DETAILED FINANCIAL ANALYSIS AND EVALUATION

I. INTRODUCTION

1. The financial analysis of the original project-Phuentsholing Township Development Project (the project) was updated in accordance with the Asian Development Bank (ADB)'s guidelines for financial management and analysis of projects.[1] Phuentsholing Township Development project was approved by the Board of ADB on 5 June 2018. Agreements for concessional loan of $28.74 million from ADB's ordinary capital resources and grant of $24.26 million from ADB's special Funds Resources (Asian Development Fund) were signed on 3 July 2018 and declared effective on 26 July 2018. The approved investment plan was for $63.00 million, covering: (i) installation of flood and erosion protection measures; (ii) construction of municipal infrastructure; and (iii) installation of township management systems.

2. The additional financing will fund a portion of cost-overruns (actual and expected) and increase the project's scope to include additional flood and erosion protection works. The revised investment costs, including additional financing are $93.0 million.

3. All financial costs and benefits are expressed in constant June-2020 prices. Cost streams used to determine the financial internal rate of return (FIRR) (capital investment, other incremental costs and operation and maintenance) reflect the costs of delivering the expected and incremental financial benefits.

4. Financial viability of the project was evaluated while analyzing the incremental costs and revenues. A financial discounted cash flow analysis was conducted on an after-tax basis in real terms to determine the weighted average cost of capital (WACC), the financial internal rate of return (FIRR), and financial net present value (FNPV) to assess the financial viability of the project. A financial analysis ascertained whether the FIRR can meet the calculated WACC based on the cost of capital from different financing sources. A sensitivity analysis was then conducted to assess the tolerance of the FIRR and FNPV to adverse movements.

5. The analysis also included an appraisal of the financial sustainability of the proposed special purpose vehicle (SPV)-Phuentsholing Township Development Corporation (PTDC), including whether it has adequate financial resources to implement and operationalize the project as well as repay the associated loans.[2]

II. FINANCIAL COST-BENEFIT ANALYSIS

6. **Key Assumptions.** The cost-benefit analyses were carried out with following key assumptions:

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[1] ADB. 2019. *Financial Analysis and Evaluation – Technical Guidance Note*. Manila.

[2] DHI envisages that the government would transfer the ownership of the newly developed land as a freehold to the corporation. At the time of writing, the institutional arrangements for the township have not been defined. DHI does not consider appointing CDCL (or any other separate legal entity) as township manager because it is currently not permitted to sub-lease land in Bhutan, and leasing newly developed land through another legal entity is therefore currently not feasible. While DHI intends to apply for an exemption of this rule in the new township, it is currently assumed that DHI will first establish a department that would be dedicated to the management and further development of the Phuentsholing Township. If the sub-lease constraint remains in force, this department would remain an integral part of DHI. If the government would permit the sub-leasing of land in the new township, the department would be split off from DHI and be given a separate legal status, thereby becoming, in effect, a special purpose vehicle for township management and development. The SPV is tentatively called the Phuentsholing Township Development Corporation (PTDC) and financial projections have been prepared for this SPV.

(i) all costs and revenues were expressed in June-2020 constant prices and converted using $1 = Nu 75.66[3];
(ii) The forecast of foreign exchange rates, for nominal costs and revenues, was based on theory of purchasing power parity (PPP);
(iii) Average local inflation was considered as 4.0%;
(iv) Average international inflation was considered as 1.6%.
(v) the capital investment expenditure consists of all incremental expenditures related to the construction of ALDTP, including consulting services,
(vi) the operating expenditures include all annual incremental expenditures incurred by ALTDC, and consist of incremental management expenditure and the incremental expenditure of operating and maintaining common urban infrastructure and the riverbank training,
(vii) incremental revenue from leases was estimated based on the Business-Induced Scenario
(viii) incremental revenue from user charges was set at a fixed percentage of the actual incremental O&M expenditure of common infrastructure; this percentage is 30% in 2023 and will increase to 100% in 2030 and after,
(ix) the government will exempt PTDC from land taxes and enterprise income taxes throughout the operations period (2023–2052),
(x) the residual value of the project-financed assets is 50% of the capital investment expenditure after 30 years of operations, and
(xi) all incremental financial revenue and expenditure are expressed real terms in at June-2020 prices, exclude price contingencies, depreciation and debt service charges.

7. **Project costs.** The total investment costs, including cost overruns and additional scope, of the project in constant June-2020 prices was estimated at Nu6.5 billion ($87.6 million). This amount includes taxes, duties and physical contingencies, but excludes price contingencies or financial charges incurred during the construction period. All project cost estimates and incremental project net cash flows were expressed in constant June-2020 prices, so that the financial internal rate of return (FIRR) is readily comparable to the weighted average cost of capital (WACC), which is also expressed in real terms. The contract CW-01 was awarded to AFCONS Infrastructure Limited on 18 July 2018, and the work commenced from 1 November 2018. The project is expected to be fully operational by December 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 final year of the 30-year operations period (2023–2052).[4]

8. **Incremental cashflows.** The incremental net cash flows of the project would consist of: (i) revenue from the lease of newly developed land; (ii) revenue from charges for the use of common infrastructure; and net of (iii) management, operations and maintenance (MOM) expenditures from 2023.

