

Case I: Decision Making – Advice on continuing a project

Learning

- Relevant Costing
- Appropriateness of Total Cost Approach

A research project, which to date has cost the Beefix Ltd. Rs.15,00,000, is under review. It is anticipated that, should the project be allowed to proceed, it will be completed in approximately one year and the results would be sold to a government agency for Rs.30,00,000.

Shown below are the additional expenses, which the managing director estimates will be necessary to complete the work.

Materials – Rs.600000

This material, which has just been received, is extremely toxic and if not used on the project would have to be disposed of by special means, at a cost of Rs.50000.

Labour Rs.400000

The men are highly skilled and very difficult to recruit. They were transferred to the project from a production department and, at a recent board meeting, the works director claimed that if the men were returned to him he could earn the company each year Rs.1500000 extra sales. The accountant calculated that the prime cost of those sales would be Rs.1000000 and the overhead absorbed (all fixed) would amount to Rs.200000.

Research staff – Rs.600000

A decision has already been taken that this will be the last major piece of research undertaken, and consequently when work on the project ceases the staff involved will be made redundant. Redundancy and severance pay have been estimated at Rs.250000. This is payable if they are relieved now. If they leave after the project the consolidated amount will be Rs.600000

Share of general building services – Rs.350000

The managing director is not very sure what is included in this expense. He knows, however, that the accounts staff charges similar amounts every year to each department.

Required

Assuming the estimates are accurate, advise the managing director whether the project should be allowed to proceed. You must carefully and clearly explain the reasons for your treatment of each expense item.

Case II: Decision Making – Quoting for One-off offer.

Learning

- Relevant Costing
- Different numbers for different purposes

A small contractor has been asked to quote for a contract, which is larger than he would normally consider. The contractor would like to obtain the job as he does have surplus capacity.

The estimating and design department has spent 200 hours in preparing drawings and the following cost estimated:

Direct Material:		(Rs.)
3000 units of X at Rs.100 (original cost)	See note 1	300,000
100 units of Y (charged out using FIFO)	See note 2	
50 units at Rs.1000	Rs.50000	
50 units at Rs.1250	<u>Rs.62500</u>	
		112,500
Direct material to be bought in:	See note 3	120,000
Direct labour:		
Skilled staff (2720 hours at Rs.50 per hour)	See note 4	136000
Trainees (1250 hours at Rs.20 per hour)	See note 5	25,000
Depreciation on curing press:	See note 6	
Annual depreciation (SLM) Rs. 120000		
One month's depreciation		10,000
Subcontract work	See note 7	200,000
Supervisory staff	See note 8	61,500
Estimating and design department:	See note 9	
200 hours at Rs.100/ Hr	Rs.20000	
Overtime premium for 50 hours	<u>Rs.5000</u>	<u>25000</u>
		990,000
Administration overhead at 5% of above	See note 10	<u>49,500</u>
Costs		<u>1039,500</u>

The following notes may be relevant:

- 1) A sufficient stock of raw material X is held in the stores. It is residue of a quantity bought some 10 years ago. If this stock is not used on the prospective contract it is unlikely that it will be used in the foreseeable future. The net resale value is thought to be Rs.200,000.
- 2) Material Y is regularly used by the contractor on a variety of jobs. The current replacement cost of the material is Rs.1300 per unit.
- 3) This is the estimated cost of the required material.
- 4) Staffs are paid on a time basis for a 40-hour week. The labour hour rate includes a charge of 100 % of the wage rate to cover labour related overhead costs. It is estimated that, at the current level of operations, 80% of the overheads are variable. It is considered that one extra worker will be required temporarily of 3 months if the contract is obtained. His salary of Rs.1000 per week (and the associated amount of labour related overhead expense) is included in the estimate of Rs.136000.
- 5) No additional trainees would be taken on. The trainees wage rate is Rs.10 per hour but their time is charged out of at Rs.20 to allow for labour related overhead on the same basis as in note 4 above.
- 6) The curing press is normally fully occupied. If it is not being used by the contractor's own workforce it is being hired out at Rs.5000, per week.

