



CONSTRUCTION STAFF PLANNING

PROJECT SUCCESS IS TEAM SUCCESS

Experienced construction personnel are becoming dearer and dearer.
Harnessing them needs:

- Assessment of staff skill in depth and providing right assignment .

- Assignment on track with dynamic project schedules.

- Metrics for measuring individual turnover of work.

- Identify their potential and provide challenges.

- Recognition and reward of staff with Transparent appraisal system.

ROBUST STAFFING PROCESS

Makes for Organisation breakdown structure(OBS) aligning with Work breakdown structure(WBS) of L2 level project planning .

Illustration: WBS - Pipe rack

■ Key work item-	Concrete
■ Original schedule-	start 10/6/21 completion 30/9/21
■ Revised schedule-	start 15/7/21 completion 10/10/21
■ Scope of key work item-	1200 M3 Concrete
■ Progress on date -	750 M3 concrete

[illegible]

ROBUST STAFFING PROCESS - contd

Applies staff productivity and organisation manning norms which are established with years of experience in the company. Corrections are applied for complexity of job and site conditions.

E.g monthly work quantum norms- Concreting

<u>Category</u>	<u>Quantum</u>	<u>Manning norm</u>
Frontline	250M3	Productivity
Exe Planning	1250M3	One for five frontline
Section head	1250M3	One for each WBS
Quality control	800M3	Common for WBSs
Quantity Survey	2000M3	Common for WBSs

Technical Inputs for Concreting

For 10 m³

Drawing Study	25m ³ /60 min	25 Min
Shuttering Scheme	25m ³ /30 min	15 Min
Bar Bending Schedule	15m ³ /hr	40 Min
Site Inspection / Documentation	10m ³ /hr	60 Min
Total		140 Min