9. **Lease Revenue.** It is envisaged that Druk Holding and Investments Limited (DHI) will establish a special purpose vehicle to manage and further develop the new township, tentatively called the PTDC (see footnote 3). This corporation will be the legal owner of the project-financed assets and collect revenue from the lease of these assets. During the operations period, the total

[3] As on May 22, 2020.
[4] The length of the operations period was based on the economic lifetime of buildings and other fixed infrastructures per Bhutan's prevailing accounting regulations. The operations period starts before completion of construction, because common infrastructure will have been completed in part of Zone A by the end of 2022.

annual lease revenue collected by the corporation is determined by: (i) the total area under lease; and (ii) the applicable lease rates based on the type of lessee (residential, commercial and other lessees have different lease rates).

10. **Area under lease by type of development.** It was assumed that the government will approve an ambitious program of financial and regulatory incentives to promote the development of the new township. All revenue and expenditure projections were based on the realization of this so-called "Business-Induced Scenario" (BIS).[5] For the BIS, 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 (Table 1). In that year, residential housing would account for most of the area under lease (61%), followed by commercial (16%) and industrial (13%). Social housing, retail and the heliport would account for the remaining 10%. The land use plan under the BIS does not provide for the provision of health, educational or sports facilities (which would be in other zones). It is assumed that the 660,000 m^2 area will have been fully leased out by 2030, except for 65,000 m^2 of industrial developments, which would be realized during 2031–2052. It is important to note that PTDC would exclusively lease areas to owners of large-scale real estate developments (such as housing estates, hotels, or shopping malls), who would sub-lease areas to their lessees. This means that, during the term of a lease, reductions in occupancy rates would not affect the area leased out by PTDC.[6]

Table 1: Cumulative Area under Lease by Type of Development, 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	6	13	16	16	16	16	16	16	16
Heliport	5	5	5	5	5	5	5	5	5
Industrial					4	8	12	16	81
TOTAL	**124**	**242**	**336**	**427**	**479**	**531**	**582**	**595**	**660**

Source: Asian Development Bank estimates.

11. The estimated floor space index (FSI) for housing, commercial and retails developments was 3.25. This estimate was based on a floor area ratio of 65% and an average number of five floors (the maximum number of floors permitted in Bhutan is six, except for government and religious buildings). The FSIs for the heliport and industrial developments were estimated at 0.65 and 1.3, respectively. The total land area covered by developments under lease was therefore about 247,000 m^2 (Table 2). This was about 38% of the total land area of Zone A, which is about 659,000 m^2. This ratio is relatively low compared to international norms for similar real estate developments elsewhere in the world, which are in the order of 50% to 60%. This suggests that the area under lease may be increased significantly, provided there is a demonstrated demand.

[5] The details of this scenario are available in Excel spreadsheet available with ADB. The name of the spreadsheet is "Amochhu II IDPR financial economic analysis -01122016-v1.xlsm".

[6] Except in extreme circumstances, such as bankruptcy of an PTDC lessee. The assumed collection efficiency of PTDC was 95%.

Table 2: Land Cover by Type of Development, 2052

Development Type	Lease Area ('000 m²)	Number of Floors	FSI [a]	Land Cover ('000 m²) [b]	Land Cover % 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**	**4.6**	**2.99**	**247**	**37.5**

[a] The product of the number of floors and the assumed floor area ratio of 0.65.
[b] Computed as Lease Area / Floor Space Index.
Source: Asian Development Bank estimates.

12. **Lease rates.** Commercially viable lease rates for the first year of operations are 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) and government-approved lease rates issued in 2009. Lease rates were estimated 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 for 2023, the expected first year of operations, ranged from Nu30 per square feet for industrial developments to Nu135 per square feet for commercial and retail areas. The lease rates in 2023 for residential housing, which accounts for over 60% of the leasable area is expected to be 85% higher, in real terms, over and above increase in rate resulting from inflation, mainly because the new township is designed to be a much better place to live and work than other town in Bhutan and its neighboring areas. In addition, the regulatory incentives proposed for the project area (especially the removal of restrictions on sub-leasing and mortgaging land rights) would, by themselves, result in higher lease rates and land prices compared to areas where these incentives would not apply. Similarly, for commercial and retail developments (20% of the leasable area), the assumed lease rates would be about 60% higher than prevailing rates and lease rates for industrial areas would be 30% higher than current market rates. No information was available on market rates for heliports. It is assumed that nominal lease rates would increase once every 5 years to compensate the project owner for general price inflation in the intervening period.[7]

Table 3: Current and Projected Lease Rates
(Nu per square foot per year)

Development Type	Lease Current Rates expressed in Constant March 2017 Prices [a]: Nominal 2016 Prices	Lease Current Rates expressed in Constant March 2017 Prices [a]: 2021 Prices	Lease Rates in Assumed by CDCL for 2021 expressed in Constant 2021 Prices	Rates Adopted by ADB for Lease Rates in 2023[b]
Residential housing	5–17	9–22	41	44
Social housing	(not surveyed)	-	-	0
Commercial	17–42	22–75	123	133
Retail	17–42	22–75	123	133
Heliport	N/A	N/A	41	44
Industrial	1–17	2–22	28	30

Sources: Asian Development Bank estimates.
[a] Current lease rates partly inferred from land sale prices (with annual lease rates assumed at 7% of the sale value) and with reference to base lease rates of 2009.
[b] CDCL expected rates for 2021 inflated by 2 years using ADB's estimated long-term inflation rate for Bhutan (4.0% p.a.).

