ECONOMIC AND FINANCIAL ANALYSIS

A. Approach and Methodology

1. Approach

1. The economic and financial analysis of the Irrigation Management Improvement Project is based on estimates of incremental benefits that will accrue from investment in infrastructure, improved management, operation, and maintenance, and agriculture support services covering 17,000 hectares (ha) of the Muhuri Irrigation Project. There is expected to be both an increase in crop yields as a result of improved irrigation delivery and higher input usage resulting from increased farmer confidence in access to irrigation, and, in the longer term, limited diversification of cropping patterns towards more market-oriented, higher value crops, such as vegetables leading to increased farm incomes and economic benefits. Improved drainage implemented under the project will also benefit around 11,000 ha of low-lying land in addition to the 17,000 ha to be rehabilitated. These potential benefits have not, however, been included in the economic analysis. There is also expected to be an increase in agribusiness activity to meet the increase in demand for farm inputs and product marketing and processing. On- and off-farm employment opportunities, and economic activity generally, are expected to increase within the Muhuri Irrigation Project and neighboring areas. Given the uncertainty of and difficulty in accurately assessing such indirect benefits, only incremental benefits resulting from crop production have been included in the economic and financial analysis.

2. The Irrigation Management Improvement Project will also generate a range of nonquantifiable benefits, including (i) an improved irrigation project planning system; (ii) the establishment of an irrigation management private operator (IMO) to undertake sustainable operation and maintenance (O&M) of secondary (level 2) and tertiary (level 3) irrigation facilities and serve as local agriculture development facilitators for input supply, technical support, and collective marketing; (iii) improved irrigation and related service delivery mechanisms with transparent and accountable governance; and (iv) strengthened farmers' representation in respect of water users' rights and responsibilities. There may, in addition, be a reduction in the risks to health of arsenic contamination of water extracted from tubewells, as irrigation will replenish the aquifer and reduce the level of arsenic.

2. Methodology

3. The economic and financial analysis compares incremental costs and benefits resulting from investment in the modernization of the Muhuri Irrigation Project.[1] Crop and farm budgets have been prepared to estimate with- and without-project crop gross margins per hectare and with- and without-project net farm incomes. Crop budgets have been estimated from data on physical inputs and outputs, prices, and related variables derived from field investigations. Farm budgets have been prepared by applying crop budgets to cropping patterns and crop areas to two representative farm sizes—0.2 ha and 1.0 ha.[2] The financial crop budgets have been

[1] Supporting tables for the economic and financial analysis are in Supplementary Appendix 3.

[2] Under the ADB-financed technical assistance Developing Innovative Approaches to the Management of Major Irrigation Schemes, 340 households were surveyed. As part of the preparation of the Irrigation Management Improvement Project, 100 households were surveyed specifically to obtain crop and farm data. Farms surveyed were divided into those with ineffective irrigation (as a proxy for the without-project situation) and those with effective irrigation (as a proxy for the with-project situation). Fifty farms in each category were included in the survey. The distribution of surveyed farms by farm size in each category was 30 small (0.2 ha) farms and 20 larger (1.0 ha) farms.

converted to economic values to determine with- and without-project economic crop gross margins per hectare, which have been applied to project-wide with- and without-project cropping patterns to derive with- and without-project total gross margins. Project-wide cropping patterns have been based on the cropping patterns of the individual farm budgets, weighted according to the estimated distribution of each representative farm within the project area, which is 90% for the 0.2 ha farms and 10% for the 1.0 ha farms. Net incremental benefits have been derived by subtracting total without-project gross margins from total with-project gross margins. Net incremental benefits and incremental investment and O&M costs of the project in economic terms have been combined to derive a cash flow from which the economic internal rate of return (EIRR) is estimated. The cash flow also includes an allocation of overhead project costs, such as consulting services, program management, and capacity building. Many of these costs will be incurred in the preparation of projects to be implemented subsequent to the Irrigation Management Improvement Project. A conservative estimate of 20% of these costs has been allocated to the cost of Irrigation Management Improvement Project rehabilitation.

