# FINANCIAL ANALYSIS

## A. Introduction

1. A financial analysis of the Phuentsholing Township Development Project has been undertaken in accordance with the *Guidelines for the Financial Management and Analysis of Projects* (2005) of the Asian Development Bank (ADB).[1] A financial evaluation has been conducted to compare incremental revenues and costs, and determine whether the project is financially viable; and a projected financial statement analysis has been conducted to assess the financial health of a proposed special purpose vehicle (SPV), tentatively called the Amochhu Land Development and Township Corporation (ALDTC).[2]

## B. Project Cash Flows[3]

2. **Project costs.** The total construction cost of the project in constant April 2018 prices is estimated at Nu3,584 million ($53.1 million). This amount includes taxes, duties, and physical contingencies, but excludes price contingencies or financial charges incurred during construction. All estimated cash flows are expressed in constant March 2017 prices, so that the financial internal rate of return (FIRR) is readily comparable to the weighted average cost of capital (WACC) in real terms. Construction is expected to take place from July 2018 to June 2025. The residual value of the project assets is estimated at 50% of the total construction cost, to be realized at the end of the 30-year operations period (2023–2052).[4]

3. **Incremental cash flow.** The project's incremental net cash flows comprise revenues from (i) the lease of newly developed land; (ii) charges for the use of common infrastructure; and net of management, operations, and maintenance (MOM) expenditures from 2023.

### 1. Lease Revenue

4. Total annual lease revenue estimated by (i) the total area under lease; and (ii) the applicable lease rates based on the type of lessee (residential, commercial, and others).

5. **Area under lease by type of development.** All revenue and expenditure projections assume that the Government of Bhutan will approve an ambitious program of financial and regulatory incentives to promote the development of the new township-"business-induced scenario" (BIS),[5] under which the total leasable area of Zone A is estimated at about 660,000 square meters (m$^2$) by the end of the project implementation period in 2052. In that year, residential housing would account for most of the area under lease (61%), followed by commercial uses (16%); industrial uses (13%); and social housing, retail, and the heliport (10%). It is assumed that the 660,000 m$^2$ area will be fully leased by 2030, except for 65,000 m$^2$ of industrial developments to be realized during 2031–2052. As the ALDTC would exclusively lease areas to owners of large-scale real estate developments who would sublease areas to their lessees, reductions in occupancy rates would not affect the area leased

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[1] This financial analysis covers only Zone A (the project) of the government's five-zone development program called Amochhu Land Development and Township Project. In the future, the government may decide to complete all zones which would generate much higher benefits per invested dollar than Zone A alone. This is because the river training works for Zone A are relatively costly compared to the size of the area of newly created land (which is the main driver of the project's benefits).

[2] As DHI is not permitted to sublease land in Bhutan, leasing newly developed land through a legal entity is currently not feasible. While DHI intends to apply for an exemption to this rule for the new township, it is assumed that DHI will first establish a department to manage and further develop the new Phuentsholing township. If the sublease of land is permitted in the new township, the department would be split off and be given a separate legal status as an SPV.

[3] Further details in the SD 20 (accessible from the list of linked documents in Appendix 2).

[4] The length of the operations period was based on the economic lifetime of buildings and other fixed infrastructure as per Bhutan's prevailing accounting regulations. The operations period begins before construction completion, because common infrastructure will have been completed in part of Zone A by the end of 2022.

[5] The details of this scenario are available in an Excel spreadsheet available from ADB (Copy of PTDP Project Cost and Financing Plan and Economic Analysis v23.xls

by the ALDTC.[6]

**Table 1: Cumulative Area Under Lease, 2023–2030 and 2052**
('000 $m^2$)

| Development Type | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2052 |
|---|---|---|---|---|---|---|---|---|---|
| Residential housing | 70 | 139 | 209 | 279 | 320 | 362 | 403 | 408 | 408 |
| Social housing | 20 | 40 | 40 | 40 | 40 | 40 | 40 | 40 | 40 |
| Commercial | 22 | 43 | 65 | 87 | 93 | 99 | 105 | 109 | 109 |
| Retail / Heliport | 11 | 18 | 21 | 21 | 21 | 21 | 21 | 21 | 21 |
| Industrial | – | – | – | – | 4 | 8 | 12 | 16 | 81 |
| **TOTAL** | **124** | **242** | **336** | **427** | **479** | **531** | **582** | **595** | **660** |

Source: Asian Development Bank estimates

6. Based on a floor area ratio of 65% and average number of floors, the floor space index (FSI) (i) for housing, commercial, and retail developments was estimated at 3.25; (ii) for the heliport was estimated at 0.65, and (iii) for the industrial developments was estimated at 1.30. The total land area covered by developments under lease was therefore about 247,000$m^2$, 38% of the total land area of Zone A, which is around 659,000$m^2$. Considering international norms for similar real estate developments around 50%–60%, the lease area of zone A may increase if there is demonstrated demand.

