

CHAPTER 9 CAPITAL AND OPERATING COSTS

9-1 Terms and Conditions

Regarding the estimations of capital expenditures and operating costs for the project, the following terms and conditions were applied:

- a) water would be collected at the processing plant, i.e. construction costs involving water facilities to the processing plant would not be included,
- b) electricity could be received at the processing plant, i.e. construction costs related to electricity facilities to the processing plant would not be included,
- c) water price would be set at 1 Baiza per gallon, which is the price currently paid by the Rakah Gold Mine to the local people,
- d) electricity price would be set at 20 Baizas per kilowatt, which is the price the Rakah Gold Mine pays to the Ministry of Housing, Electricity and Water,
- e) construction costs of an access road connecting the town of Yanqul to the mine would be excluded,
- f) construction costs of communication facilities would be applied only to the facilities given in the processing plant,
- g) compensations costs for lands and houses for local people would be excluded,
- h) education costs for technical transfers of knowledge to Omani workers would be excluded,
- i) profits related to the extraction of Gossan, i.e. gold oxides, at Bishara would be excluded, and
- j) capital costs would include the mining cost for stripping overburdens and Gossans at Bishara.

Based on the above terms and conditions, the capital and operating costs were calculated for 2 cases: 3,000t/d case and 2,000t/d case. Ore processing rate is considered same as the mining rate.

9-2 Capital Cost

9-2-1 Capital cost at 3,000t/d of processing rate

The total capital cost at 3,000t/d amounts to US\$29,658,500. Breakdown of the capital cost is presented at Table III-9-1. In relation to the concentrator costs, capital cost related to the tailings dam amounts to US\$4,248,400. Significant decrease in capital costs for mining is caused by adoption of contractors for drilling & blasting, mining, loading & hauling including road maintenance and dozing of waste dumps with all equipments by contractors aiming to decrease the capital costs.

Table III-9-1

Item	Base case -3,000t/d (US\$ 1,000)	Option case -2,000t/d (US\$1,000)
Mining	2,276.0	2,276.0
Concentrator	18,759.0	15,379.0
Mine general items	609.3	609.3
Infrastructure	1,998.0	1,998.0
Environment	153.0	153.0
Owner's costs	1,344.2	1,344.3
Subtotal	25,139.5	21,759.5
Contingency	1,146.0	1,146.0
EPCM	3,373.0	3,373.0
Subtotal	4,519.0	4,519.0
Total	29,658.5	26,278.5

In relation to the total capital cost, initial investment amounted to US\$27,501,000 while additional investment amounted to US\$2,157,500 (Table III-9-2). Main item for additional investment is allocated as the expansion cost of tailings dams at Year 4 after the commencement of production.

9-2-2 Capital cost at 2,000t/d of processing rate

The total capital cost for the case of the processing rate of 2,000t/d amounted to US\$26,278,500. Breakdown of the capital expenditures is also presented in Table III-9-1. Comparing with the case for 3,000t/d, the amount decreases 11 percents, i.e. US\$3,380,000, at 2,000t/d case due to the decrease in the concentrator cost. Mining costs remains the same because it will be on a contractor basis. Schedule for initial and additional investments are presented in Table III-9-3.

9-3 Operating Costs

9-3-1 Operating cost for the processing rate of 3,000t/d

The total operating cost at the processing rate of 3,000t/d amounted to US\$89,864,200. Breakdown of the operating expenditures is presented in Table III-9-4. Mining operating cost amounted to US\$28,119,300 which is more than 30% of the total operating cost. This is the reason to give all under contractor basis.

The project structure is simplified as much as possible for cost reduction and introduction of 3 shifts designed for reduction of employees.

Table III-9-4

Item	Base case -3,000t/d (US\$ 1,000)	Option case -2,000t/d (US\$1,000)
Mining	28,119.3	31,126.3
Concentrator	51,029.1	57,511.7
Supporting	6,004.0	8,672.5
Concentrate Transportation	4,505.7	4,504.7
Environment	207.0	253.0
Total	89,864.2	102,068.2

Table III-9-2 Initial and additional investment schedule (3,000t/d)

(Unit : US\$1,000)