4. Muhuri Irrigation Project cost estimates are based on the expected incremental costs of investment in project modernization and expansion, periodic maintenance, and annual O&M, including the costs of establishment and operation of the proposed IMO. Operation and maintenance of key level 1 infrastructure will remain the responsibility of the Bangladesh Water Development Board (BWDB).[3] Future expenditure for level 1 O&M in the economic analysis has been based on estimated needs. Current BWDB expenditure on O&M varies significantly from year to year and has historically been well below the level required for effective O&M, though allocations have increased over recent years. Actual incremental O&M costs may therefore be lower than those assumed in the economic analysis. As a result, the EIRR may be considered conservative**.**

5. The rehabilitation of the Muhuri Irrigation Project is expected to result in a phased increase in the area irrigated, from the current level of around 11,300 ha to 17,000 ha, and a phased improvement in the effectiveness of irrigation in existing areas through the introduction of electric pumps and a piped irrigation system. The proposed system will provide year-round, on-demand irrigation. This will facilitate an expansion in the area and production of crops across the whole 17,000 ha by providing supplementary irrigation at critical times in the growing period of *kharif* (monsoon) season crops.[4] The proposed phasing out of diesel and/or electric earth channel irrigation and its replacement by the improved electric pump and piped system is in Table 1.

Table 1: Phasing of Irrigation Systems
(hectares)

	Year					
Irrigation Source	**1**	**2**	**3**	**4**	**5**	**6 +**
Existing diesel pumps	8,588	7,000	5,000	3,000	1,000	0
Existing electric pumps	2,712	2,000	1,000	500	0	0
Total existing system	11,300	9,000	6,000	3,500	1,000	0
New Improved system	0	500	2,000	6,000	12,000	17,000

Source: ADB estimates.

[3] Levels 1, 2 and 3 correspond to primary, secondary, and tertiary drainage and irrigation network
[4] At present, pump operators remove their pumps during the monsoon season. As a result, the key *kharif* season aman rice crop is subject to water deficits apart from where limited alternative irrigation sources, such as tubewells, are available. The project will enable an expansion in aman cultivation and a shift from traditional to high-yielding varieties throughout the 17,000 ha to be rehabilitated.

6. The economic analysis assumes that in the without-project situation there will be a continuation of the current situation in which irrigation is provided to 11,300 ha in the *rabi* (dry) season, while in the *kharif* season crop cultivation across the 17,000 ha to be rehabilitated is predominantly rain fed. The assumption that the present situation reflects the future without-project situation underestimates potential incremental benefits in as far as over recent years there has been a decline in the area irrigated. This may be expected to continue but the rate of future decline is difficult to predict. As such, it has been assumed to be constant in the analysis, resulting in a more conservative EIRR. With-project economic benefits will principally derive from more effective irrigation delivery through the piped system over the whole 17,000 ha. Benefits from irrigation will be complemented by protection from potential future flooding by improved drainage and from sea water intrusion by rehabilitation of the costal embankment. These flood-protection and drainage benefits are implicit in the with-project crop budgets.

7. The specific parameters of the methodology include (i) the use of the domestic price numeraire; (ii) constant mid-2013 prices and the taka (Tk) as the unit of account; (iii) a standard conversion factor (SCF) of 0.97[5] and a corresponding shadow exchange rate factor of 1.03; (iv) a shadow wage rate factor for unskilled labor of 0.75, reflecting the level of unemployment and underemployment in the project area; (v) an opportunity cost of capital against which economic viability is judged assumed at 12%; and (vi) a 30-year cash flow assumed in determining the EIRR.

8. Financial investment and O&M cost estimates have been disaggregated into foreign and domestic costs and tax and duty components. Economic costs have been estimated by eliminating taxes and duties (as transfer payments with no real economic cost) and converting the remaining financial values to economic values by applying the SCF. The economic prices of tradable outputs (rice) are based on export parity prices, and the economic prices of tradable inputs (fertilizers) are based on import parity prices, estimated on the basis of prevailing World Bank commodity price forecasts.[6] All other project outputs and inputs are assumed to be nontraded and their economic values derived from prevailing financial market prices converted by the SCF. The economic cost of electricity has been used to assess the impact of moving from diesel-powered to electrically operated pumps, and has been used in with- and without-project crop budgets to determine economic crop gross margins. Electricity prices are subject to significant subsidies that distort their true economic cost. The economic price of electricity in pump operation is estimated at Tk10.00 per kilowatt-hour (kWh).[7] The financial price charged to pump operators is estimated from field investigations at Tk4.50/kWh. This results in an economic conversion factor of 2.22, which has been used in the analysis.