Concreting Staff Productivity

Direct Staff Inputs

140 min/10m

Production for a day

$$\frac{10T}{140} \times 270$$

$$= 18m^3/day$$

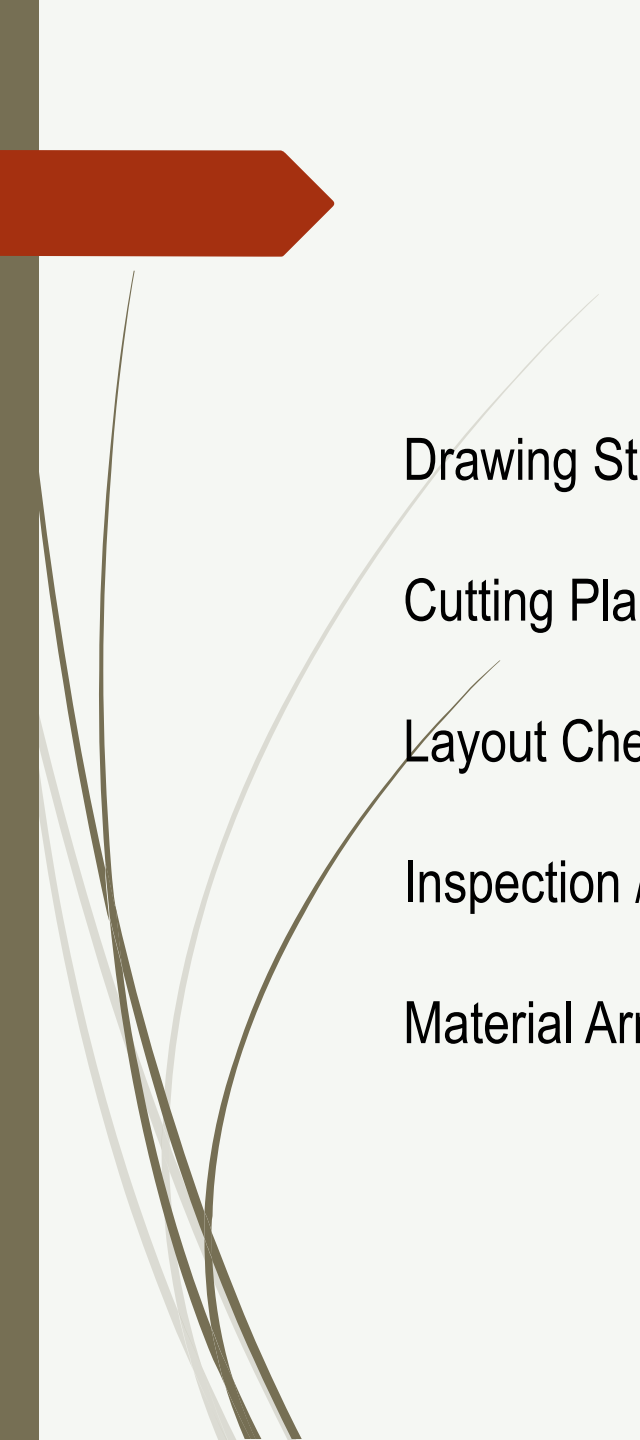
$$= 450m^3/month$$

i.e.

- 1) He should handle
- 2) He can invoice without cement and steel

130 Workmen
9L/Month

Technical Inputs for Structural



		<u>For 10 T</u>
Drawing Study	180 min. / 15 T	120 min.
Cutting Plans	60 min. / 15 T	40 min.
Layout Checks	60 min. / 15 T	40 min.
Inspection / Protocol	180 min. / 50 T	36 min.
Material Arrangement	120 min. / 50 T	24 min.
		260 min.

