

**BAB V**  
**PENUTUP**



**A. KESIMPULAN**

Dari analisa yang telah dilakukan pada BAB IV berdasarkan data-data dari perusahaan, maka dapat disimpulkan berbagai hal sebagai berikut :

1. Pada selisih biaya bahan baku terdapat selisih harga bahan baku dan selisih kuantitas bahan baku. Untuk selisih harga bahan baku tahun 2000 sebesar Rp 6.603.900 (R) dan pada tahun 2001 sebesar 16.687.400 (R). selisih harga bahan baku ini disebabkan oleh adanya harga bahan baku yang tidak stabil (cenderung naik) dan perusahaan dalam penetapan biaya standar untuk harga bahan baku kurang tepat.
2. Selisih kuantitas bahan untuk tahun 2000 sebesar rp 40.258.260 (L) dan selisih kuantitas bahan baku untuk tahun 2001 sebesar Rp 40.943.000 (L). Hal ini disebabkan kebijakan perusahaan dalam menentukan kuantitas bahan baku terlalu longgar.
3. Tenaga kerja langsung dalam melaksanakan efisien. Hal ini ditunjukkan dengan adanya selisih efisiensi upah yang menguntungkan sebesar Rp 7.006.272 untuk tahun 2000 dan Rp 7.437.696 untuk tahun 2001. Sedangkan tarif TK langsung menunjukkan adanya selisih yang merugikan, selisih tarif upah tahun 2000 Rp 12.676.608 (R) dan selisih tarif upah tahun 2001 Rp 13.204.800 (R).

4. Selisih tarif upah merugikan dikarenakan perusahaan membayar tarif upah sesuai dengan UMR, hal ini bagi perusahaan merugikan karena mengeluarkan biaya yang cukup besar untuk membayar upah pekerja, tetapi di lain pihak perusahaan juga meraih keuntungan karena hasil produksi meningkat disebabkan oleh pekerja bekerja secara efisien.
5. Biaya overhead pabrik untuk tahun 2000 mengalami selisih merugikan, hal ini dibuktikan dengan selisih terkendali merugikan sebesar Rp 25.569.050 hal ini dikarenakan penggunaan komponen biaya overhead pabrik yang kurang efisien, tetapi untuk tahun 2001 sudah mengalami peningkatan kearah yang lebih baik dan hal ini dibuktikan dengan selisih terkendali yang menguntungkan sebesar Rp 8188.710.
6. Kinerja manager produksi sudah baik. Hal ini dapat dilihat dengan adanya total selisih yang menguntungkan baik untuk tahun 2000 maupun tahun 2001, selisih biaya produksi tahun 2000 sebesar Rp 25.245.822 (L) dan selisih biaya produksi tahun 2001 sebesar Rp 58.871.183 (L).
7. Biaya standart yang digunakan oleh perusahaan sudah baik karena sudah dapat digunakan untuk mengendalikan biaya produksi.

## **B. SARAN**

1. Selisih harga bahan baku yang merugikan dikarenakan adanya ketidakstabilan harga bahan baku dan kurang tepatnya dalam penetapan biaya standar untuk harga bahan baku. Dalam hal ini perusahaan sebaiknya memilih pemasok

bahan baku yang memberikan potongan harga dan memberikan harga yang lebih rendah dari pemasok bahan baku lain tetapi kualitas bahan bakunya baik.

2. Selisih kuantitas bahan baku terlalu longgar sebaiknya perusahaan menetapkan standart yang tepat untuk penggunaan kuantitas bahan baku, agar selisih kuantitas tersebut digunakan untuk meningkatkan kapasitas produksi secara optimal.
3. Selisih tarif upah memang merugikan bagi perusahaan apabila dilihat dari biaya yang dikeluarkannya tetapi disisi lain perusahaan memperoleh keuntungan karena hasil produksinya meningkat sehingga dikatakan hal ini imbang dari perusahaan, sehingga kebijakan perusahaan ini perlu diteruskan.
4. Perusahaan dalam menetapkan biaya standart harus lebih tepat agar pengendalian biaya produksi dapat lebih baik.

## DAFTAR LAMPIRAN

### Pemisahan BOP Standar Tahun 2000

#### 1. Biaya Reparasi dan Pemeliharaan Gedung

Bl	x	y	x <sup>2</sup>	xy
1	7.500	212.600	56.250.000	1.594.500.000
2	6.800	210.000	46.240.000	1.428.000.000
3	8.000	220.000	64.000.000	1.760.000.000
4	8.250	212.300	68.062.500	1.751.475.000
5	7.800	215.000	60.840.000	1.677.000.000
6	8.500	228.400	72.250.000	1.941.400.000
7	7.000	212.300	49.000.000	1.486.100.000
8	9.000	247.500	81.000.000	2.227.500.000
9	8.000	220.000	64.000.000	1.760.000.000
10	10.750	252.600	115.562.500	2.715.450.000
11	15.500	295.000	240.250.000	4.572.500.000
12	8.500	212.000	72.250.000	1.802.000.000
	105.600	2.737.700	989.705.000	24.715.925.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (24.715.925.000) - (105.600)(2.737.700)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{296.591.100.000 - 289.101.120.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{7.489.980.000}{725.100.000}$$

$$= 10,329582213$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{2 \cdot 7.373.700 - (10,32958213)(105.600)}{12} \\
 &= \frac{2 \cdot 7.373.700 - 1.090.803.873}{12} \\
 &= \frac{1.646.896.127}{12} \\
 &= 137.241,3439
 \end{aligned}$$

$$\text{biaya variabel} = 105.600 \times 10,32958213 = 1.090.803 \rightarrow \text{Rp. 1.090.800}$$

$$\text{biaya tetap} = 12 \times 137.241,3439 = 1.646.896 \rightarrow \text{Rp. 1.646.894}$$