9. Over the 30-year period used for the analysis, there are likely to be developments in crop cultivation technologies and practices that will affect crop yields. The nature and scale of such developments cannot be readily predicted. However, it is assumed that any such developments would only be adopted by farmers if they were shown to improve productivity and income. As such, economic analysis based on current technologies and practices is considered conservative. Increased rice cultivation can result in methane gas emissions which have an economic cost. However, the level of emissions is dependent upon numerous factors, including whether the rice is either continuously or intermittently flooded. It is impossible to predict with

---

[5] The SCF has been explicitly estimated from Bangladesh Bank trade data for 2012, the latest year for which the required data are available.

[6] World Bank. 2013. Commodity Price Forecasts February 2013 (Pink Sheets). Washington, DC.

[7] ADB. 2012. *Energy Efficiency Improvement Project.* Consultant's Second Quarterly Progress Report (TA 7642-BAN). Manila.

any certainty what such effects may be within the scope of project preparation. As such, no attempt has been made to include potential climate change impacts in the economic analysis.

B. Crop Budget Analysis, Crop Areas, and Crop Production

1. Crop Budget Analysis

10. Crop budgets have been prepared for both with- and without-project scenarios and in both economic and financial prices on a hectare basis. The existing financial cost of diesel pumping is estimated at Tk12,375/ha, compared with Tk4,721/ha for electric pumping. These costs include actual diesel and electricity charges and pump operator overheads. The cost per hectare of irrigation under the proposed system is estimated at Tk10,827, including the overhead costs of the IMO. The key results are as follows:

(i) Based on a yield of 3.0 tons/ha, the gross margin of boro rice under the current diesel-pumped system is Tk601. By comparison, with pumping by electricity, the gross margin is Tk8,255. Under the proposed system, with an increase in yield to 4.4 tons/ha, the gross margin is expected to rise to Tk14,048/ha.

(ii) Supplementary irrigation, which is expected to be available under the proposed system for the *kharif s*eason aman rice crop, results in an increase in yield from 2.1 tons/ha to 3.5 tons/ha. The gross margin in the without-project scenario is Tk12,064/ha, and in the with-project scenario it is Tk26,710/ha.

(iii) Improved access to irrigation and provision of extension services is expected to lead to limited crop diversification in the *rabi* season, with the introduction of potato cultivation for instance. The with-project gross margin of potatoes is estimated at Tk59,125 from a yield of 10.0 tons/ha.

(iv) The introduction of vegetable cultivation in the *kharif* season is expected in the with-project scenario. Based on a yield of 12.0 tons/ha the gross margin for vegetables is estimated to be Tk84,045.

(v) The gross margin of pulses (cultivated only on the larger 1.0 ha farms) is expected to rise from Tk11,694 to Tk30,367 based on an increase in yield from 0.4 tons/ha to 0.9 tons/ha.

2. Crop Areas

11. The change in crop areas over the whole project area is based on the cropping pattern and the distribution of farms within the project area. The estimated change in crop areas for the project is in Table 2. Cropping intensity is expected to rise from 107% to 185%. The area under rice is expected to increase but the most significant rises are expected in non-rice crops. The proportion of non-rice crops is expected to rise from less than 1% in 2013 to around 12%.

Table 2 : Cropping Pattern and Intensity of With- and Without-Project Areas for the Muhuri Irrigation Project

	Crop Areas			
	Without	With	Variation from Current	
Item	(ha)	(ha)	**ha**	**%**
Crop				
Boro rice	8,306	14,365	6,060	73
Aman rice	9,860	13,260	3,400	34
Potato	0	1,700	1,700	
Vegetables	34	2,006	1,983	5,800
Pulses	11	85	74	652
Total	**18,211**	**31,416**	**13,205**	**73**
Cultivable command area (ha)	17,000	17,000		
Cropping Intensity (%)	107	185		

ha = hectare.
Source: ADB estimates.

12. Changes in cropping patterns and increases in yield will result in significant increases in crop production. The total increase in rice production is expected to reach around 64,000 tons, while that of potatoes, vegetables, and pulses is expected to reach 42,000 tons. The incremental value of rice crop production is estimated to be Tk802 million ($10.3 million) and that of non-rice crop production Tk465 million ($6.0 million).

