

Fig-2: Balance Sheet: BQ Progress vs Construction Cost to Date

BALANCE SHEET: BQ PROGRESS VS CONSTRUCTION COST TO DATE													
XXXXXXXXXXXXXXXXX PROJECT 1998/04/01 - 1998/04/30													
BQ ITEM		CUR	QTY	BQ PROGRESS			EQUIVALENT YEN	COST ITEM	QTY	CONSTRUCTION COST			EQUIVALENT YEN
CODE	DESCRIPTION			ORIGINAL CURRENCY	U/PRICE	AMOUNT				ORIGINAL CURRENCY	U/PRICE	AMOUNT	
(A)	(B)		(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)	(M)
OE0111	Bridge	C.M	YEN	5,500	96.00	539,000	175.00	963,765	1 E110	C.M	5,500	0.00	0
0050	Excavation	YEN	US\$	0.00	0.00	0.00		0010				1.20	6,600.00
		VD		7,723.00	42,476,500							0.00	0
OE0111	Structural	C.M	YEN		149.00		266.62		1 E110	C.M	0		
0060	Backfill	YEN	US\$		0.00				0020				266.62
		VD		11,762.00									
OE0111	350 x 350	L.M	YEN	55	1,828.00	100,265	3,267.73	179,725	1 E110	L.M	55	30,000.00	1,650,000
0070	Prect Conc	YEN	US\$		0.00	0.00			0030			0.00	0
	Piles	VD		144,473.00	7,946,015							0.00	0
		YEN	US\$										
		VD											

other sub-systems, sums up and analyses them and makes prints out. Figure-1 and Figure-2 shows two of its prints out.

On the other hand, cost for remaining work (Cost to Completion) can be obtained by multiplying remaining work quantity to the applicable unit price that can be adjusted with reference to both unit price of Budget and that of work done. The sum of Cost to Date and to Completion, i.e. Forecasted Construction Cost, will be then compared with the Budget to find out all expenditures which exceed the Budget. To study its cause and where the responsibility lies leads us to determine what method of construction must be improved, or as to Variation or Out of Scope works, evidence could be collected and kept for negotiation coming in the future.

3. USE OF FIELD DATA

The essence of estimation is how to determine appropriate unit price and work productivity. To analyze Field Data collected by COSMOS and to utilize it in the estimation process leads to a more theoretical and more competitive bid amount. These Data also help us to qualify the reasonability of the price offered by a Sub-contractor.

The procedure to use Field Data in an estimation process is as follow:

- (1) Examination of Data: To analyze and examine its reasonability. COSMOS provides its background data in basic format, i.e. material, labor, equipment, expenses, etc., so it is easy to do this work.
- (2) Averaging of Data: In general, Field Data is very detailed and particular because it is used not only by COSMOS but also by many other purposes such as Store Control, Schedule Control or Contract Management. Contrary to this, Estimation requires averaged data over the whole work. Data should be summed up and averaged to a level that Estimation system needs.
- (3) Data Transfer: Field Data, after being averaged, will be transferred to the database of Estimation system. The Data can also be transferred and utilized for the purpose of Contract administration as the evidence that shows the fact of construction cost.

4. CONCLUSION

For further development of COSMOS, improvement in its software and more training of staff is indispensable. To link Cost Control System with Estimation System enables an effective use of Field Data and leads to an competitive Bid amount.

We believe that collection and utilization of Field Data makes a great contribution to the participation in the international construction market that is considered to be growing up more and more.

*1) Project Management System, "Proceedings of the 48th Annual Conference of the JSCE", VI-249

*2) Cost Control & Monitoring System, "Proceedings of the 50th Annual Conference of the JSCE", VI-178