[7] The assumed increase in lease rates was ($[1.04^5 -1] = 21.7\%$) at the start of 2028, 2033, 2038, 2043 and 2048.

13. **Total lease revenue.** Based on the projected area under lease under the Business-Induced Scenario, and the lease rates mentioned in para. 7, total lease revenue—in constant June 2020 prices—is expected to increase from Nu64 million in 2023 to about Nu290 million in 2052 (Table 4). There is no material increase in revenue after 2030, when most of the planned area have already been leased out (except for part of the industrial area, but lease rates for industry are lower than for any other type of development). Expressed in real terms, lease revenue is lower in 2052 than in 2048, the last year during the projection period in which lease rates would be increased. This illustrates that in years with neither an increase in lease rates nor a material increase in the leasable area, revenue in real terms will decrease.

Table 4: Lease Revenue by Type of Development, Selected Years
(Nu million, constant June 2020 prices)

Development Type	2023	2028	2033	2038	2043	2048	2052
Residential housing	28	146	164	164	164	164	140
Social housing	0	0	0	0	0	0	0
Commercial	26	119	131	131	131	131	112
Retail	8	19	19	19	19	19	17
Heliport	2	2	2	2	2	2	2
Industrial	0	2	8	11	11	15	19
TOTAL	**64**	**288**	**325**	**328**	**328**	**332**	**290**

Source: Asian Development Bank estimates.

14. It is important to note that the demand projections prepared for the BIS assume that the government will approve a series of financial and regulatory incentives, including but not limited to permitting the mortgaging of land development rights, removing restrictions on lease terms (which presently cannot exceed 30 years), a 10-year income tax holiday for real estate developers in the project area, and exempting PTDC from land tax and enterprise income tax during the project implementation period.[8] If this package of measures is not implemented or severely curtailed, actual demand will be substantially lower than projected demand.

15. **Other Revenue.** In addition to lease rates, PTDC will also charge its lessees for the use of common infrastructure (such as piped water supply, sewerage systems, street lighting and solid waste management). The user charge consists of: (i) a base charge to cover the cost of common infrastructure; and (ii) a 20% surcharge to cover the management cost of PTDC. The base charge will be set in relation to the full cost of providing these services, covering both capital costs and operations and maintenance (O&M) costs. It is assumed that in 2023, the first year of operations, the user charge will be 30% of the full cost. It is also assumed that the cost-recovery rate will gradually be increased until it reaches 100% in 2030, the year in which all non-industrial land will have been leased out. Revenue from user charges, expressed in constant June 2020 prices, are expected to increase from Nu18 million in 2023 to Nu61 million in 2030, by which year it will account for about 18% of total revenue (see para 12 for estimates of chargeable costs). The cost of maintaining the riverbank trainings is included in the lease rates and will not be charged separately.

16. **Management and Operations and Maintenance Expenditures.** Management expenditures mainly consist of the marketing and administrative expenditures of PTDC and are estimated at 3% of the annual lease revenue of the corporation, with a minimum of Nu6 million

[8] For details, see Annexure 8 to the Interim Report of the CDCL Consultant.

(the annual cost of the project management unit during the construction period). In 2030 and after, this amounts to about Nu9 million per year (in real terms).

17. Estimates of annual O&M expenditure for each type common infrastructure were prepared based on a fixed percentage of the investment cost of the individual infrastructure components (except for water and power supply, where it was estimated at the cost of providing the estimated demand for piped water and electricity). These estimates also form the basis for setting service charges for the use of the infrastructure (see para. 11). In 2030, the O&M expenditure of common infrastructure is estimated at about Nu27 million. The annual O&M expenditure of the riverbank training is estimated at 1% of the investment expenditure; this amount to about Nu36 million per year. All estimated expenditure amounts are expressed in real terms.

18. **Weighted Average cost of capital.** The WACC for the project was estimated at 1.39% (Table 5). The government of Bhutan would on-lend the ADB loans to DHI in local currency. DHI would pass on the funds to CDCL for construction of the project. The estimate was based on the following assumptions:

(i) weights were taken from the project financing plan.
(ii) the government on-lent the ADB loan to DHI in local currency loan at interest rate of 2.55% per annum during the 24-year repayment period and 1.0% per annum during the 8-year grace period; the average of the local currency interest rates, interest rates during grace period and repayment period, of 2.0% was considered as the nominal cost of the ADB loan.
(iii) the nominal cost of equity is DHI's minimum required return on equity of 10% as expected by DHI for similar projects.
(iv) the nominal cost of the ADB grant would generally be the cost of financing for the local government. However, government of Bhutan has not issued any bonds so far. As the currency of Bhutan is pegged at 1:1 ratio to the currency of its neighboring country India. Therefore, the yield of 5.91% on a 10-year liquid government of India bond was considered as the nominal cost of ADB grant.
(v) the tax rate was considered as zero, as it is expected that the government would grant PTDC a 30-year exemption on enterprise income taxes.