**Table 2: Land Cover by Type of Development, 2052**

| Development Type | Lease Area ('000 $m^2$) | Number of Floors | FSI[a] | Land Cover | |
|---|---|---|---|---|---|
| | | | | ('000 $m^2$)[b] | % of Zone A |
| Housing, commercial, and retail | 574 | 5.0 | 3.25 | 176 | 26.8 |
| Heliport | 5 | 1.0 | 0.65 | 8 | 1.3 |
| Industrial | 81 | 2.0 | 1.30 | 62 | 9.4 |
| **TOTAL** | **660** | | | **247** | **37.5** |

FSI = floor space index.
[a] Calculated by multiplying the average number of floors by the assumed floor area ratio of 0.65.
[b] Calculated by dividing the Lease Area by the FSI.
Source: Asian Development Bank estimates.

7. **Lease rates.** Commercially viable lease rates for the first year of operations (2023) were estimated based on (i) a survey of prevailing market lease rates in Phuentsholing, Thimphu, and nearby towns in India; (ii) market prices of land in and around Phuentsholing; and (iii) government-approved lease rates issued in 2009, separately for each type of development (except rates for social housing, which were set at zero in consultation with DHI). The assumed annual lease rates ranged from Nu30 per square foot($ft^2$) for industrial developments to Nu135 per $ft^2$ for commercial and retail areas. Lease rates for residential housing (over 60% of the leasable area), are expected to be 85% higher[7]. Similarly, for commercial and retail developments (20% of the leasable area), 60% higher than prevailing rates; and for industrial areas, 30% higher than current market rates. No information was available on market rates for heliports. It is assumed that nominal lease rates would increase every 5 years to compensate the project owner for general price inflation in the intervening period.[8]

8. **Total lease revenue.** Based on the above projected lease area and rates, total lease revenue is expected to increase from Nu55 million in 2023 to about Nu240 million in 2052. Revenue will not significantly increase after 2030, as most of the planned area will already be leased (although part of

[6] Except in extreme circumstances, such as the bankruptcy of an ALDTC lessee.
[7] This is mainly because (i) the new township is designed to be a much better place, (ii) the regulatory incentives proposed for the project area would result in higher lease rates.
[8] It is assumed that lease rates will increase by ($[1.05^5 - 1]$ =) 27.6% at the start of 2028, 2033, 2038, 2043, and 2048.

the industrial area will remain unleased, lease rates for industry are lower than for other types of development). Lease revenue will decrease from 2048 to 2052, as neither the lease rates nor the area will materially increase during this period.

9. Demand projections for the BIS assume that the government will approve a series of financial and regulatory incentives, including but not limited to (i) permitting the mortgaging of land development rights, (ii) removing restrictions on lease terms (presently limited to 30 years), (iii) a 10-year income tax holiday for real estate developers in the project area, and (iv) exempting the ALDTC from land and enterprise income taxes during project implementation.

### 2. Other Revenue

10. The ALDTC will also charge its lessees for the use of common infrastructure (such as piped water supplies, sewerage systems, street lighting, and solid waste management). It is assumed that in 2023, the first year of operations, the service charge will meet 30% of the actual cost (covering both capital and operation and maintenance [O&M]), and will gradually increase to achieve full cost recovery by 2030. Revenue from user charges, including a 20% surcharge to cover the ALTDC's management costs, are expected to increase from Nu18 million in 2023 to Nu61 million in 2030, when this will account for about 25% of total revenue (see para. 12 for estimates of chargeable O&M expenditures). The ALDTC's management expenditure and expenditure to maintain the river bank training works is included in the lease revenue and will not be charged separately.

### 3. Management and Operations and Maintenance Expenditures

11. Management expenditures, mainly consisting of the ALDTC's marketing and administrative expenditures, are estimated at 3% of the ALDTC's annual lease revenue, with a minimum of Nu6 million (the annual cost of the project management unit during construction). From 2030 onward, this amounts to about Nu7 million per year.

12. Annual O&M expenditures for each type of common infrastructure were estimated based on a fixed percentage of the investment cost of the individual infrastructure components (other than water and power supply services, which were estimated based on the cost of meeting the estimated demand for piped water and electricity). These estimates also form the basis for setting user charges for the use of the infrastructure (see para. 10). O&M costs for common infrastructure in 2030 are estimated at about Nu27 million, while annual O&M costs for the river training works are estimated at 1% of the investment expenditure (about Nu20 million).