- 7) This is the estimated cost for the work.
- 8) It is not considered that it would be necessary to employ any additional supervisory staff. The estimated cost of Rs.61500 includes an allowance of Rs.10000 for overtime, which it may be necessary to pay to the supervisors.
- 9) The expense of this department is predominantly fixed but the overtime payments were specifically incurred to get the drawings and plans out in time.
- 10) The administrative expense is a fixed cost. This is the established method of allocating the cost to specific contracts.

It is considered that any quotation higher than Rs. 10,00,000 will be unsuccessful. You are required to prepare a revised cost estimate using an opportunity cost approach. State whether you consider that the revised calculations can provide support for a quotation below Rs.1000000.

Case III: Decision Making – Quoting for One-off offer.

Learning

- Relevant Costing
- Different numbers for different purposes

Itervero Ltd, a small engineering company, operates a job order costing system. It has been invited to tender for a comparatively large job, which is outside the range of its normal activities, and, since there is surplus capacity, the management are keen to quote as low a price as possible. It is decided that the opportunity should be treated in isolation without any regard to the possibility of its leading to further work of a similar nature (although such a possibility does exist). A low price will not have any repercussions on Itervero's regular work.

The estimating department has spent 100 hours on work in connection with the quotation and they have incurred travelling expense of Rs.5500 in connection with a visit to the prospective customer's factory overseas. The following cost estimate has been prepared on the basis of their study.

Inquiry 205H / 81	
Cost estimate	(Rs.)
Direct material and components:	
2000 units of A Rs.250 per unit	50 0000
200 units of B at Rs.100 per unit	2 0000
Other material and components to be brought in (specified)	<u>12 5000</u>
	64 5000
Direct labour:	
700 hours of skilled labour at Rs.35 per hour	2 4500
1500 hours of unskilled labour at Rs.20 per hour	3 0000
Overhead:	
Department P (200 hours at Rs.250 per hour)	5 0000
Department Q (400 hours at Rs.200 per hour)	8 0000
Estimating department:	
100 hours at Rs.50 per hour	5000
Travelling expenses	5500
Planning department:	
300 hours at Rs.50 per hour	<u>1 5000</u>
	<u>Rs.855000</u>

The following information has been brought together:

Material A: This is a regular stock item. The stock holding is more than sufficient for this job. The material currently held has an average cost of per Rs.250 per unit but the current replacement cost is Rs.200 per unit.

Material B: A stock of 4000 units of B is currently held in the stores. This material is slow-moving and the stock is the residue of a batch bought seven years ago at a cost of Rs.100 per unit. B currently cost Rs.240 per unit but the resale value is only Rs.180 per unit. A Foreman has pointed out that B could be used as a substitute for another type of regularly used raw material, which costs Rs.200 per unit.

Direct labour: The workforce is paid on time basis. The company has adopted a 'no redundancy' policy and this means that skilled workers are frequently moved to jobs, which do not make proper use of their skills. The wages included in the cost estimate are for the mix of labour, which the job ideally requires. It seems likely, if the job obtained, that most of the 2200 hours of direct labour will be performed by skilled staff receiving Rs.35 per hour.

Overhead: Department P: Department P is the one department of Itervero Ltd that is working at full capacity. The department is treated as profit centre and it uses a transfer price of Rs.250 per hour for charging out its processing time to other departments. This charge is calculated as follows:

	(Rs.)
Estimated variable cost per machine hour	100
Fixed departmental overhead	80
Department profit	<u>70</u>
	<u>250</u>

Department P's facilities are frequently hired out to other firms and a charge of Rs.300 per hour is made. There is a steady demand from outside customers for the use of these facilities.

Overhead – Department Q: Department Q uses a transfer price of Rs.200 for charging out machine processing time to other departments. This charge is calculated as follows:

	(Rs.)
Estimated variable cost per machine hour	80
Fixed departmental overhead	90
Department profit	<u>30</u>
	<u>200</u>

Estimating department: The estimating department charges out its time to specific jobs using a rate of Rs.50 per hour. The average wage rate within the department is Rs.25 per hour but the higher rate is justified as being necessary to cover departmental overheads and the work done on unsuccessful quotations.

Planning department: This department also uses a charging out rate, which is intended to cover all department costs.

You are required to restate the cost estimate by using an opportunity cost approach. Make any assumptions that you deem to be necessary and briefly justify each of the figures that you give.