Table 5: Weighted Average Cost of Capital

Item	ADB Loan	ADB Grant	DHI Equity	Total
A. Amount ($ million)	47.2	34.3	11.5	93.0
B. Weightage (%)	50.80%	36.84%	12.37%	100.00%
C. Nominal cost (%)	2.00%	5.91%	10.00%	
D. Tax rate (%)	0.00%	0.00%	0.00%	
E. Tax-adjusted nominal cost [C*(1-D)]	2.00%	5.91%	10.00%	
F. Inflation rate (%)[a]	4.00%	4.0%	4.0%	
G. Real cost [(1+E)/(1+F)-1)](%)	-1.92%	1.84%	5.77%	
H. Minimum rate test (I = 0%)	0.00%	1.84%	5.77%	
I. Weighted component of WACC	0.00%	0.68%	0.71%	
WACC (Real terms)				**1.39%**

( ) = negative, ADB = Asian Development Bank
[a] The international and domestic inflation rate is in line with escalation rates published by ADB's Economic Research and Regional Cooperation Department.
Source: Asian Development Bank estimates.

19. **Financial Net Present Value and Financial Internal Rate of Return.** The results are summarized in **Error! Reference source not found.**. The overall FIRR and FNPV is 2.64% and

Nu1.74 billion ($23.04 million) demonstrating fair financial viability.

Table 6: Calculation of Financial Internal Rate of Return[a]
(Nu Million)

	Expenditure			Revenue	
		Operating expenditure			Cash Flow
Year	Capital		Total	Total	After Tax
2020*	(2,249)	-	(2,249)	-	(2,249)
2021	(1,629)	-	(1,629)	-	(1,629)
2022	(1,331)	-	(1,331)	-	(1,331)
2023	(877)	(67)	(944)	82	(862)
2024	(399)	(68)	(466)	145	(321)
2025	(65)	(68)	(134)	200	67
2026	-	(69)	(69)	248	179
2027	-	(69)	(69)	268	198
2047	-	(71)	(71)	343	272
2048	-	(73)	(73)	393	320
2049	-	(73)	(73)	382	310
2050	-	(72)	(72)	371	299
2051	-	(72)	(72)	361	289
2052	3,274	(72)	3,203	351	3,554
				FNPV	**1,743.57**
				FIRR	**2.64%**

* includes capital investment for 2018 and 2019 at June-2020 price

[a] Only selected years shown for brevity.
Source: Asian Development Bank estimate

20. Nominal cost of equity considered in computations of the WACC was based on conservative expectation of 10% of DHI. Hence, to test the robustness of financial viability of the project, FNPV was also computed at higher costs of equity. It was observed that at 14% nominal cost of equity, the project yielded a reasonable FNPV of Nu1.0 billion-which was still 57% of FNPV in the base case.

21. **Risk and sensitivity Analyses**. Sensitivity analysis was carried out to examine the sensitivity of the FIRR to adverse changes in key variables and summarized in Table 7. Justifiable O&M cost increases could be passed on to the end-users, so this risk is partially mitigated through contract management. The project is most sensitive to revenues and a decrease of 23% revenue from the base cost, would render the project financially unviable. However, the sensitivity analysis indicates that project, including the additional financing component, is financially viable and offers acceptable returns under a range of possible scenarios.

Table 7: Sensitivity to Changes in Selected Project Variables

Item	Change from Base Case	FNPV (Nu million)	FIRR (percent)
Base case	–	1743.57	2.64%
Favorable changes			
Capital expenditure	-20%	2596.45	3.63%
Total revenue	+20%	3278.79	3.66%
MOM expenditure	-20%	2077.20	2.87%
Combination of the above		4465.29	5.07%
Unfavorable changes			
Capital expenditure	+20%	890.70	1.93%
Total revenue	-20%	208.36	1.54%
MOM expenditure	+20%	1409.95	2.40%
Combination of the above		-978.15	0.77%

FIRR = financial internal rate of return, FNPV = financial net present value, MOM = management, operations and maintenance.
Source: Asian Development Bank estimates.

III. HISTORICAL FINANCIAL PERFORMANCE OF CDCL

22. The Construction Development Corporation Limited (CDCL) was incorporated under the Companies Act of the Kingdom of Bhutan, 2000 on 7 December 2009. CDCL is a public sector company wholly owned by Druk Holding and Investments Ltd. The company is responsible for constructing the project, before it is handed over to the (yet to be created) special purpose vehicle (SPV).

23. The unaudited/provisional accounts are available for the company for FY2018-19. The company's revenue of Nu 1.9 billion was 2.67 times the revenue in the previous year. However, the direct costs were substantially higher, and the company incurred a loss of Nu 44.6 million before tax adjustments.

24. The company made a marginal profit of Nu 5.6 million in FY 2017-18, however it incurred losses in the preceding year i.e., FY2016-17.

25. Company's operating cashflow varied between Nu 35.6 million to Nu 60.2 million during the last 3-year period. The investing and financing cashflows do not show any particular trend. Overall, the cashflow was marginally negative over last 2 years-Nu 3.5million in FY2017-18 and Nu 4.9 million in FY 2018-19. The net cashflow during FY 2016-17 was marginally positive at Nu3.2 million. The company had a reasonable cash balance of Nu 63.7 million at the end of FY 2018-19.

26. Due to losses/marginal profits, the profitability ratios for the company was either negative or close to zero during last 3 financial years. Due to increase in turnover, the capital and fixed asset turnover ratios were high at 2.08 and 4.08 respectively during FY 2018-19. The current ratio stayed above 1.17 during these 3 years.