## C. Weighted Average Cost of Capital

13. The discount rate used in the financial cost–benefit analysis is the WACC representing the cost incurred by the project owner (DHI) in raising funds for the project. The after-tax WACC, in real terms, is estimated at 4.5% (Table 4).

**Table 4: Weighted Average Cost of Capital**
(%)

| | **Funding Source** | | |
|---|---|---|---|
| **Item** | **ADB Loan** | **ADB Grant** | **DHI** |
| Weight | 45.6 | 38.5 | 15.9 |
| Tax-adjusted nominal cost | 2.6 | 10.0 | 10.0 |
| Inflation rate | 1.5 | 1.5 | 5.0 |
| Real cost | 1.0 | 8.4 | 4.8 |
| **WACC** (in real terms)[a] | | | **4.5** |

DHI = Druk Holding and Investments Limited, WACC = weighted average cost of capital.
Source: ADB estimates.

## D. Financial Net Present Value and Financial Internal Rate of Return

14. The FIRR is estimated at 4.32%, lower than WACC (4.5%), and the financial net present value is below zero. Therefore, the project is not financially feasible in the base-case scenario.[9]

## E. Sensitivity Analysis

15. The FIRR's sensitivity was tested against favorable and unfavorable variations in revenue and expenditure. In addition, the FIRR's sensitivity to two alternative development scenarios was considered: (i) the "business as usual" scenario, with reduced land coverage; and (ii) an increase in the land coverage ratio from the current level of 38% to 50%–60%.

16. Sensitivity tests were conducted by varying the capital expenditure, lease revenue, MOM expenditure, and combinations of these factors. These tests indicate that 3.6% reduction in capital expenditure or 2.9% increase in lease revenue is needed to lift the FIRR above the hurdle rate of 4.5%. This suggests that Zone A on its own may become financially feasible without requiring overly optimistic assumptions. If capital expenditure increases by 20% or lease revenue falls by 20%, the FIRR will decrease to 3.0%-3.5% The FIRR is not particularly sensitive to variations in MOM costs.

17. The BIS (the base case) assumes that the government will approve an ambitious program of financial and regulatory incentives. It is estimated that under an alternate conservative scenario—labelled "business as usual"—the leasable area would decrease by 13% from 660,000m$^2$ to about 560,000m$^2$, and the FIRR would fall from 4.3% to 3.6%. Conversely, efforts to increase land coverage from 38% of Zone A to 50%–60% will lift the FIRR above the hurdle rate of 4.5%. This is only feasible if there is demand for a substantial increase in the leasable area, which depends on the approval of the financial and regulatory incentives.

## F. Financial Health and Sustainability[10]

18. While the project is not financially viable due to the high cost assigned to the ADB grant, financial projections indicate that the ALDTC will be able to generate sufficient lease revenue to finance its operations and meet its debt service obligations from 2023, the first year of operations (Table 5). The ALDTC's collection efficiency is assumed to be 95%.

19. **Profitability.** Projected income statements show that the ALDTC will become profitable in 2025, the third year of operations. From 2028 onward, the corporation's net profit margin will remain between 8% and 12%, comparable to the minimum rate of return that DHI requires for strictly commercial operations (10%).

20. **Financial position.** In 2023, when the ALDTC is assumed to become an independent legal entity, the estimated debt–equity ratio will be 1.46. This ratio will further improve to 0.78 in 2030, when most of the leasable land will be occupied. The ADB subloan will have been repaid in full by 2049. Due to the substantial ADB grant, the debt–equity ratio is unusually low for a real estate development project throughout most of the operations period.

21. **Liquidity.** Prior to 2023, DHI will need to cover interest payable during the construction period (Nu50 million). From 2023 onwards, when the project will start generating lease and services revenue, the ALDTC will be able to meet its debt service obligations. The debt service coverage ratio of the entity is estimated at a comfortable 2.0 in 2026, with subsequent increases. The current ratio would remain above 4.0 throughout the 30-year projection period (2023–2052).

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[9] If the cost of the ADB grant is set at zero, the WACC would decrease to 0.6%, far below the base-case FIRR of 4.3%. Under this assumption, the project would be financially feasible. While this is not in keeping with ADB's methodology for financial analysis, since the ADB grant is tied to this specific investment and cannot be used for other purposes, it can be argued that the grant carries no opportunity costs, and should thus be costed at zero.

[10] Further information in the SD 20 (accessible from the list of linked documents in Appendix 2).