Structural Staff Productivity

Direct staff inputs = 260 min. / 10 T

Productivity achievable in a day = $10 / 260 \times 270$

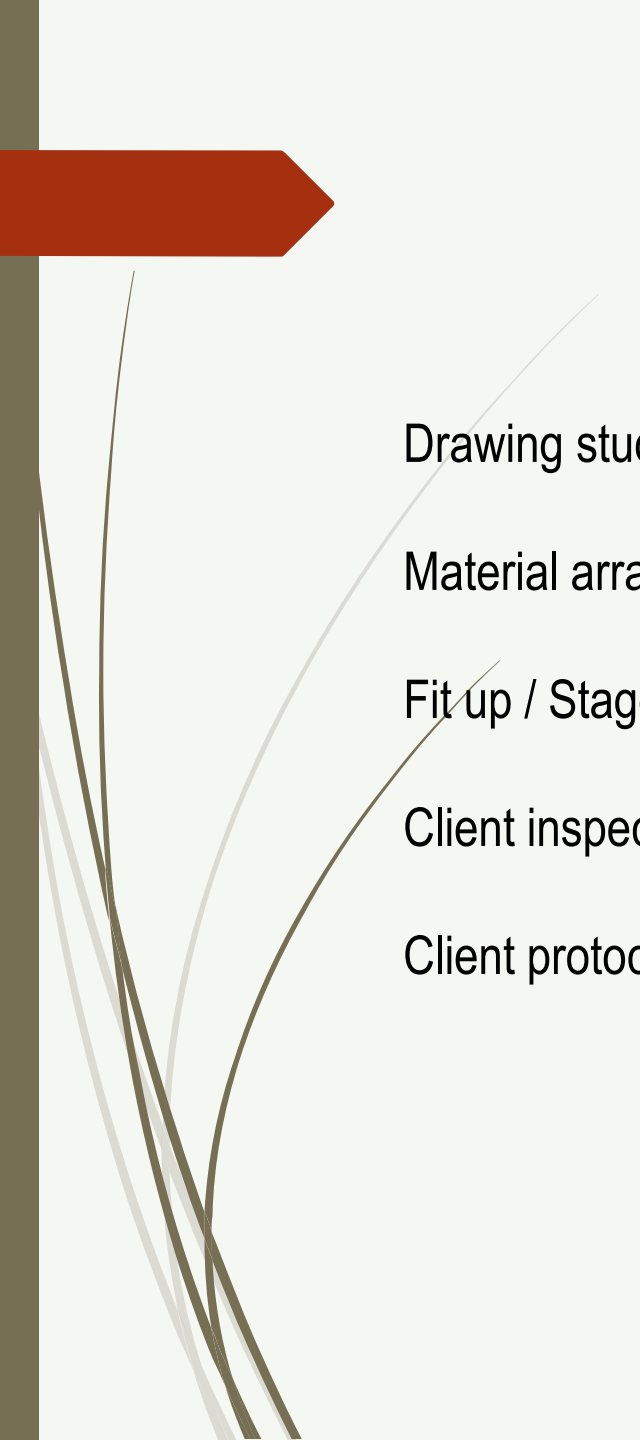
= $\simeq 10$ T

= $\simeq 250$ T / month

i.e. i. He should handle 12 gangs

ii. He should invoice 12 Lakhs per month

Staff Technical Inputs for Piping



		<u>For 100 ID</u>
Drawing study	45 min. / 200 ID	22 Min.
Material arrangement	150 min. / 1500 ID	10 Min.
Fit up / Stage inspection	90 min. / 250 ID	36 Min.
Client inspection	120 min. / 500 ID	24 Min.
Client protocol	120 min. / 1000 ID	12 Min.

104 Min.

Piping Staff Productivity

Direct surplus per 100 ID = 104 min. / day

Production achievable in a day = $100 / 104 \times 270$ (Direct input time avlbl.)

= $\simeq 260$ ID

= $\simeq 7000$ ID / month

i.e. i. He should handle 8 – 10 gangs
i.e. 80 – 100 workmen.

ii. He can invoice 8 – 10 Lakhs per month

Staff productivity norms monthly

S no	Work item	Gang handle	Quantum	
1	Concrete	90	400 m3	
2	Steel fab	120	200 ton	
3	Erection	70	250 ton	
4	Piping fab	80	8000 ID	
5	Piping ern	50	5000 ID	
6	Equip rotary	45	250 ton	
7	Equip static	65	700 ton	

ROBUST STAFFING PROCESS - contd

The system assigns individual staff with matching skill mapping who are releasable from running projects or new recruits.

Illustration of Skill mapping:

Name:	Krishnan
Grade:	G2
Skill 1:	Structural fabrication
Skill 2:	Piping fabrication
Function 1:	Execution engineer
Function 2:	Planning engineer

Skill mapping exercise is done by engaging with the staff and understanding what he is good at and get validation by seniors.

ROBUST STAFFING PROCESS- contd

Staff assignment is done for all the WBSs for disciplines-Civil, Structural, piping, equipment, E&I and common setup and construction organisation is prepared.

Review of overall staff turnover (E.g Rs 10L per staff month) and overhead cost versus initial estimates, is done and corrections are applied.

Periodical updation of WBS status - progress, schedule dates and staff joining/release dates are done.

Analysis reports – Plan versus actual gap analysis, requirement projection for future jobs, productivity performance of individual and overall level etc can be taken from the system

Defining Core Skills and Functions & Categorizing all Personnel based on it

Consolidating M4 (Manpower Schedule) for all Operative Projects

Creating consolidated M4 for all Anticipated Projects

M4 Mapping to derive requirements based on Skill, Function & Cadre

Building Strategies for fulfilling requirement

Current Employee Details		Release	Cadre	Skills		Functions	
Current Job	Staff Name	S4 Rel. Date	Cadre Desc	1	2	1	2
BURQ5595	BANDYOPADHYAY S	May-06	SO	Structural	Eqpt Erection	Execution	Planning
CHRV5936	ALOKE NATH BANERJEE	Jun-06	SO	Structural	Piping	Site Incharge	
CHRX6410	ANANTA BASU	Sep-06	O	Structural	Eqpt Erection	Execution	
AUOL3587	BABURAJ G	Jul-06	Sup-C	CC Pipeline	Structures	Execution	Planning
DHRQ4932	CHITTA RANJAN NAYAK	Sep-06	Sup-B	Piping	Specialized	Execution	

Core Skills

- Piping
- Civil
- Equipment
- Structural
- Cross Country Piping

Core Functions

- Execution
- Planning
- Contracts
- QA / QC
- Site Incharge

Skill & Function wise Categorization done for all the Personnel

Project Management Manpower Planning

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Anticipated Projects Requirement - Senior Officer (SO) (Example)

Skill Description: P - PIPING, C - CIVIL, E - EQUIPMENT, S - STRUCTURE, CC - CROSS COUNTRY