## 2. Biaya Pemeliharaan Kendaraan

Bl	x	y	x <sup>2</sup>	xy
1	7.500	450.600	56.250.000	3.379.500.000
2	6.800	400.000	46.240.000	2.720.000.000
3	8.000	480.000	64.000.000	3.840.000.000
4	8.250	472.500	68.062.500	3.898.125.000
5	7.800	454.200	60.840.000	3.542.760.000
6	8.500	495.600	72.250.000	4.212.600.000
7	7.000	415.300	49.000.000	2.907.100.000
8	9.000	500.700	81.000.000	4.506.300.000
9	8.000	480.000	64.000.000	3.840.000.000
10	10.750	545.000	115.562.500	5.858.750.000
11	15.500	595.800	240.250.000	9.234.900.000
12	8.500	495.600	72.250.000	4.212.600.000
	105.600	5.785.300	989.705.000	52.152.635.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (52.152.635.000) - (105.600)(5.785.300)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{625.831.620.000 - 610.927.680.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{14.903.940.000}{725.100.000}$$

$$= 20,55432$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{5.785.300 - (20,55432)(105.600)}{12}$$

$$= \frac{5.785.300 - 2.170.536.560}{12}$$

$$= \frac{3.614.763,43}{12}$$

$$= 301.230.2850$$

$$\text{biaya variabel} = 105.600 \times 20,55432 = 2.170.500 \rightarrow \text{Rp. } 2.170.500$$

$$\text{biaya tetap} = 12 \times 301.230,2858 = 3.614.800 \rightarrow \text{Rp. } 3.614.800$$

## 3. Biaya Listrik

Bl	x	y	x <sup>2</sup>	xy
1	7.500	228.000	56.250.000	1.710.000.000
2	6.800	220.000	46.240.000	1.496.000.000
3	8.000	230.700	64.000.000	1.845.600.000
4	8.250	233.200	68.062.500	1.923.900.000
5	7.800	224.600	60.840.000	1.751.880.000
6	8.500	235.000	72.250.000	1.997.500.000
7	7.000	215.300	49.000.000	1.507.100.000
8	9.000	245.700	81.000.000	2.211.300.000
9	8.000	230.700	64.000.000	1.845.600.000
10	10.750	265.600	115.562.500	2.855.200.000
11	15.500	275.500	240.250.000	4.270.250.000
12	8.500	235.000	72.250.000	1.997.500.000
	105.600	2.839.300	989.705.000	25.411.830.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (25.400.830.000) - (105.600)(2.839.300)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{304.941.960.000 - 299.830.080.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{5.111.880.000}{725.100.000}$$

$$= 7,0498$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{2.839.300 - (7,0498)(105.600)}{12} \\
 &= \frac{2.839.300 - 744.469,0774}{12} \\
 &= \frac{2.094.830.923}{12} \\
 &= 174.569,2436
 \end{aligned}$$

$$\text{biaya variabel} = 105.600 \times 7,0498 = 744.469,0774 \rightarrow \text{Rp. 744.450}$$

$$\text{biaya tetap} = 12 \times 174.569,2436 = 2.094.830,923 \rightarrow \text{Rp. 2.094.850}$$

#### 4. Biaya Telepon

Bl	x	y	x <sup>2</sup>	xy
1	7.500	105.000	56.250.000	787.500.000
2	6.800	98.500	46.240.000	669.800.000
3	8.000	118.300	64.000.000	946.400.000
4	8.250	119.800	68.062.500	988.350.000
5	7.800	107.300	60.840.000	836.940.000
6	8.500	120.000	72.250.000	1.020.000.000
7	7.000	100.000	49.000.000	700.000.000
8	9.000	124.200	81.000.000	1.117.800.000
9	8.000	118.300	64.000.000	946.400.000
10	10.750	125.600	115.562.500	1.350.200.000
11	15.500	150.500	240.250.000	2.332.750.000
12	8.500	120.000	72.250.000	1.020.000.000
	105.600	1.407.500	989.705.000	12.716.140.000



$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (11.789.140.000) - (105.600)(1.407.500)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{154.593.680.000 - 148.632.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{3.961.680.000}{725.100.000}$$

$$= 5,4636$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{1.407.500 - (5,4636)(105.600)}{12}$$

$$= \frac{1.407.500 - 576.956,16}{12}$$

$$= \frac{9.966.526,08}{12}$$

$$= 830.543,84$$

$$\text{biaya variabel} = 105.600 \times 5,4636 = 576.950,16 \rightarrow \text{Rp. 576.950}$$

$$\text{biaya tetap} = 12 \times 830.543,84 = 830.543,84 \rightarrow \text{Rp. 830.550}$$