**Table 5: Projected Financial Statement for the Amochhu Land Development and Township Corporation, Selected Years**
(Nu million, current prices)

| Item | ALDTC as DHI Department | | | | | ALDTC as Separate Legal Entity | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** | **2024** | **2030** | **2040** | **2050** |
| **INCOME STATEMENT** | | | | | | | | | | |
| Lease revenue | – | – | – | – | – | 74 | 145 | 470 | 782 | 1,302 |
| Other revenue | – | – | – | – | – | 13 | 19 | 67 | 109 | 179 |
| **Total revenues** | **–** | **–** | **–** | **–** | **–** | **87** | **163** | **537** | **891** | **1,481** |
| Management and O&M | – | – | – | – | – | 44 | 46 | 67 | 109 | 179 |
| Depreciation | – | – | – | – | – | 132 | 140 | 143 | 143 | 143 |
| **Total operating expenses** | **–** | **–** | **–** | **–** | **–** | **176** | **186** | **210** | **252** | **322** |
| **Net operating income** | **–** | **–** | **–** | **–** | **–** | **–89** | **–23** | **327** | **639** | **1,159** |
| Interest expenses | 0 | 3 | 7 | 11 | 15 | 23 | 23 | 51 | 28 | – |
| **Net income after interest** | **–0** | **–3** | **–7** | **–11** | **–15** | **–112** | **–46** | **277** | **611** | **1,159** |
| Net profit on owned capital | –0.1% | –0.2% | –0.3% | –0.5% | –0.9% | –7.1% | –3.0% | 11.6% | 9.3% | 7.8% |
| **CASH FLOW STATEMENT** | | | | | | | | | | |
| Net cash inflows from operations | – | – | – | – | – | 261 | 221 | 470 | 782 | 1,302 |
| ADB-financed subsidiary loan | 84 | 405 | 451 | 303 | 480 | 450 | 121 | – | – | – |
| ADB grant | 468 | 958 | 377 | – | – | – | – | – | – | – |
| DHI investment | 87 | 119 | 169 | 53 | 103 | 195 | 132 | – | – | – |
| **Subtotal cash inflows** | **639** | **1,482** | **997** | **356** | **584** | **906** | **474** | **470** | **782** | **1,302** |
| Capital expenses | 589 | 1,480 | 990 | 345 | 568 | 218 | 104 | – | – | – |
| Principal repayments | – | – | – | – | – | – | – | 78 | 100 | – |
| Interest payments | 0 | 3 | 7 | 11 | 15 | 23 | 23 | 51 | 28 | – |
| **Subtotal cash outflows** | **589** | **1,482** | **997** | **356** | **583** | **241** | **127** | **128** | **128** | **–** |
| **Net cash flows** | **50** | **0** | **0** | **1** | **1** | **665** | **347** | **342** | **653** | **1,302** |
| Cash balance, BOY | 50 | 50 | 47 | 40 | 29 | 14 | 252 | 1,500 | 6,245 | 14,882 |
| Net cash inflows from operations | – | – | – | – | – | 261 | 221 | 470 | 782 | 1,302 |
| Debt service obligations | 0 | 3 | 7 | 11 | 15 | 23 | 23 | 128 | 128 | – |
| Cash balance, EOY | 50 | 47 | 43 | 29 | 14 | 252 | 450 | 1,842 | 6.898 | 16,184 |
| **Debt service coverage ratio** | **–** | **–** | **–** | **–** | **–** | **11.4** | **9.6** | **3.7** | **6.1** | **–** |
| **BALANCE SHEET** | | | | | | | | | | |
| Current assets | 50 | 47 | 43 | 29 | 14 | 34 | 128 | 1,519 | 6,576 | 15,862 |
| Net fixed assets | 589 | 2,068 | 3,058 | 3,403 | 3,971 | 3,838 | 3,706 | 2,912 | 1,588 | 265 |
| **Assets** | **638** | **2,115** | **3,097** | **3,432** | **3,984** | **3,872** | **3,834** | **4,431** | **8,164** | **16,126** |
| Current liabilities | – | – | – | – | – | 3 | 11 | 204 | 648 | 1,322 |
| Long-term loans | 84 | 490 | 940 | 1,243 | 2,295 | 2,295 | 2,295 | 1,847 | 927 | – |
| Equity (including ADB grant) | 554 | 1,625 | 2,157 | 2,188 | 1,689 | 1,574 | 1,528 | 2,380 | 6,589 | 14,804 |
| **Liabilities** | **638** | **2,115** | **3,097** | **3,432** | **3,984** | **3,872** | **3,834** | **4,431** | **8,164** | **16,126** |
| Debt–equity ratio | 0.15 | 0.30 | 0.44 | 0.57 | 1.36 | 1.46 | 1.50 | 0.78 | 0.14 | – |
| Current assets/current liabilities | | | | | | 12.0 | 12.0 | 7.4 | 10.1 | 12.0 |

ADB = Asian Development Bank, ALDTC = Amochu Land Development and Township Corporation, BOY = beginning of year, DHI = Druk Holding and Investments Limited, EOY = end of year, O&M = operation and maintenance.

Source: ADB estimates.