27. Summarized financial performance of the company and ratio analysis, over last 3 years, are provided in the tables below. Detailed financial statements are appended as Table 14 to Table

16 at the end of this document.

Table 8: CDCL-Summarized financial performance (FY2016-17 to FY2018-19)

Item	FY2017	FY2018	FY2019
	[Audited]	[Audited]	[Unaudited]
Profit and Loss Statement:			
Total revenue	689.1	733.0	1,863.6
Depreciation & amortization	36.6	50.4	61.0
Employee expenses	188.2	219.5	165.5
Other operating expenses	465.0	454.6	1,677.2
Operating income (EBIT)	(0.7)	8.6	(40.1)
EBITDA	35.9	58.9	20.9
Finance cost	6.9	6.2	4.4
Profit before tax (PBT)	(7.6)	2.4	(44.6)
Tax expenses	(0.1)	3.2	(5.2)
Profit after tax	(7.6)	5.6	(49.8)
Other comprehensive income	0.5	(2.2)	(12.4)
Profit carried over to the balance sheet	(7.1)	3.4	(62.1)
Cash flow statement:			
Capital expenditure	(225)	(138)	2
Operating cash flow	36	60	53
Investing cash flow	(175)	(119)	(52)
Financing cash flow	142	55	(5)
Net cash flow	3	(3)	(5)
Balance sheet:			
Current assets	818.0	1,007.0	1,384.6
Non-current assets	703.0	780.9	796.6
Fixed assets (net)	439.7	499.1	442.1
Current liabilities	425	728	1,180
Non-current liabilities	144	79	126
Total Equity	952	981	875
Share capital	993.1	981.0	966.9

EBIT = earnings before interest and taxes; EBITDA = earnings before interest, taxes, depreciation and amortization.
Source: CDCL financial statements and annual reports.

Table 9: CDCL-Financial ratio analysis (FY2016-17 to FY2018-19)

Item	2017	2018	2019
	[Audited]	[Audited]	[Unaudited]
Profitability ratios			
Net Profit Ratio	(0.01)	0.00	(0.02)
Return on Assets	(0.02)	0.01	(0.14)
Return on Equity	(0.01)	0.01	(0.07)
Operational efficiency ratios			
Capital Turnover	0.57	0.62	2.08
Fixed Assets Turnover Ratio	1.43	1.27	4.08
Liquidity ratios			
Current Ratio	1.91	1.38	1.17
Quick Ratio	1.64	1.17	1.07

28. As we see that CDCL, the implementing agency is financially weak and has thin operating margins, the creation of a special purpose vehicle (SPV), which will own and operate the project post construction, is critical from financial viability perspective. The ring-fencing of the project operations and revenues from CDCL's finances will ensure that the newly created SPV is financially healthy and able to repay the loans from its operating revenues, without any additional financial interventions from DHI or the government.

29. However, CDCL's extensive experience and capacity to construct such projects, will help during the implementation period of the project.

IV. FINANCIAL EVALUATION OF PTDC

30. This section presents pro forma projected financial statements (cash flow statements, income statements and balance sheets) for PTDC, if the SPV is formed. The statements were prepared in accordance with the Asian Development Bank's (ADB's) guidelines for financial management and analysis of projects and cover the period 2018 (the first year of construction) through 2052 (the final year of the 30-year operations period, which is assumed to start in 2023).[9]

A. Assumptions Used for the Preparation of Financial Statements

31. Projected cash flows statements have been prepared, based on which income statements and balance sheets were subsequently derived by adjusting cash flows for non-cash items, including depreciation (but not for the effects of corporate tax liabilities, assuming the government will grant PTDC an exemption on corporate income taxes until the end of the projection period).

32. **General assumptions.** These can be summarized as follows:
   (i) financial statements are expressed in current Ngultrum (Nu); where relevant, constant June 2020 prices were converted into current prices using appropriate domestic and international cost escalation factors (Table 10),
   (ii) cash flows are assumed to be realized at the end of a financial year, and
   (iii) the Nu/$ exchange rate was adjusted over time to reflect differences between domestic and international cost escalation factors, in accordance with purchasing power parity theory.

33. **Investment cash flows.** The total construction cost of the project is estimated at Nu7.03

[9] ADB. 2019. *Financial Analysis and Evaluation – Technical Guidance Note*. Manila.

billion. This amount consists of engineers' base costs, recurrent costs accruing during the construction period, physical contingencies, price contingencies and taxes and duties. The residual value of the project is estimated at 50% of the nominal construction cost, to be realized at the end of the final year of the operational period.

Table 10: Domestic and International Cost Escalation Factors
(in percent per annum)

Item	2018	2019	2020	2021	2022	2023[a]
Domestic cost escalation factor	1.5%	1.5%	1.5%	1.6%	1.6%	1.6%
International cost escalation factor	5.0%	2.8%	3.8%	4.0%	4.0%	4.0%

Sources: Asian Development Bank (ADO 2016), World Bank.
[a] Factors for 2023 also apply to subsequent years.

34. **Operational cash flows.** The net operational cash flows of PTDC consist of: (i) lease revenue, plus (ii) other revenue, minus (iii) management, operating and maintenance (MOM) expenditure.

