

Main Building Refurbishing Project at NIM

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This case is about ad-hoc planning and its merits and demerits for project execution especially for the projects with no rewards for early completion. It gives an opportunity to look at project execution from multiple dimensions as various stakeholders are involved with it. It provides an insight for using some project techniques like Gantt chart and also estimation of certain costs.

Issue at the Core

Director of National Institute of Management (NIM) is worried about slow progression of Main Building Refurbishing Project (MBRP) awarded to Mid-India Construction Company (MICC). MBRP was awarded to MICC through a competitive tendering process on 21st November 2012 for a project cost of Rs. 3 crores to be completed within 8 months. This project is being reviewed by the Director of NIM in December 2012 and he seems to be worried about the slow progress and a possible delay in completion that will have its own consequences on various stakeholders.

MICC's Ad-hoc Planning

Let us look at MICC's planning for the project.

As per Exhibit-1, MBRP consisted of refurbishing work that consists of 28,000 square meter (sqm) of external surface area and 24,400 square meter of internal surface area. MICC has divided this work into 14 equivalent work-fronts each comprising 2000 sqm of external surface area and 1743 sqm of internal surface area. One month has already gone by and there is little information about the completion of work in that month. MICC has plans to complete entire project in next 7 months (210 days) by setting a target of completing 2 work-fronts every month.

Feasibility of Ad-hoc Planning: Time

Detailed study of Exhibit-1 and Exhibit-2 reveals that with one scaffolding (sufficient enough to serve one

work-front of 2000 sqm), project will complete in $68 \times 7 = 476$ days with two scaffolding as per plan. However, this will not be a correct estimate. Activity H - removal of scaffolding precedes activity I - preparation for exterior painting. Refurbishing work for external surface is totally independent of internal surface work. Hence both can run simultaneously. One can remove scaffolding after 8th day of work and it takes 2 days to remove scaffolding for a 2000 sqm work-front. However, at the same point of time erection of scaffolding (Activity A) for the next work-front can commence immediately on 9th day or 10th day. Conservatively, we may consider that scaffolding is required for 10 days on a particular work-front and then it is available for the next work-front. Considering this fact, it will take 160 days ($10 \text{ days} \times 14 + 20 \text{ days}$) to complete entire project against the availability of 210 days from today. This is well within the realm of project completion conditions.

Feasibility of Ad-hoc Planning: Cost vs. Benefit

Let us also look at the economic feasibility of this project for MICC.

Following table (Table-1) gives broad estimate of the project cost and benefit to MICC. It turns out to be approximately 10 % margin for MICC from this project excluding cost of initial capital.

Adding More Scaffoldings

Scaffolding for 2000sqm work-front incurs onetime cost of Rs. 270,000. If we add more scaffolding, it remains to be seen as to what would be its impact on working capital requirement, and project completion time. If we start with 2 scaffolding, entire project will get over in 90 days with an incremental cost of Rs. 270,000 and a stretched cash-flow. It would approximately require Rs. 90 lakhs as a one-time monthly working capital infusion as compared to Rs. 45 lakhs in case of 160 days as originally planned. Rest of the fund requirements will be taken care by monthly payment cycle as given in Exhibit-2 of the case. More than 2 scaffolding will not

be feasible economically if this project has to be funded by internal accruals of the project itself.

For the sake of simplicity, we have assumed zero scrap value of the scaffolding. One should also explore the possibility of taking scaffolding on rent.

Motivation for Fast Track Execution

- MICC

- If MICC can earn 10 percent profit on the tendered project well within the tendered duration of 7 months from today (8 months - original plan), why would it like to expedite? There is clearly no

motivation for MICC for early completion even though it can complete it in 160 days against planned 210 days as it is a government tendered project. At best, it can negotiate fast payment terms in absence of any rewards for putting it on fast track.

- Looking at the other angle, if MICC has other viable projects in its portfolio it can think of completing this project early to free up resources. Theoretically, if it is a cash rich company that can deploy Rs. 3 crores in one go in one month, it has an opportunity of earning 10 % return in one

Table-1

Activity	Work (sqm)	No. of Teams	Work rate (sqm/team /day)	No. of Days	Direct Cost: Labour +Material Rs./sqm	Total Direct Cost (rupees)
	(1)	(2)	(3)	(4) = (1)/(2*3)	(5)	(6) =(1*5)
A	2000	4	250	2.00	33	66,000
B	2000	11	36.36	5.00	85	1,70,000
C	2000	11	36.36	5.00	75	1,50,000
D	200	1	40	5.00	93	18,600
E	200	1	40	5.00	95	19,000
F	2000	8	41.67	6.00	207	4,14,000
G	2000	8	41.67	6.00	188	3,76,000
H	2000	5	400	1.00	19	38,000
I	2000	12	33.33	6.00	19.5	39,000
J	2000	6	62.5	6.40	37	74,000
K	2000	6	62.5	6.40	66	1,32,000
L	2000	10	40	6.25	66	1,32,000
M	1743	7	41.5	4.20	22	38,346
N	1743	5	51.26	6.80	22	38,346
O	1743	5	51.26	6.80	53	92,379
P	1743	6	41.5	7.00	53	92,379
Direct Labour and Material Cost/work-front (7)						18,90,050
Direct Supervision Cost (8)- given in the case						19,283
Scaffolding Cost (9) - given in the case						2,70,000
Total Cost for a typical work-front(10) = (7) + (8) + (9)						21,79,333
Total (11) = 14*{(7) + (8)} + (9)						2,70,00,663
Project Revenue						3,00,00,000
Profit						29,99,339
Profit Margin						10.02 %

month itself as compared to deploying Rs. 50 lakhs over next 6 months and earns 10% on it with a smooth cash flow. Assuming that resources are available, this will add some pressure to the supervision cost and logistical requirements on the field but looking at the arch structure of the building it is quite possible. Even if it is funding this project with borrowed capital, let's say 1 - 1.5 % p.m., it can still earn a return of 8.5 - 9 % in a month. Withholding cost given in Exhibit-2 of the case does not deter any contractor for a slow execution. Clearly, there is no motivation for MICC to put project on fast-track in the present scenario unless it has a better opportunity somewhere else.

- iii. MICC can definitely earn a goodwill that may help it for future participation in tenders.

- **NIM**

- i. Non-availability of classroom blocks at the commencement of the academic year does not augur well. It will entail additional cost of alternate arrangements for NIM along with erosion of goodwill.
- ii. Even for student fraternity, it will be difficult situation if this work gets delayed as it involves safety risk during progression of the work and also it may disturb some academic activities.

However, none of these leads to any tangible benefit for early completion to MICC.

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