3. Farm Income Analysis

13. On a 0.2-ha farm, which represents 90% of farms in the Muhuri Irrigation Project area, in the without-project scenario only boro (0.15 ha) and aman (0.12 ha) rice crops are cultivated, representing a cropping intensity of 135%. Based on boro and aman crop gross margins under diesel pumping, the total net return from crop cultivation is estimated to be only around Tk1,538 per year. In the case of pumping by electricity, the total net return amounts to around Tk2,686. In the with-project scenario, a more diverse cropping pattern is expected with the introduction of potato and vegetable cultivation. Estimated crop areas are as follows: boro 0.170 ha, aman 0.160 ha, potatoes 0.020, and vegetables 0.024 ha. This results in a cropping intensity of 187%. Applying the with-project gross margins to these areas results in a total income from crop cultivation of around Tk9,861per farm per year. This equates to an increase of Tk8,323 per farm per year from the without-project situation under diesel pumping and Tk7,175 per farm per year under electrical pumping. Given that the farm income analysis is based on with-project crop budgets that include the expected with-project level of water charges of Tk10,827, the resulting net farm incomes indicate that farmers would be able to cover the cost of water charges levied by the IMO from crop cultivation.

14. The transition to more intensive cultivation that is expected once more effective irrigation is available to farmers is projected to result in an increase in family labor. On the 0.2 ha farms, family labor is projected to increase from 5 days to 11 days per year. In the without-project scenario, the return per day of family labor is estimated at Tk128 under diesel pumping and Tk224 under pumping by electricity. The return per family-labor-day in the with-project scenario amounts to Tk704. The increase in returns per family-labor-day results in with-project returns significantly in excess of the prevailing daily agricultural wage, which is estimated at Tk315 in the *rabi* season and Tk300 in the *kharif* season. However, the limited number of family-days engaged in crop cultivation and total returns therefrom indicate a need for farmers to find alternative sources of income to supplement that from crop cultivation. For 0.2-ha farms, nonfarm income is estimated to be around Tk65,900 annually, compared with Tk9,861 from crop cultivation. For 1.0-ha farms the difference is less significant given the larger farm size. Nonfarm income is estimated at around Tk83,400 annually compared with income from crop cultivation of Tk40,752.

C. Economic Analysis

1. Economic Viability and Sensitivity Analysis

15. On the basis of a 30-year cash flow of costs and benefits, the EIRR is 20.9%. Sensitivity analysis has been undertaken to assess the impact of potential adverse movements in key variables in the analysis. The analysis is based on the cash flow after the allocation of project overhead costs. The results of the analysis are in Table 3.

Table 3: Sensitivity Analysis

Item	Switching Value [a]	EIRR (%)
Changes in Benefits and Costs		
Benefits	(28)	12.0
Investment costs	79	12.0
Operation and maintenance costs	81	12.0
Reduced Irrigated Area[b]		
15,000 ha		18.0
13,000 ha		14.0
Delay in Introduction of Improved Irrigation[c]		
Third year		19.4
Fourth year		19.3

( ) = negative, EIRR = economic internal rate of return, ha = hectare.

[a] Switching values indicate the percentage by which the variable can change before the EIRR is reduced to the level of the opportunity cost of capital (12%), and at which the economic net present value equals zero.

[b] The reduced irrigated area assumes that the irrigable area increases to only 15,000 hectares (ha) or 13,000 ha, rather than the target of 17,000 ha.

[c] The delay assumes the same phasing as in the base-case scenario but with the improved irrigation system commencing in the third or fourth year rather than the second year. It assumes no change in the phasing of investment costs or the expansion of area.

Source: ADB estimates.

16. The EIRR is generally robust with respect to adverse changes in benefits and costs. It is more susceptible, however, to a reduction in the area irrigated and delays in the attainment of benefits. A reduction in the area to only 13,000 ha would reduce the EIRR to 14.0%. A delay in the introduction of improved irrigation by 2 years would reduce the EIRR to 18.4%. Neither of these scenarios takes account of the reduction in costs and/or phasing of costs that would occur in the event of a reduction in area or delay in irrigation improvement. As such, the resulting EIRRs underestimate the actual viability of the project in the event of such changes. Overall, the sensitivity analysis indicates that the viability of the Muhuri Irrigation Project is generally robust but highlights the need to maintain careful control over both the phasing of implementation and the attainment of the target irrigated area.