35. In any given year, the total lease tariff revenue of PTDC is determined by satisfied demand for land and the applicable lease rates (see Table 11 for assumptions). In formula:

$$\sum_{i=1}^{n} LD_i \times LR_i$$

Where n = number of customer groups,
LD_i = annual demand for land of customer group i,
LR_i = lease rate applicable to customer group i,

Table 11: Assumptions related to Lease Revenues

Parameter	Assumption
Number of customer groups (n)	Six (residential housing, social housing, commercial, retail, heliports and industrial)
Demand for land by customer group i (LD_i)	660,000m^2 in the Business-Induced Scenario (see appendix on Financial Analysis for details)
Lease rate applicable to customer group i (LR_i)	Lease rates in 2023 range from Nu30 per square feet for industrial developments to Nu133 per square feet for commercial and retail developments (the rates apply to the Business-Induced Scenario; again, see appendix on Financial Analysis for details)
Lease rate increase	Once every five years by 21.7% (to compensate for price inflation in the intervening period), starting in 2028.

Source: Asian Development Bank.

36. Other revenues consist of user charges that lessees will need to pay for the use of common infrastructure (such as piped water supply, sewerage systems, street lighting and solid waste management). These charges will be set in relation to the actual cost of providing these services. In 2023, the first year of operations, the service charge will be 30% of the actual capital and operations and maintenance cost. The cost-recovery rate will gradually be increased until it reaches 100% in 2030. PTDC's management expenditure and the expenditure on maintaining the riverbank trainings are included in the lease rates and will not be charged separately.

37. Operating expenditure consists of PTDC's expenditure on management, operations and maintenance. Annual management expenditure was estimated at 3% of lease revenue. The annual operations and maintenance expenditure of the river training works was estimated at 1% of the investment expenditure. The annual O&M expenditure of common infrastructure was estimated at a percentage of the investment cost (except for water and power supply, where it was estimated at the cost of providing the estimated demand for piped water and electricity).

38. **Financial cashflows.** The construction cost of the project will be financed from: (i) Nu3.73 billion ADB-financed sub-loans from the Royal Government of Bhutan to PTDC, (ii) Nu2.53 billion ADB grant, and (iii) Nu945 million of DHI's internal revenue (including working capital of Nu50 million). The conditions of the ADB-financed sub-loan to DHI would be the same as the loan conditions that apply to the government, except for the currency (Ngultrum instead of US Dollar) and the interest rate (the government would apply a 2.55% surcharge to the interest rate that is payable after the 8-year grace period). Refer to Table 12 for assumed sub-loan conditions. The projected allocation of the total cost over the five-year construction period is skewed towards 2021 and 2022, when about 49% of the ADB-financed sub-loan and grant will be disbursed.

Table 12: Assumed Subsidiary Loan Conditions

Item	ADB-Financed Subsidiary loan
Subsidiary loan amounts	Nu2.3 billion (initial) Nu1.49 billion (additional financing)
Interest rate (% p.a.)	1.00 (years 1-8), 2.55 (years 9-32)
Commitment fee (% p.a. on undisbursed balance)	(none)
Front-end fee (% loan amount)	(none)
Grace on interest (years)	(none)
Grace on principal (years)	8
Principal repayment (years)	24

Source: Asian Development Bank.

39. **Adjustments for non-cash items.** The total construction cost of the project, including will be depreciated over the 30-year operations period at historical cost price. In accordance with prevailing accounting regulations, the straight-line method is used (so that depreciation charges amount to 3.3% of gross assets per annum).

C. Analysis of Financial Statements

40. Financial projections indicate that PTDC will be able to generate sufficient revenue to meet its debt service obligations starting in 2023, the first year of operations. PTDC would exclusively lease areas to owners of large-scale real estate developments (such as housing estates, hotels, or shopping malls), who would sub-lease areas to their lessees. This means that, during the term of a lease, reductions in occupancy rates would not affect the area leased out by PTDC. The collection efficiency of PTDC was set at 95%, although it is recognized that the collection efficiency of the developers themselves may be lower.

41. **Profitability.** Projected income statements show that the PTDC will become profitable in 2028, the fifth year of operations (Table 13). From 2033 onward, the corporation's net profit margin (defined as net income / invested equity (including retained earnings)) will remain between 5.0% and 8.2% in most years.

42. **Financial position.** In 2023, when PTDC is assumed to become an independent legal entity, approximately 50% of its assets will be financed by debt and the remaining 50% by equity (which includes the ADB grant). The debt/equity ratio will decrease from 1.21 in 2024 to 1.05 in 2030, the year in which most of the leasable land will have been occupied. Throughout most of the operations period, the debt/equity is unusually low for a real estate development project. This is mainly because PTDC's balance sheet will include substantial levels of ADB grant.

43. **Liquidity.** Before 2023, PTDC will not generate revenue, and DHI will therefore need to cover interest that is payable during the early construction period (Nu33 million). From 2023 onwards, when the project will start generating lease revenue, PTDC will be able to meet its debt service obligations comfortably. As shown in the projected cash flow statements, the debt service coverage ratio (DSCR) of the entity is estimated at 1.4 in 2027, the first year of sub-loan repayment. From 2028 to 2042, the DSCR will range between 1.6 and 2.9, and remains above 3.7 until the balance period. The current ratio before dividend payments would remain above 2.9 throughout the 30-year projection period (2023–2052).

