

END OF COURSE PROJECT
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Damage and Reconstruction Needs Assessment

I have to make an estimate that the drought has caused on the water supply enterprise in the affected city in the Pacific Central American coast. Data is provided by the financial statements and information on water demand and supply as provided by the enterprise and questions as raised have to be addressed. The first part of the specific question is related to the expenditure items and it reads:

1a) Investment required for the digging and equipment of the new deep wells and their connection to the electric grid and the water treatment plant.

Because of the impact of drought in the city mainly because of the precipitation drop in the month of June 2001 and the rest of the rainy season, the water level at the reservoir which accounted for about 85% of the water for the city remained below the normal level, leading to the water supply enterprise deciding to take some remedial measures. An important decision taken by the enterprise was to make 4 additional wells to supplement the water flow. Following expenses are needed for the digging and equipment of the new deep wells and their connection to the electric grid and the water treatment plant.

1.	Investment in drilling and pipes for 4 wells with a 20 cm diameter and a depth of 50 meters Cost per well for depth upto 50 meters @ US \$ 250 (Rate per linear meter) = US \$ 12500 Cost for 4 wells = 4 x US \$ 12500 = US \$ 50000	US \$ 50000/00
2.	Cost of submersible pumping equipment with 6 liters per second capacity and dynamic load of 40 meters each for the 4 wells is US \$ 7500 x 4 (Cost for one set is US \$ 7500)	US \$ 30000/00
3.	Cost of 12 HP Electric motors and auxiliary electric equipment with 45 KVA capacity for 4 wells is US \$ 5000x 4 (Cost for one set is US \$ 5000)	US \$ 20000/00
4.	Cost of shed / cover for the equipment of each of the 4 wells is US \$ 1800 x 4 (Cost for one shed / cover is US \$ 1800)	US \$ 7200/00
	Total of above	US \$ 107200/00
	Add: Miscellaneous costs, including inflationary costs, cost of spares, unforeseen overheads and any specific needs for the 4 new wells dug including costs incurred for connecting them to the water treatment plant taken at 10% of actual basic cost.	US \$ 10720/00
	Gross investment required for the four new wells.	US \$ 117920/00

The second part of the specific question on expenditure reads:

1b) Specify the Increased costs of the old well system by increasing the hours of operation

Because of the drop in water level of the reservoir another important decision taken by the water supply enterprise was the increase in working hours of the existing 5 wells from the existing 10 hours per day to 15 hours per day to reduce the flow from the reservoirs. The additional costs are as follows:

Increased operational cost of 5 old wells		
1.	The Monthly cost of operation of 5 wells at 15 hours per day Monthly cost of one well working at 10 hours per day = US \$ 215 Cost of working one well at 15 hours per day = US \$ 322/50 Cost for working 5 wells at 15 hours is US \$ 322/50 X 5	US \$ 1612/50
2.	Increased cost of for Well operator works out as follows Presently 2 well operators {cost per operator US \$ 300} manage the 5 wells. Cost is 2 X US \$ 300= US \$ 600 Another well operator would be needed to cover the additional hours of operation for the 5 wells. Addition cost of US \$ 300 Total cost for the 3 well operators to cover the running of the 5 wells for 15 hours daily will be	US \$ 900/00
Total of above		US \$ 2512/50
3.	Add: Additional cost requiring administrative handling, Overtime, miscellaneous charges for working at 15 hours shifts at 10% additional cost to basic cost.	US \$ 251/25
The increased operating cost of the 5 old wells would be as follows:		US \$ 2763/75

The third part of the specific question on expenditure reads:

1C) Operation costs of the new wells, which can be assumed to be the same as the old wells

The water supply enterprise also decided to increase the working of the 4 new wells been dug for 15 hours daily to supplement the water flow. The operating costs of the 4 wells work out as follows:

1.	Monthly cost of operation of 4 new wells at 15 hours per day (Operating cost of 1 well working at 15 hours = US \$ 322/50)	US \$ 1290/00
2.	Cost of well operators operating 4 new wells for 15 hours daily works out as follows. US \$ 300 X 3 = US \$ 900/00 (Monthly cost per operator = US \$ 300)	US \$ 900/00
Total of above		US \$ 2190/00
3.	Add: Additional cost requiring administrative handling, overtime, miscellaneous charges for working at 15 hours shifts at 10% additional cost to basic cost.	US \$ 219/00
4.	Total operational cost of the 4 new wells will be	US \$ 2409/00

The next question to be addressed is:

2) The diminished income due to reduced billing for the service, taking into account the supplied volume of water as compared to the "normal" level, for the duration of the drought.