2. Employment Generation

17. Based on the incremental requirement for labor estimated from with- and without-project crop budgets and the with-project project-wide cropping pattern, it is estimated that an additional 1.07 million person-days of agricultural labor will be generated annually. At a daily wage rate of Tk300, this amounts to an additional Tk321 million per year in agricultural workers' incomes. In addition, there will be a one-off demand for skilled and unskilled labor during the construction phase. It is estimated that approximately 160,000 person-days of skilled labor and 474,000 person-days of unskilled labor will be required. Based on BWDB estimates, skilled daily rates are Tk350, equating to Tk56 million, and unskilled daily rates are Tk300, equating to Tk142 million. Annual maintenance costs are estimated to range from 1% to 5% of the investment and would create a further 2,300 person-days of skilled labor and 17,400 person-days of unskilled labor annually. This is equal to Tk1 million per year for skilled labor and Tk5 million for unskilled labor.

D. Financial Analysis of Operation and Maintenance at Muhuri

18. The recovery of O&M costs at Muhuri Irrigation Project will be via irrigation charges levied through the prepaid meters. The irrigation charge will be based on a tariff per cubic meter (m^3) pumped measured against the volume of water pumped by each farmer. The financial analysis incorporates an evaluation of the current and future O&M costs at 2013 prices. The

current costs of O&M are estimated to be $26/ha for level 1, $20/ha for level 2, and for level 3 $99/ha for electric pumps and $137/ha for the diesel pumps. The estimated future costs of O&M for levels 2 and 3 under stage 2 (year 7 onwards) are summarized in Table 4.[8]

Table 4: Estimated Future Costs of Operation and Maintenance of Levels 2 and 3

Category	Annual Outgoings ($ million)	Cost $/ha	Cost Tk/ha
1. O&M Level 3 Pumps Pipe Distribution	0.912	53.6	4,290
2. O&M Level 2 canals and other secondary structures	0.338	19.9	1,592
3. Irrigation Service Charge Tk260/ha ($3.25/ha)	0.055	3.3	260
4. IMO Organization Costs	0.399	23.5	1,876
5. IMO Margin (10%) on Operational Costs (1, 2, and 3)	0.131	7.7	614
6. VAT 15%	0.275	16.2	1,295
Total Outgoings	**2.110**	**124.1**	**9,928**

ha = hectare, IMO = , O&M = operation and maintenance, VAT = value added tax.
Source: ADB estimates.

19. The estimated annual volume of water pumped is almost 200 million m^3 to meet the requirements of 17,000 ha of boro rice at a water requirement of 11,600 m^3/ha. It is anticipated that additional pumped irrigation would take place outside the boro season but this has not been included in the estimates. Meeting the needs of full O&M cost recovery for levels 2 and 3 requires annual revenue of $2.1 million (Tk168 million) per year, which requires the water tariff to be set at $10.55 per 1,000 m^3 based on 200 million m^3 pumped per year.

20. A comparison of current levels of charging and the estimated future costs of O&M is in Table 5. The full O&M cost-recovery tariff is equivalent to $124/ha, equal to approximately 90% of the current water charge for diesel pumps ($138/ha) and 25% higher than the charge for electric pumps ($99/ha).

Table 5: Comparison of Current and Estimated Future Costs

		Analysis of Costs				Estimated Current Charges (Data from Field Surveys)	
Category	Basis of Charges	Cost ($ per '000 m^3)	Volume pumped (m^3/ha)	Equivalent Cost ($/ha)	Equivalent Cost (Tk/ha)	$/ha	Tk/ha
Current Levels of Charging							
Diesel Pump Earth Canal	Level 3 only	8.46	16,274	137	10.960	138	11,000
Electric Pump Earth Canal	Level 3 only	3.02	16,274	49	3,920	99	7,900
Estimated Costs of O&M Levels 2 and 3 (based on full recovery of O&M costs in stage 2 year 7 onwards)							
New Electric Pumps, Pipes, Prepaid Meters	Levels 2 and 3	10.55	11,760	124	9,928		

ha = hectare, m^3 = cubic meter, O&M = operation and maintenance.
Source: ADB estimates.