DESCRIPTION	Jun' 06					Jul' 06					Aug' 06					Sep' 06					Apr' 07			
	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S
RIL - JAMNAGAR	9		6	3	3	9		6	3	3	9		6	3	3	9		6	3	3	9		6	3
RIL - KAKINADA	1		1			1		1			1		1			1		1			1		1	
KAFCO - KUWAIT	1		1		1	1		1		1	1		1		1	1		1		1	1		1	
RIL - PIPELINE		1	2				1	2				1	2				1	2				1	2	
GSPL - GUJARAT																								
IOCL - PANIPAT	3		2	1	1	3		2	1	1	3		2	1	1	3		2	1	1	3		2	1
Total SO Required	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5	14								

Skill wise monthly requirements identified for all anticipated projects

Consolidated S4 for Anticipated Projects																projects											
Cadre	Jun' 06					Jul' 06					Aug' 06					Sep' 06					Oct' 06					Nov' 06	
	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC
M5	2	2	6	1	2	2	2	6	1	2	2	2	6	1	2	2	2	6	1	2	2	2	6	1	2	2	2
M2	4	0	5	0	3	4	0	5	0	3	4	0	5	0	3	4	0	5	0	3	4	0	5	0	3	4	0
M1	14	4	16	4	4	14	4	16	4	4	14	4	16	4	4	14	4	16	4	4	14	4	16	4	4	14	4
SO	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5	14	1
O	31					31					31					31					31					31	
A	59	9	4			59	9	4			59	9	4			59	9	4			59	9	4			59	9
B	123					123					123					123					123					123	
C	71					71					71					71					71					71	
GRADED	4					4					4					4					4					4	
NON - SUP	44	34	41	10	10	44	34	41	10	10	44	34	41	10	10	44	34	41	10	10	44	34	41	10	10	44	34

Cadre and Skill based overall requirement derived

Project Management Manpower Planning

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M4 Mapping to derive requirements based on Skill, Function & Cadre

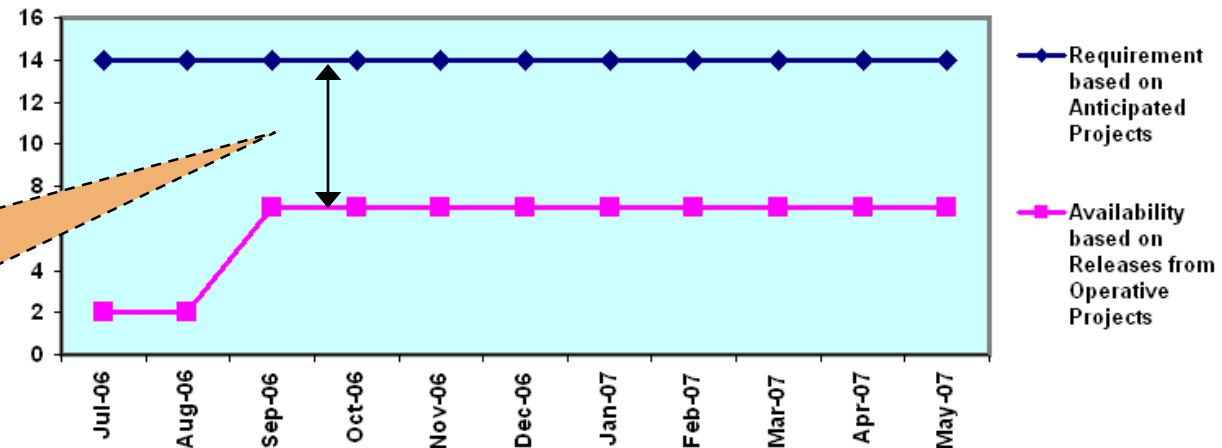
Building Strategies for fulfilling requirement

CADRE	PROJECT CATEGORY	Jul' 06					Aug' 06					Sep' 06					Oct' 06				
		P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E	P	CC	C	S	E
SO	Anticipated Projects Req	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5	14	1	12	4	5
SO	Operative Projects Release	2	7	0	1	0	2	9	0	1	1	7	12	3	5	1	7	13	3	6	1

Cadre & Skill wise requirement identified taking into the consideration the Releases from Operative projects

