EXPERIMENT 4 PREPARATION OF LOAN AMORTIZATION PLANS

Structure

4.0 OBJECTIVES

After going through this exercise, you will be able to:

- assume the techno-economic basis for calculation of income, expenditure and gross profit;
- explain the method of calculating the profit margin at different period of time; and
- fix the loan repayment schedule with the bank.

4.1 INTRODUCTION

Once you take loan from the bank and execute your production plan, you start getting income from the sale of meat products. In the first year of production, you need not repay the principal but you have to pay the interest on the entire amount of loan. Starting from second year, you should repay the entire principal in five equal monthly installments. Besides, you have to pay the interest to the bank on the basis of balance principal at the end of preceding year. If you want, banker will fix monthly installments to recover principal and interest in different years. You can talk of various flexibilities in the repayment of loan with the bank. In this exercise, we will see a model calculation procedure.

4.2 TECHNO-ECONOMIC BASIS FOR CALCULATION

Calculation of expenditure on the meat processing plant and generation of income as well as gross profit in different years has to be based on certain technical and economic parameters. We have to be practical in these assumptions in order to get a real picture.

The basis for our calculation is as follows:

Production capacity of meat processing plant:	100 kg/day
Number of working days:	300
Capacity utilization	
First year	50%
Second year	65%
Third year onwards	80%

Meat type:	chicken/ mutton
Product range:	sausages, patties, nuggets
Cost of deboned raw meat:	Rs. 150 per kg
Cost of other ingredients in formulation:	Rs. 72 per kg
Proportion of meat and other ingredients:	67:33
Processing and packaging cost:	Rs. 10 per kg
Marketing cost:	Rs. 5 per kg
Salaries:	
Labourers:	Rs. 2500 per month
Skilled workers (2)	Rs. 4500 per month per person

Year wise meat product sale:

I year	II year	III year
50 kg per day	65 kg per day	80 kg per day

Sale price : Rs 200 per kg

Interest rate : 15% per year

Depreciation on plant and machinery :	10% per year
Depreciation on civil structure :	5% per year

4.3 CALCULATION OF GROSS PROFIT

Your expenditure will be on meat, other ingredients and materials processing and packaging, marketing cost and salaries. Gross profit margin will be calculated by subtracting the expenditure form income.

Expenditure for 1st Year

Raw meat required for 100 kg final product = 67 kg (as meat: other ingredients = 67:33)

Raw meat required for 50 kg final product = $50 \times 67/100 = 33.5$ kg

Cost of 33.5 kg raw meat= 33.5 × 150= Rs. 5025.00 (as cost of 1 kg raw meat = Rs. 150.00)

So the cost of raw meat for 1st year production (i.e. for 300 days) = Rs. 1507500

Other ingredients required for 50kg products = $50 \times 33/100 = 16.5$ kg

Cost of 16.5 kg ingredients = Rs. 16.5 × 72= Rs. 1188.00

Therefore, total cost of other ingredients for 1st year (i.e. 300 days) = Rs. 356400.00

Cost of Processing and packaging = Rs. 10 × 50 × 300 = **Rs. 150000.00**

Total marketing cost = Rs. 5 × 50 × 300 = **Rs. 75000.00**

Salary of labours = Rs. 2500 × 12 = Rs. 30000.00

Salary of skilled workers = Rs. 4500 × 2 × 12 = Rs. 108000.00

Total Salary = Rs. 30000.00 + Rs. 108000.00 = **Rs. 138000.00**

Income from sale of meat products = Rs. 50 × 200 × 300 = **Rs. 30,00,000.00**

Similarly, Income and expenditure for 2nd – 7th year are to be calculated.

The calculation in relevant heads is presented in lakhs of Rupees.

Particulars	Years						
	I	II	III	IV	V	VI	VII
Income							
Sale of meat product	30	39	48	48	48	48	48
Expenditure							
Meat	15.08	19.58	24.12	24.12	24.12	24.12	24.12
Other ingredients and material	3.56	4.68	5.76	5.76	5.76	5.76	5.76
Processing and packaging	1.50	1.95	2.40	2.40	2.40	2.40	2.40
Marketing cost	0.75	0.95	1.20	1.20	1.20	1.20	1.20
Salaries	1.38	1.38	1.38	1.38	1.38	1.38	1.38
Total expenditure	22.27	28.54	34.86	34.86	34.86	34.86	34.86
Gross profit	7.73	10.46	13.14	13.14	13.14	13.14	13.14

4.4 LOAN REPAYMENT SCHEDULE

Term Loan: 5.37 lakh (see 3.2)

Rate of interest: 15%

You have to repay the term loan to bank along with prescribed interest. In six years time, you will be able to repay the entire principal to the bank. Although depreciation of civil work and machinery should be deducted from gross profit, minute details have been avoided to make it easy and create general awareness regarding calculation of gross profit and loan repayment plan.

Year	Bank Loan at the		Gross Profit	Repayment Principal	Interest on Term Loan	Total Repayment
	Begining of the Year	End of the Year				
I	5.370	5.370	7.73	0.0000	0.806	0.806
II	5.370	4.296	10.46	1.074	0.806	1.880
III	4.296	3.222	13.14	1.074	0.644	1.718
IV	3.22	2.148	13.14	1.704	0.483	1.557
V	2.148	1.704	13.14	1.074	0.322	1.396
VI	1.704	0.000	13.14	1.704	0.161	1.235

4.5 ACTIVITY

Calculate gross profit and prepare loan repayment schedule for a processing plant which has a production capacity of 100 kg mutton kebab per day. Consider that the bank loan has to be repaid within 6 years.

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