Table 13: Projected Financial Statement for PTDC, Selected Years
(Nu million, current prices)

	2018	2019	2020	2021	2022	2023	2024	2030	2040	2052
INCOME STATEMENT										
Lease revenue	-	-	-	-	-	72	142	440	664	1,016
Other revenue	-	-	-	-	-	11	15	53	79	3,641
Total revenues	**-**	**-**	**-**	**-**	**-**	**83**	**157**	**493**	**743**	**4,657**
Management and O&M	-	-	-	-	-	76	79	106	158	251
Depreciation	-	-	-	-	-	181	215	232	232	232
Total operating expenses	**-**	**-**	**-**	**-**	**-**	**256**	**294**	**338**	**389**	**483**
Net operating income	**-**	**-**	**-**	**-**	**-**	**(174)**	**(138)**	**155**	**354**	**4,174**
Interest expenses	0	2	4	9	18	32	36	88	48	2
Net income after interest	**(0)**	**(2)**	**(4)**	**(9)**	**(18)**	**(206)**	**(173)**	**67**	**306**	**4,172**
Net profit on owned capital	-0.2%	-0.1%	-0.2%	-0.3%	-0.6%	-6.4%	-5.7%	2.3%	6.6%	31.5%
CASH FLOW STATEMENT										
Net cash inflows from operations	-	-	-	-	-	1,046	568	386	585	4,406
ADB-financed subloan	73	150	268	771	1,071	918	444			
ADB grant	95	870	497	823	245	-	-			
DHI investment	95	101	103	141	196	153	84			
To be identified										
Subtotal cash inflows	**263**	**1,121**	**868**	**1,735**	**1,511**	**2,117**	**1,097**	**386**	**585**	**4,406**
Capital expense	212	1,120	865	1,726	1,493	1,039	491			
Principal repayments								159	159	62
Interest payments	0	2	4	9	18	32	36	88	48	2
Subtotal cash outflows	**212**	**1,121**	**869**	**1,735**	**1,511**	**1,071**	**527**	**247**	**207**	**64**
Net cashflows	**51**	**(0)**	**(1)**	**0**	**(0)**	**1,046**	**570**	**139**	**378**	**4,342**
Cash balance, BOY	50	50	48	44	35	17	1,031	2,232	4,670	11,412
Net cash inflows from operations	-	-	-	-	-	1,046	568	386	585	4,406
Debt service obligations	0	2	4	9	18	32	36	247	207	64
Cash balance, EOY	50	48	44	35	17	1,031	1,563	2,371	5,049	15,753
Debt service coverage ratio	**-**	**-**	**-**	**-**	**-**	**32.7**	**15.9**	**1.6**	**2.8**	**68.8**
BALANCE SHEET										
Current assets	50	48	44	35	17	(8)	33	841	3,519	14,223
Net fixed assets	212	1,331	2,196	3,922	5,415	6,454	6,730	5,414	3,070	257
Assets	**261**	**1,379**	**2,241**	**3,957**	**5,432**	**6,446**	**6,763**	**6,255**	**6,589**	**14,480**

	2018	2019	2020	2021	2022	2023	2024	2030	2040	2052
Current liabilities	-	-	-	-	-	(1)	3	229	452	1,247
Long-term loans	73	223	491	1,261	2,332	3,251	3,695	3,089	1,497	(31)
Equity	188	1,157	1,750	2,696	3,100	3,196	3,066	2,937	4,639	13,264
Liabilities	**261**	**1,379**	**2,241**	**3,957**	**5,432**	**6,446**	**6,763**	**6,255**	**6,589**	**14,480**
Debt/equity ratio	0.39	0.19	0.28	0.47	0.75	1.02	1.21	1.05	0.32	(0.00)
Current assets/current liabilities						12.0	12.0	3.7	7.8	11.4

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

Source: ADB estimates.

Table 14: Income statement-CDCL

Nu million

Particulars	2017	2018	2019
	[Audited]	*[Audited]*	*[Unaudited]*
Income			
Turnover	632.5	683.3	1,824.5
Other Income	56.6	49.7	39.1
Total	**689.1**	**733.0**	**1,863.6**
Expenditure			
Direct Cost	400.8	392.0	1,590.5
Personnel Cost	188.2	219.5	165.5
Other Operating Costs	64.2	62.6	86.7
Finance Cost	6.9	6.2	4.4
Depreciation and Amortization	36.6	50.4	61.0
Total	**696.7**	**730.7**	**1,908.2**
Profit / (Loss) on Operations before Tax	**(7.6)**	**2.4**	**(44.6)**
Tax Expense:			
Tax for prior years		(7.6)	(12.7)
Deferred Tax Income/(Expense)	(0.1)	14.6	7.6
Provision for Current Tax		(3.8)	0.0
Total Income Tax	**(0.1)**	**3.2**	**(5.2)**
Profit / (Loss) after Tax	**(7.6)**	**5.6**	**(49.8)**
Other Comprehensive Income			
Actuarial Gain / Loss on valuation of Employee defined benefit schemes	0.5	(2.2)	(12.4)
Net Other Comprehensive Income	**0.5**	**(2.2)**	**(12.4)**
Total Comprehensive Income - Balance carried over	**(7.1)**	**3.4**	**(62.1)**

