knowledge, and international good practice through partnership with the Bank for transport development in the province; (ii) effective early-stage communications and solid preparation work are guarantees for good project design and implementation; (iii) to understand and comply with World Bank environmental, social, project management and M&E standards that are more stringent than local systems was a rigorous capacity building process for local institutions – some mythologies and practices worth replication to China; (iv) institutional strengthening are crucial for the project to generate desirable outputs and outcomes; and (v) capacity building to harbor administration staff should be sustained after project completion as an integral part in the work of MBHAB.

ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

(1) Project Appraisal Document (PAD)
(2) Project Restructuring Paper
(3) Implementation Support Mission Aide Memoires and Implementation Status & Results Reports (ISRs)
(4) Environmental and Social Management Framework
(5) Borrower's Implementation Completion Report, September 2019
(6) Two technical studies on *Strengthening Comprehensive Competitiveness of Meizhou Bay Harbor*, and *Establishment of a Modern Logistics System for Meizhou Bay Harbor*

ANNEX 7. IMAGES OF THE PROJECT

Image 1. Project Map

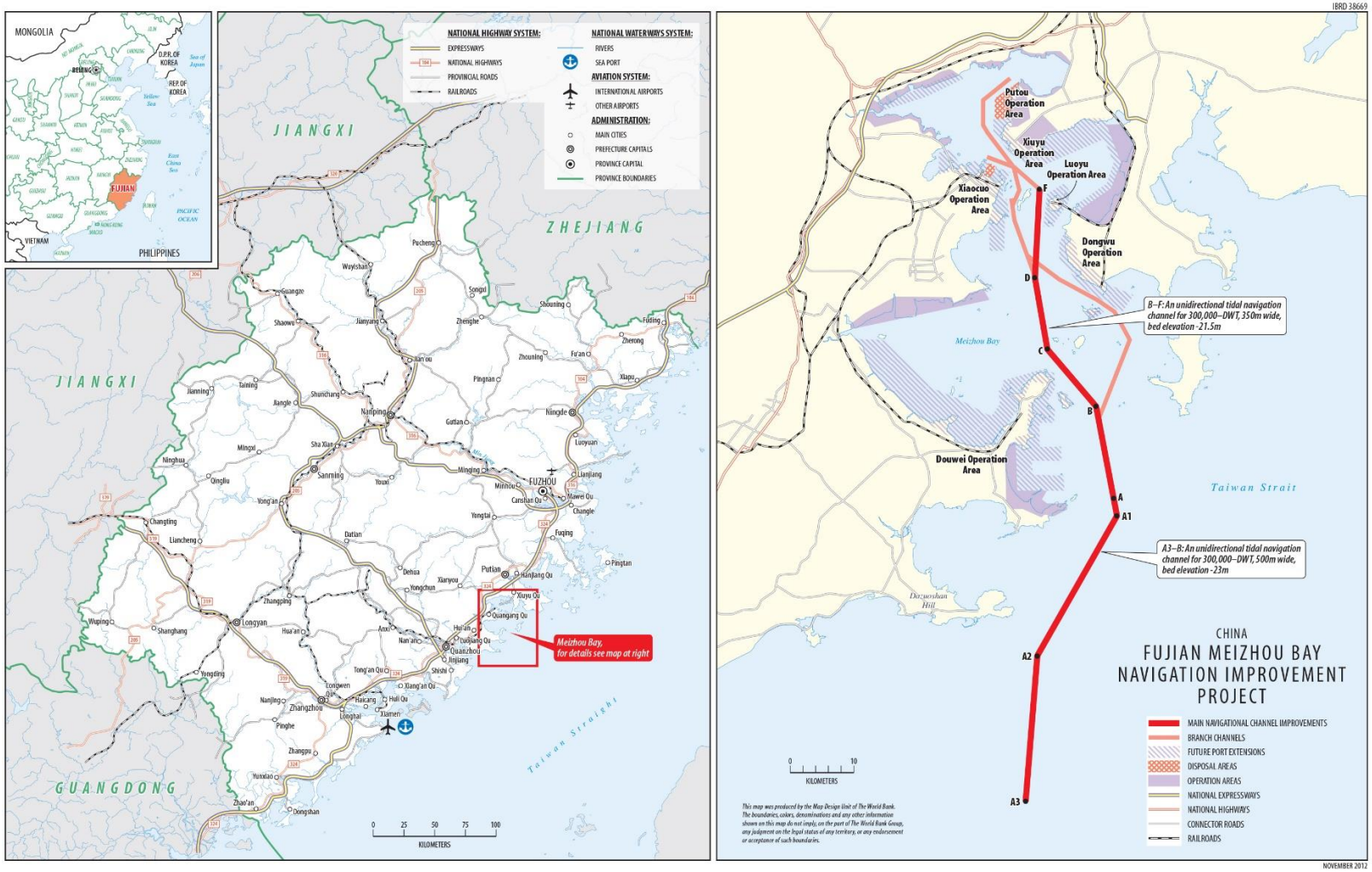


Image 2 and 3. Improved Main Navigation Channel at Meizhou Bay Harbor

Image 4. Fish Fry Reproduction and Release Program under Implementation in 2016

Image 5. Shrimp Release Program under Implementation

Image 6. Mangrove Habitat Rehabilitated