Sustained deficit of 7 no.s SO cadre Piping personnel to be addressed through various strategies like Recruitment, Transfers etc

Net Requirement		Cadre - SO					Skill - Piping					(Example)	
Month		Jul-06	Aug-06	Sep-06	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	Apr-07	May-07	
Required		14	14	14	14	14	14	14	14	14	14	14	
Available		2	2	7	7	7	7	7	7	7	7	7	

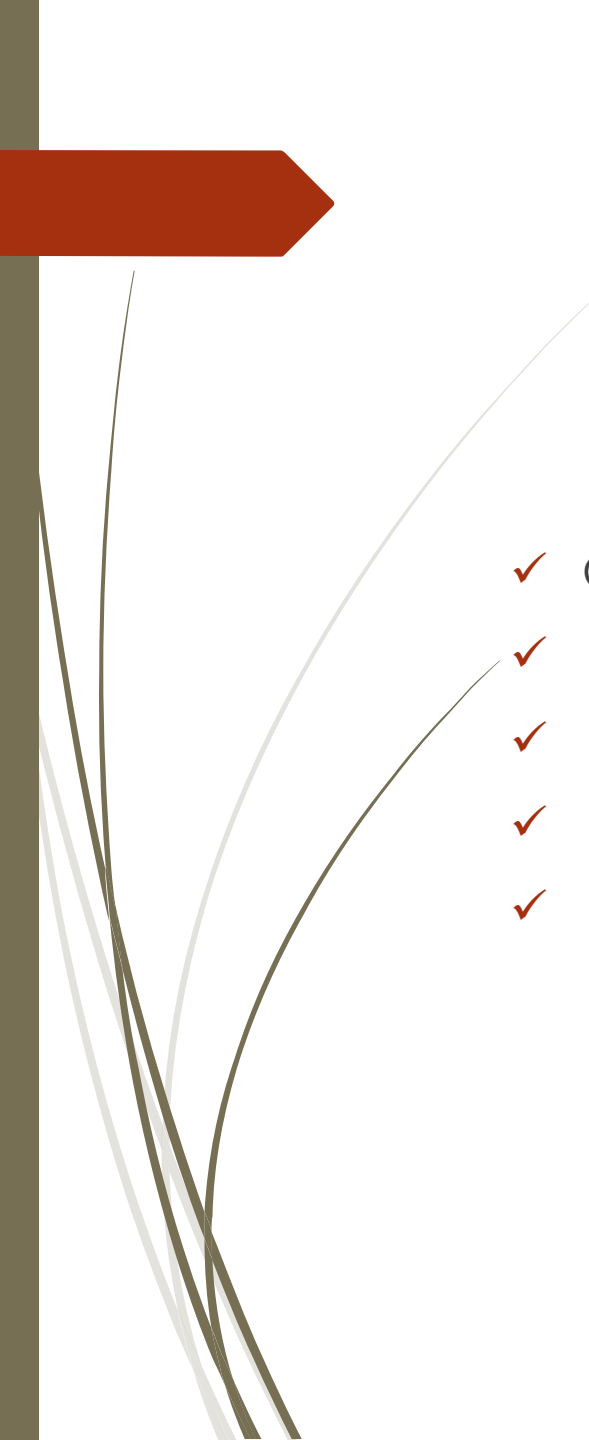


KEEPING UP THE SYSTEM

- Regular updation of WBS planning
- Quantity survey scope updation and progress reporting WBS wise.
- Skill mapping and updation for existing staff and new recruits
- Centralised resource team for staff assignment and release.
- Management review of productivity performance of site/individual

BENEFITS

- Automated staff planning for mobilisation/release and staff notices. Timely actions for staff assignment and releases.
- Seamless plan/ actual and gap reporting at site and company level
- Right man for right job. Proper allocation sets career path
- Staff budget cost control on track all the time.
- Tool for staff career development and appraisal.



OUR OFFERING

- ✓ Cloud based IT system for easy multi access working.
- ✓ Initial system set up project wise and handholding implementation
- ✓ Provide personnel at site for system Implementation
- ✓ Continuous updation of system meeting your requirements
- ✓ Partner for overhead cost control

THANK YOU

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