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CA MAU URE PROJECT

STUDY QUESTIONS

Question 1: Free Cash Flows

Construct the free cash flow to equity.

- The following tables need to be set up to derive the equity free cash flows
- Parameter table
- Price index table
- Investment cost table
- Depreciation table
- Debt schedule
- Revenue table
- Operating cost table
- Cash flow table

Question 2: Appraisal Criteria

Estimate the NPV and IRR from the equity investors' point of view.

Question 3: Debt Payment Capacity

Estimate the annual debt service coverage ratio (DSCR).

Question 4: Sensitivity Analysis of Investment Cost

The project's investment costs are subject to a lot of uncertainty. Conduct a sensitivity analysis of the equity NPV and IRR when all the investment costs in 2009 prices increase by 10%, 20% and 30%.

Question 5: Sensitivity Analysis of Urea and Gas Prices

Conduct a two-dimensional sensitivity analysis with regards to the equity NPV and IRR when the urea and gas prices vary as follows.

	Percentage change compared to the base case's level			
Urea price	-20%	-10%	10%	20%
Gas price	-20%	-10%	10%	20%

Question 6: Risk Simulation

Below are assumptions on the probability distributions of key parameters of the project.

- The inflation rate for the US dollar follows a uniform distribution with the maximum rate of 5% and minimum rate of 1%.

- The total investment cost (real cost excluding inflation contingency and interests during construction) follows a triangle distribution with the most likely value of US$735.86 million (as in the base case), the maximum value of US$850.5 million, and the minimum value of US$680.76 million.

- The urea price follows a normal distribution with the mean US$307.5 (per ton) and the standard deviation of US$30.75.

- The gas price follows a normal distribution with the mean US$8.17 (per million BTU) and the standard deviation of US$1.23.

- The urea and gas prices are positively correlated with a coefficient of correlation of 0.85.

Run a risk simulation to determine the probability distribution of the equity NPV and IRR.

Question 7: Appraisal Report

Based on the results of questions 1-6, wwrite a short report (400-600 words) to appraise the financial feasibility of the project.