

APPENDIX 3.20L A WORKED EXAMPLE FOR DETERMINING OVERLOADING PERCENTAGE

Technical and Fee Proposals are received from Consultants W for Assignment A which adopts a total weighted manpower ratio of 4:2:1 for Partner/Director & Chief Professional : Senior Professional & Professional : Assistant Professional & Technical. After checking with the PWCRAR and seeking confirmation from the consultants on the overloading situation, the reduction factors for the “Adequacy of Professional and Technical Manpower Input” attributes in tender assessment are calculated as follows.

The tables shaded in grey are related to the manpower input of other concurrent tenders or on-going consultancies in the PWCRAR, and the computation carried out by the PWCRAR which will not be presented to the procuring departments.

Overloading due to on-going consultancies and concurrent tenders

The manning schedule submitted by Consultants W for Assignment A is shown in the table below.

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	1	-	1	-	1	-	1	-	1	-	1	-	6
S2	CP	-	0.5	-	0.5	-	0.5	-	0.5	-	0.5	-	0.5	3
S3	CP	0.5	-	0.5	-	0.5	-	0.5	-	0.5	-	0.5	-	3
	SP	2	2	2	2	2	2	2	2	2	2	2	2	24
S4	P	3	3	3	3	3	3	3	3	3	3	3	3	36
S5	P	3	3	3	3	3	3	3	3	3	3	3	3	36
S6	AP	3	3	3	3	3	3	3	3	3	3	3	3	36
S7	AP	3	3	3	3	3	3	3	3	3	3	3	3	36
S8	T	3	3	3	3	3	3	3	3	3	3	3	3	36
S9	T	3	3	3	3	3	3	3	3	3	3	3	3	36
S10	T	3	3	3	3	3	3	3	3	3	3	3	3	36

Table 1 - The manning schedule proposed by Consultants W for Assignment A

Based on the manning schedule in Table 1, the total weighted average manpower input proposed by Consultants W for Assignment A is 60 man-weeks as follows:

$$= (4 / 7) \times (6 + 3 + 3) + (2 / 7) \times (24 + 36 + 36) + (1 / 7) \times (36 + 36 + 36 + 36 + 36)$$

$$= 60 \text{ man-weeks}$$

The PWCRAR identifies that Consultants W have been working on one on-going consultancy and participating in four concurrent tenders (i.e. Tenders B, C, D and E). Among these four concurrent tenders, Tenders B and C are not paired with each other while Tenders D and E are paired with each other. There are four and five bids received under each of Tenders B and C and each of Tenders D and E respectively.

The manpower input of named professional staff of Consultants W in the on-going consultancy who have also been involved in Assignment A is recorded by the PWCRAR as below:

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	1	-	1	-	1	-	1	-	1	-	1	-	6
S2	CP	-	1	-	1	-	1	-	1	-	1	-	1	6
S3	SP	2	2	2	2	2	2	2	2	2	2	2	2	24
S4	P	2	2	2	2	2	2	2	2	2	2	2	2	24
S5	P	2	2	2	2	2	2	2	2	2	2	2	2	24

Table 2 - The manpower input of concerned named professional staff of Consultants W in the on-going consultancy

The manpower input of named professional staff of Consultants W in the concurrent Tenders B and C who have also been involved in Assignment A is recorded by the PWCRAR as below:

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	1	-	-	-	1	-	-	-	1	-	-	-	3
S2	CP	-	2	2	2	-	2	2	2	-	2	2	2	18
S3	SP	-	1	-	2	-	1	-	2	-	1	-	2	9
S4	P	1	1	1	1	1	1	1	1	1	1	1	1	12
S5	P	2	2	2	2	2	2	2	2	2	2	2	2	24

Table 3 - The manpower input of concerned named professional staff of Consultants W in the concurrent Tender B

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	-	-	1	-	-	-	1	-	-	-	1	-	3
S2	CP	2	-	-	-	2	-	-	-	2	-	-	-	6
S3	SP	-	2	-	1	-	2	-	1	-	1	-	1	8
S4	P	3	3	3	3	3	3	3	3	3	3	3	3	36
S5	P	2	2	2	2	2	2	2	2	2	2	2	2	24

Table 4 - The manpower input of concerned named professional staff of Consultants W in the concurrent Tender C

As there are four bids in each of concurrent Tenders B and C, the PWCRAR will divide the manpower input in Tables 3 and 4 by four individually and sum up to calculate the discounted manpower input in the concurrent tenders as shown in Table 5 below.