Case IV: Earned Value

Learning

- Basics of Earned Value Management

Squareonthehypotenuse undertook the project to complete "The Mansions of Gods" a township project valued at about Rs.2000 Crores. At about 40% level of completion the actual cost incurred was Rs.1200 crores. By this time he should have completed 50% of the work.

Required

Compute the following

Budgeted cost At Completion	BAC	Rs.2000 Cr
Actual Cost at 40% Completion	AC	Rs.1200 Cr
Budgeted Cost of Work Scheduled	PV =	
Budgeted Cost of Work Performed	EV =	
Schedule Variance	SV =	
Cost Variance	CV =	
SPI		
CPI		
Estimate At Completion (Assuming that the current cost overrun will continue)		

Case V: Earned Value Management – Computing EAC

Learning

- Recap & EAC

Eg:	BAC	PV	EV	AC
1	2,000	1,000	1,000	1,000
2	2,000	1,000	800	800
3	2,000	1,000	1,000	800
4	2,000	1,000	1,200	800
5	2,000	1,000	800	1,000
6	2,000	1,000	1,200	1,000
7	2,000	1,000	800	1,200
8	2,000	1,000	1,000	1,200
9	2,000	1,000	1,200	1,200
10	2,000	1,000	600	800
11	2,000	1,000	800	600
12	2,000	1,000	1,400	1,200
13	2,000	1,000	1,200	1,400

Compute:

Eg:	SV	CV	SPI	CPI	EAC
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Case VI: Earned Value Management – Computing EAC & ETC

Learning

- EAC & ETC under different assumptions

Week	PV	AC	EV
1	1,000	1,000	1,000
2	2,000	2,000	2,000
3	4,000	5,000	4,000
4	7,000	8,000	6,000
5	10,000	12,000	9,000
6	12,000	13,000	11,000
7	13,000	14,000	11,500
8	14,000	14,500	13,000
9	15,000	15,000	14,500
10	16,000	16,000	15,500
11	16,000	17,000	16,000

Compute CV, SV, CPI, SPI

Compute EAC and ETC assuming:

- The trend will continue for the future costs levels
- The trend will not continue

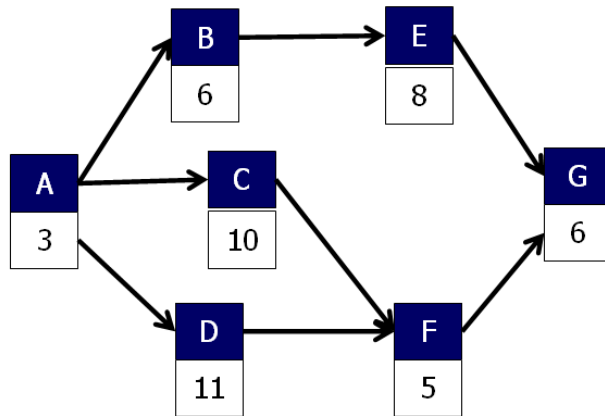
Week	CV	SV	CPI	SPI	EAC (a)	ETC (a)	EAC (b)	ETC (b)
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								

c) Case VII: Cost Impact of Crashing the Project Duration

Learning

- Understanding the Cost impact of Crashing the Project

AON Diagram of Project Laksya. (Duration are in months and Value is in Rs. Crore)



Total Direct Cost Rs.450 Cr.

Total Indirect Cost Rs.400 Cr.

Total Project Cost Rs.850 Cr.

Activity
Duration

There is an option to crash the project duration as much as possible. Any crashing of the duration of the specific activity months will lead to increase in Project Direct Cost; whereas any reduction in the total duration will result in a reduction of Rs.50 crore per month of reduction in Project Indirect Cost. The impact on the direct cost is given in the table below. The second column increment means the incremental cost of every month of crashing per activity and the next column details the maximum crashing per activity possible.

Directs costs per activity						
Duration in mths; Rs. Crore						
			Normal		Crash	
Activity ID	Incremental cost per month	Max. Crash time	Time	Cost	Time	Cost
A	20.00	1	3	50	2	70.00
B	40.00	2	6	80	4	160.00
C	30.00	1	10	60	9	90.00
D	25.00	4	11	50	7	150.00
E	30.00	2	8	100	6	160.00
F	30.00	1	5	40	4	70.00
G	-	0	6	70	6	70.00

Compute the best possible duration.