Due to the drought the income from reduced billing for the water supply enterprise fell. Following the precipitation drop due to less rainfall from June 2001 and the preceding rainy season the supply remained below the demand and it took one full year for the demand and supply to match. The loss suffered by the enterprise on the bases of the financial documents supplied by the enterprise works out as follows:

1.	The average monthly billing for the enterprise was (Corresponding to a supply of 6 million liters daily)	US \$ 18,885/00
2.	The average billing for one year would be 18,885 X 12 {Average supply of (6 million liters x 365 days) 2190 million liters during the year.}	US \$ 226620/00
3	Cost of 10000 liters of water works out to	US \$ 1.0348
4.	The reduced billing caused an income loss of 63220 (units of 10000 liters) X US \$ 1.0348 Actual supply during one year from June 2001 of water supply was 1557.8 million liters. It corresponds to a diminished supply of 632.2 million liters during the year as compared to the normal supply of water.	US \$ 65420/06 (Approx)

The next question to be addressed is:

3) To make a summary for the insurance reimbursements, on the basis of accounts which are presented by the enterprise.

The financial statement to be made by the enterprise for submitting as the claim to the insurance company which had coverage of 75% of direct losses and a variable percentage of the increased operation costs or reduced income as follows:

1.	For the first six months	100%
2	During the next six months	67%
3.	During the next three months	33%
4.	After the 16 th	0%

The summary of the insurance reimbursements enterprise will be divided into 2 parts. The first will deal with the increased operation cost of the 5 existing wells and the 4 new wells and the second part will deal with the insurance claim arising from the reduced income. It is to be noted that the water system came back to normal by June 2002.

A) The increased operational cost of running the 5 existing wells from June 2001 till May 2002 during the water shortage was as follows :

1.	The additional monthly cost for the 5 existing wells works out to US \$ 13065/00 / 12 Cost of running 5 old wells at 15 hours daily = US \$ 2763/75 X 12 = US \$ 33165 /00 Cost of running 5 old wells at 10 hours daily = US \$12900 + US \$7200= US \$ 20100/00 (Normal costs of running 5 wells at 10 hours daily is US \$ 215 X 5 wells X 12 months= US \$ 12900/00 + Normal cost of 2 well operators to handle the 5 wells on a 10 hour shift is US \$ 300 X 2 X 12 = US \$ 7200/00) Therefore the additional operating cost incurred by the enterprise is (US \$ 33165/00 – US \$ 20100/00 = US \$ 13065/00	US \$ 1088/75
2	The reimbursement from the insurance company will be at 100% for the first 6 months i.e. US \$ 1088/75 X 6 @ 100% (June 2001 till November 2001)	US \$ 6532/50
3	The reimbursement from the insurance company will be at 67% for the next 6 months i.e. US \$ 1088/75 X 6 @ 67%	US \$ 4376/78

	(December 2001 till May 2002)	
4	<p>The reimbursement from the insurance company for the 4 new wells will be as follows. As the operating cost of the 4 wells is a whole increase with 2 wells starting in February 2002 and 2 wells starting in March 2002. The cost per well per month has been worked out at US \$ 547/50</p> <p>US \$ 547/50 X 2 wells X 4 months @ 67% = US \$ 2934/60 (2 new wells which started working from February 2002). US \$ 547/50 X 2 wells X 3 months @ 67% = US \$ 2200/95 (2 new wells which started working from March 2002)</p>	US \$ 5135/55

B) The claim to the insurance company because of reduced income is as follows:

1.	<p>The actual average normal supply of water in first 6 months i.e. June 2001 till November 2001 is 1098 million liters. Whereas supply in these 6 months was at 781.8 million liters. It meant a shortfall of 316.2 million liters. The billing shortfall as a result was as follows 31620 (units of 10000 liters) X US \$ 1.0348</p>	US \$ 32720/38
2.	<p>The actual average normal supply of water in second 6 months i.e. December 2001 till May 2002 is 1092 million liters. Whereas supply in these 6 months was at 776 million liters. It meant a shortfall of 316 million liters. The billing shortfall as a result was as follows 31600 (units of 10000 liters) X US \$ 1.0348 @ 67%</p>	US \$ 21908/79
A+B	The total claim as raised for insurance reimbursement works out as follows (US \$ 6532/50 + US \$ 4376/78 + US \$ 5135/55 + US \$ 32720/38 + US \$ 21908/79)	US \$ 70674/00

The next question is as follows:

What is the impact on the external accounts via the value or part of the cost of equipment and materials imported, not produced in the country, and the part of insurance reimbursement that comes from external reinsurance.

1.	<p>The local insurance company had reinsured further with an European consortium for 70% of the damage that was payable By the local insurer. Therefore we notice that cost of damage which is covered by the local insurer on the basis of overseas reinsurance to the local insurer is US \$ 70674/00 X 70%</p>	US \$ 49471/80
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