Source: Annual reports/financial statements of CDCL

Table 15: **Cashflow statement-CDCL**

			Nu million
Particulars	**2017**	**2018**	**2019**
	[Audited]	***[Audited]***	***[Unaudited]***
A. Cash Flow from operating activities:			
Net Profit / (Loss) [Aggregate of Comprehensive Income] before taxation	(7.1)	3.4	(62.1)
Depreciation and Amortization	36.6	50.4	61.0
Profit on sale/disposal of Property, Plant and Equipment	1.9	(4.3)	(5.2)
Interest Paid on Bank Overdraft	6.9	6.2	4.4
Interest Received on Fixed Deposits	(19.3)	(12.7)	(7.8)
Operating profit before working capital changes	**18.9**	**42.9**	**(9.6)**
Adjustments for Changes in working capital			
Changes in Trade Receivables	(93.4)	38.7	(10.0)
Changes in Accrued Income	14.9	(116.2)	(164.4)
Changes in Inventory	(23.2)	(37.2)	31.9
Changes in Investments	(78.3)	94.8	11.7
Changes in Other Current Asset (Excluding Taxes)	64.0	(176.0)	(251.4)
Changes in Trade and Other Payables	13.9	(2.5)	267.6
Changes in Other Current Liabilities	93.7	332.5	192.0
Changes in Short Term Borrowings	24.8	(9.9)	(3.9)
Changes in Deferred Tax Assets	(12.0)	(9.9)	(3.1)
Changes in Deferred Tax Liability	12.2	(4.7)	(4.5)
Changes in Other Non-current Liabilities		(74.0)	(3.8)
Changes in Income Tax Payable		(18.3)	0.0
Cash Generation from Operations	**16.7**	**17.3**	**62.2**
Income Tax Paid (including TDS)	0.0	0.0	0.0
Net Cash Generation from operating Activities (A)	**35.6**	**60.2**	**52.6**
B. Cashflow From Investing Activities:			
Changes in long term financial investment (Fixed Deposits)	158.0	(9.2)	4.9
Interest Received	19.3	12.7	7.8
Net Purchase of Property, Plant and Equipment	(225.2)	(138.2)	2.3
Sale of Property, Plant and Equipment		0.0	0.0
Adjustment in intangible assets	(2.0)	(4.1)	0.0
Changes in Capital Work-in-Progress	(64.3)	28.4	(76.0)
Changes in Other Non-Current Assets	(60.4)	(8.4)	0.3
Changes in Grant assets received	0.0	0.0	8.4
Net Cash deployed in Investing Activities (B)	**(174.6)**	**(118.9)**	**(52.2)**

C. Cashflow From Financing Activities:			
Interest Paid	(6.9)	(6.2)	(4.4)
Changes in Long Term Employee Benefits	2.5	1.9	3.6
Net Increase in Share Capital	167.4	0.0	(14.2)
Decrease in Retained Earnings	(20.8)	59.6	(29.4)
Changes in Other Non-current Liabilities	0.0	0.0	39.4
Net Cash Generation from Financing Activities ©	**142.2**	**55.2**	**(4.9)**
Net Increase/(decrease) in Cash & Cash Equivalents (A+B+C)	**3.2**	**(3.5)**	**(4.6)**
Cash & Cash Equivalents at the beginning of the year	68.5	71.7	68.3
Cash & Cash Equivalents at the end of the year	**71.7**	**68.3**	**63.7**

Source: Annual reports/financial statements of CDCL

Table 16: Balance Sheet-CDCL

Nu million

Particulars	2017	2018	2019
	[Audited]	*[Audited]*	*[Unaudited]*
Assets			
Non-current assets			
Property, Plant and Equipments	439.7	499.1	442.1
Intangibles	2.7	5.8	4.8
Capital Work- in- Progress	145.4	117.0	193.0
Long Term Financial assets	51.7	65.1	60.1
Deferred Tax Asset		22.0	25.1
Other Non - Current Assets	63.5	71.9	71.5
Total non-current assets	***703.0***	***780.9***	***796.6***
Current assets			
Inventories	116.5	153.6	121.7
Investments	209.5	110.6	98.8
Trade Receivables	296.8	259.2	269.2
Cash and Cash Equivalents	71.7	68.3	63.7
Accrued income	56.3	172.5	336.9
Other Current Assets	67.3	242.9	494.3
Total current assets	***818.0***	***1,007.0***	***1,384.6***
Total Assets	**1,521.0**	**1,787.9**	**2,181.1**
Equity and Liabilities			
Equity			
Paid-up share capital	993.1	981.0	966.9
Retained Earnings	(41.1)	(0.0)	(91.5)
Total equity	***951.9***	***981.0***	***875.4***
Non-current liabilities			
Long Term Employee Benefits	62.1	63.9	73.8
Deferred Tax Liability	1.5	9.0	4.5
Grant Asset	0.0	0.0	8.4
Other Non-Current Liabilities	80.2	6.2	39.4
Total non-current liabilities	***143.8***	***79.1***	***126.1***
Current liabilities			
Short Term Borrowings	93.5	83.6	79.7

Trade Payables and Other Payables	95.7	88.4	356.0
Other Current Liabilities	213.9	552.0	744.0
Current Tax Liabilities	22.1	3.8	0.0
Total current liabilities	**425.3**	**727.8**	**1,179.7**
Total Equity and Liabilities	**1,521.0**	**1,787.9**	**2,181.1**

Source: Annual reports/financial statements of CDCL