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	0.25	-	0.25	-	0.25	-	0.25	-	0.25	-	0.25	-	1.5
S2	CP	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
S3	SP	-	0.75	-	0.75	-	0.75	-	0.75	-	0.5	-	0.75	4.25
S4	P	1	1	1	1	1	1	1	1	1	1	1	1	12
S5	P	1	1	1	1	1	1	1	1	1	1	1	1	12

Table 5 - The discounted manpower input of the concerned named professional staff of Consultants W in the concurrent Tenders B and C

The manpower input of named professional of Consultants W in the two concurrent Tenders D and E who have also been involved in Assignment A as recorded by the PWCRAR is as below:

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	1	-	-	-	1	-	-	-	1	-	-	-	3
S2	CP	-	2	-	2	2	2	-	2	2	2	-	2	16
S3	SP	-	1	-	3	-	1	-	1	-	3	-	1	10
S4	P	1	1	1	1	1	1	1	1	1	1	1	1	12
S5	P	1	1	1	1	1	1	1	1	1	1	1	1	12

Table 6 - The manpower input of the concerned named professional staff of Consultants W in the concurrent Tender D

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	-	-	1	-	-	-	1	-	-	-	1	-	3
S2	CP	2	-	2	-	-	-	2	-	-	-	2	-	8
S3	SP	-	2	-	-	-	2	-	2	-	-	-	2	8
S4	P	1	1	1	1	1	1	1	1	1	1	1	1	12
S5	P	1	1	1	1	1	1	1	1	1	1	1	1	12

Table 7 - The manpower input of the concerned named professional staff of Consultants W in the concurrent Tender E

As there are 5 tenderers in each of the two paired tenders, the probability of the consultant winning at least one of the tenders is 0.36 (i.e. $1 - 4/5 \times 4/5$). The expected manpower input due to the paired tenders is taken as the average of the manpower input of Tenders D and E factored down by 0.36 as shown in Table 8 below.

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S1	PD	0.18	-	0.18	-	0.18	-	0.18	-	0.18	-	0.18	-	1.08
S2	CP	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	4.32
S3	SP	-	0.54	-	0.54	-	0.54	-	0.54	-	0.54	-	0.54	3.24
S4	P	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	4.32
S5	P	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	4.32

Table 8 - The expected manpower input due to paired Tenders D and E

Based on Tables 1, 2, 5 and 8, the PWCRAR will determine the overloading situation as follows. Procuring departments can obtain this information from the situation report downloaded from the PWCRAR.

Staff	Staff Category	No. of man-week per month												Total
		1	2	3	4	5	6	7	8	9	10	11	12	
S3	CP&SP	0.5	1.29	0.5	1.29	0.5	1.29	0.5	1.29	0.5	1.04	0.5	1.29	10.49
S4	P	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	28.32
S5	P	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	2.36	28.32

Table 9 - Named professional staff of Consultants W in Assignment A with overloading situation

As Staff S3 is found to be working under overloading situation, the weighting of CP will be used for its overloading assessment. Based on Table 9, the PWCRAR will calculate the weighted average overloading manpower input as 22.18 man-weeks and show the result in the situation report:

$$= (4 / 7) \times 10.49 + (2 / 7) \times (28.32 + 28.32)$$

$$= 22.18 \text{ man-weeks}$$

Given the above, the PWCRAR will calculate the overloading percentage due to both on-going consultancy and the two concurrent tenders and show the result in the situation report:

$$= 22.18 / 60 \times 100\%$$

$$= 36.96\% \quad (\text{i.e.} \geq 10\%)$$

Hence, the procuring department shall apply a reduction factor of 0.75 (to be agreed by Assessment Panel) to the marks given to “Adequacy of Professional and Technical Manpower Input” attribute for Consultants W in Assignment A accordingly.