Items	Total	Initial Inv.	Additional Investment									
		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	
(MINING)												
Pre-Stripping	1,723.6	1,723.6										
Direct	287.2	287.2										
Contractor	1,436.4	1,436.4										
Equipment (pump, vehicle, etc.)	552.4	144.2		28.2		380.0						
Subtotal	2,828.5	1,867.8	0.0	28.2	0.0	380.0	0.0	0.0	0.0	0.0	0.0	0.0
(CONCENTRATOR)												
Crushing	2,313.0	2,313.0										
Grinding	2,624.0	2,624.0										
Flotation	1,783.0	1,783.0										
Concentrate thickening & filtration	748.0	748.0										
Tailings thickening & filtration	2,734.0	2,734.0										
Reagents	309.0	309.0										
Water and air services	439.0	439.0										
Buildings (including main office)	1,350.0	1,350.0										
Other costs	3,358.0	3,358.0										
Tailings dam construction	3,101.0	1,839.0				1,262.0						
Tailings dam closure cost	0.0	0.0										
Subtotal	18,759.0	17,497.0	0.0	0.0	0.0	1,262.0	0.0	0.0	0.0	0.0	0.0	0.0
(MINE GENERAL ITEMS)												
Communication system	100.0	100.0										
Drainage system	250.0	250.0										
Support service expense	130.9	130.9										
Accommodation	97.4	97.4										
Magazine house	31.0	31.0										
Land acquisition	-	-										
Compensation	-	-										
Subtotal	609.3	609.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(INFRASTRUCTURE)												
Road diversion	112.0	112.0										
Access road	899.0	899.0										
Wadi diversion	987.0	987.0										
Power line	-	-										
Water pipeline	-	-										
Subtotal	1,998.0	1,998.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(ENVIRONMENT)												
	153.0	153.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(OWNER'S COSTS)												
	1,344.2	1,344.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	25,139.5	23,469.3	0.0	28.2	0.0	1,642.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingency	1,146.0	810.1		1.4		334.5						
Mining	113.8	93.4		1.4		19.0						
Tailing dam	775.3	459.8				315.5						
Others	256.9	256.9										
EPCM	3,373.0	3,221.6				151.4						
Concentrator	2,763.0	2,763.0										
Tailing dam	372.1	220.7				151.4						
Others	237.9	237.9										
Subtotal	4,519.0	4,031.7	0.0	1.4	0.0	485.9	0.0	0.0	0.0	0.0	0.0	0.0
Grand Total	29,658.5	27,501.0	0.0	29.6	0.0	2,127.9	0.0	0.0	0.0	0.0	0.0	0.0

Table III-9-3 Initial and additional investment schedule (2,000t/d)

(Unit : US\$1,000)

Items	Total	Initial Inv.	Additional Investment												
		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
(MINING)															
Pre-Stripping	1,723.6	1,723.6													
Direct	287.2	287.2													
Contractor	1,436.4	1,436.4													
Equipment (pump, vehicle, etc.)	552.4	144.2		28.2		0.0	380.0								
Subtotal	2,276.0	1,867.8	0.0	28.2	0.0	0.0	380.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(CONCENTRATOR)															
Crushing	1,709.0	1,709.0													
Grinding	2,046.0	2,046.0													
Flotation	1,247.0	1,247.0													
Concentrate thickening & filtration	584.0	584.0													
Tailings thickening & filtration	1,865.0	1,865.0													
Reagents	247.0	247.0													
Water and air services	340.0	340.0													
Buildings (including main office)	1,350.0	1,350.0													
Other costs	2,890.0	2,890.0													
Tailings dam construction	3,101.0	1,839.0						1,262.0							
Tailings dam closure cost	0.0														
Subtotal	15,379.0	14,117.0	0.0	0.0	0.0	0.0	0.0	1,262.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(MINE GENERAL ITEMS)															
Communication system	100.0	100.0													
Drainage system	250.0	250.0													
Support service expense	130.9	130.9													
Accommodation	97.4	97.4													
Magazine house	31.0	31.0													
Land acquisition	-	-													
Compensation	-	-													
Subtotal	609.3	609.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(INFRASTRUCTURE)															
Road diversion	112.0	112.0													
Access road	899.0	899.0													
Wadi diversion	987.0	987.0													
Power line	-	-													
Water pipeline	-	-													
Subtotal	1,998.0	1,998.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(ENVIRONMENT)															
	153.0	153.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(OWNER'S COSTS)															
	1,344.2	1,344.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	21,759.5	20,089.3	0.0	28.2	0.0	0.0	380.0	1,262.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Contingency															
Mining	1,146.0	810.1		1.4			19.0	315.5							
Tailing dam	775.3	459.8		1.4			19.0	315.5							
Others	256.9	256.9													
EPCM															
Concentrator	3,373.0	3,221.6						151.4							
Tailing dam	2,763.0	2,763.0						151.4							
Others	372.1	220.7													
Subtotal	237.9	237.9													
Subtotal	4,519.0	4,031.7	0.0	1.4	0.0	0.0	19.0	466.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Grand Total	26,278.5	24,121.0	0.0	29.6	0.0	0.0	399.0	1,728.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0

9-3-2 Operating cost at 2,000t/d of processing rate

The operating cost at processing rate of 2,000t/d amounted to US\$102,068,200 as presented in Table III -9-4. If Compared with the case of 3,000t/d, it shows a significant increase by US\$12,204,000. This is caused by the 4 year extension of mining life while operating cost for each year decreases at the case of 2,000t/d. Operating costs by year is presented in Table III -10-7(1)(3,000t/d) and Table III-10-9(1)(2,000t/d) in Chapter 10.