21. Farmers have reported difficulty in meeting current water charges because of the low price of rice. The new irrigation system will improve opportunities to increase crop returns. While keeping tariffs low may seem desirable, an underfunded IMO will not deliver an adequate service. In theory, keeping the tariff below the full cost-recovery level can be compensated for by periodic government transfer. In practice, however, budgetary allocations are very often

[8] Under Stage 1, an IMO will be recruited through a 5-year performance-based management contract to supervise the modernization works and bring the scheme to the required level of efficiency and profitability. Under stage 2, an IMO will be contracted for 15 years through a public–private partnership.

subverted, resulting in operators not being able to meet their operational obligations. A strategy of self-financing of the IMOs was adopted. Alternative and supplementary cost-recovery mechanisms will be investigated and piloted by the IMO during the first stage of project development, including the lease of land and water assets, agricultural services, and royalties from sand abstraction.

22. During stage 1 the IMO, staffing and administration costs would be paid for by the loan with no linkage to the irrigation charges. This will allow the IMO to operate and establish the O&M systems independent of revenue. However, 6 months' of operational revenue will be built up during stage 1 as a fund for stage 2 to cover, for instance, the requirements of deferred maintenance and renewals. The irrigation service charge (ISC) is currently $3.25/ha (Tk260/ha) which is about 2% of the cost of the O&M of levels 2 and 3. It is proposed that, out of the ISC, the IMO would be paid a fee of 20% for collection, 50% would support level 2 and 3 maintenance costs, and the remaining 30% would be split between the water users' association and the BWDB. The costs of the implementation coordination committee would be paid from the BWDB's share.

23. Based on an analysis of 2013 prices, it is recommended that the initial water charge is set at $9 (Tk720) per thousand m^3, which is 15% less than the requirement for full O&M cost recovery. This will have to be adjusted annually to incorporate cost escalation, especially with respect to electricity tariffs. Future adjustments to the irrigation tariff would be determined by the BWDB working closely with the IMO and the implementation coordination committee. By year 6, however, the tariff should be at an adequate level to meet the needs of full O&M cost recovery. The IMO will be working in stage 1 to support increased crop productivity as well as investigating alternative and supplementary opportunities for cost recovery. For stage 2, the level of the irrigation tariff can be incorporated into the evaluation of bids for project operation. This provides a clear incentive for the IMO to reduce costs and establish supplementary cost-recovery mechanisms.

24. For level 1 infrastructure, current annual maintenance costs are estimated at $0.5 million (Tk40 million), excluding BWDB costs estimated at $0.3 million (Tk24 million) per year. Current government allocations are sufficient to meet these requirements. The estimated overall O&M budgets for the project are shown in Table 6. Under the project the BWDB will transfer the responsibility for level 2 O&M to the IMO, and BWDB allocations for level 2 O&M will be transferred to level 1. With this reallocation of resources and recent increases in O&M funding it is estimated that government funding will be sufficient to meet the requirements of level 1 O&M.

Table 6: Overall Operation and Maintenance Budgets for the Muhuri Irrigation Project
($ million)

	Current Requirement[a]			Current Allocation[b]			Future Requirement[c]		
Level	**O&M**	**Estab**	**Total**	**O&M**	**Estab**	**Total**	**O&M**	**Estab**	**Total**
1	0.5	0.3	1.1	0.5	0.3	0.8	0.5	0.3	0.8
2	0.3						0.3	0.5[d]	1.8
3	2.1		2.1	1.3		1.3	1.0		
Total	**2.9**	**0.3**	**3.2**	**1.8**	**0.3**	**2.1**	**1.8**	**0.8**	**2.6**

BWDB = Bangladesh Water Development Board, Estab = establishment costs, ha = hectare, IMO = irrigation management operator, ISC = irrigation service charge, O&M = operation and maintenance (physical costs only), VAT = value added tax.
Notes: Future levels 2 and 3 O&M costs funded from irrigation revenues; $0.055 million costs for ISC incorporated into the Level 3 costs
a. Based on 17,000 ha 75% diesel pumps, earth canals, full management by BWDB.
b. Based on current area of boro rice crop of 11,300 ha 75% diesel pumps, full management by BWDB.
c. Based on 17,000 ha full electric pumping, pipe distribution, level 1 managed by BWDB, levels 2 and 3 managed by IMO. Excludes VAT.
d. Costs of IMO.
Source: ADB estimates.