## 5. Biaya Bahan Bakar

Bl	x	y	x <sup>2</sup>	xy
1	7.500	1.490.500	56.250.000	11.178.750.000
2	6.800	1.137.500	46.240.000	7.735.000.000
3	8.000	1.498.700	64.000.000	11.989.600.000
4	8.250	1.500.000	68.062.500	12.375.000.000
5	7.800	1.493.800	60.840.000	11.651.640.000
6	8.500	1.550.600	72.250.000	13.180.100.000
7	7.000	1.237.550	49.000.000	8.662.850.000
8	9.000	1.600.300	81.000.000	14.402.700.000
9	8.000	1.498.700	64.000.000	11.989.600.000
10	10.750	1.650.000	115.562.500	17.737.500.000
11	15.500	1.785.500	240.250.000	27.675.250.000
12	8.500	1.550.600	72.250.000	13.180.100.000
	105.600	17.993.750	989.705.000	161.758.090.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (161.758.090.000) - (105.600)(17.993.750)}{12 \cdot (989.705.000) - (105.600)^2}$$

$$= \frac{1.941.097.080.000 - 1.900.140.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{40.957.080.000}{725.100.000}$$

$$= 56,4847$$

$$\begin{aligned} a &= \frac{(\sum y) - b \cdot \sum x}{n} \\ &= \frac{17.993.750 - (56,4847)(105.600)}{12} \\ &= \frac{17.993.750 - 5.964.784}{12} \\ &= \frac{12.028.965,6}{12} \\ &= 1.002.413.800 \end{aligned}$$

$$\text{biaya variabel} = 105.600 \times 56.4847 = 5.964.800 \quad \rightarrow \text{Rp. } 5.964.800$$

$$\text{biaya tetap} = 12 \times 1.002.413.800 = 12.028.956 \quad \rightarrow \text{Rp. } 12.028.950$$

## Pemisahan BOP Sesungguhnya Tahun 2000

## 1. Biaya Reparasi dan Pemeliharaan Gedung

Bl	x	y	x <sup>2</sup>	xy
1	7.500	405.000	56.250.000	3.037.500.000
2	6.800	389.000	46.240.000	2.645.200.000
3	8.000	418.700	64.000.000	3.349.600.000
4	8.250	425.800	68.062.500	3.512.850.000
5	7.800	410.500	60.840.000	3.201.900.000
6	8.500	425.000	72.250.000	3.612.500.000
7	7.000	400.000	49.000.000	2.800.000.000
8	9.000	455.700	81.000.000	4.101.300.000
9	8.000	438.700	64.000.000	3.509.600.000
10	10.750	480.000	115.562.500	5.160.000.000
11	15.500	482.600	240.250.000	7.480.300.000
12	8.500	425.000	72.250.000	3.612.500.000
	105.600	5.156.000	989.705.000	46.023.250.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (46.085.380.000) - (105.600)(5.156.000)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{553.024.560.000 - 544.473.600.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{8.650.960.000}{725.100.000}$$

$$= 11,930713$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{5.156.000 - (11,930753)(105.600)}{12} \\
 &= \frac{5.156.000 - 1.259.883,293}{12} \\
 &= \frac{3.896.116,7}{12} \\
 &= 324.676,392
 \end{aligned}$$

biaya variabel =  $105.600 \times 11,930713 = 1.259.883,293 \rightarrow \text{Rp. } 1.259.900$

biaya tetap =  $12 \times 324.676,392 = 3.896.116,7 \rightarrow \text{Rp. } 3.896.100$

## 2. Biaya Pemeliharaan Kendaraan

Bl	x	y	x <sup>2</sup>	xy
1	7.500	725.200	56.250.000	5.439.000.000
2	6.800	700.900	46.240.000	4.766.120.000
3	8.000	736.300	64.000.000	5.890.400.000
4	8.250	730.400	68.062.500	6.025.800.000
5	7.800	740.000	60.840.000	5.772.000.000
6	8.500	732.500	72.250.000	6.226.250.000
7	7.000	715.000	49.000.000	5.005.000.000
8	9.000	745.800	81.000.000	6.712.200.000
9	8.000	736.300	64.000.000	5.890.400.000
10	10.750	752.600	115.562.500	8.090.450.000
11	15.500	775.000	240.250.000	12.012.500.000
12	8.500	732.500	72.250.000	6.226.250.000
	105.600	8.822.500	989.705.000	78.056.370.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (78.095.120) - (105.600)(8.822.500)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{937.141.440.000 - 931.656.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{5.485.440.000}{725.100.000}$$

$$= 7,56508$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{8.822.500 - (7,56508)(105.600)}{12}$$

$$= \frac{8.822.500 - 798.872,519}{12}$$

$$= \frac{8.023.627,481}{12}$$

$$= 668.635,6230$$

biaya variabel =  $105.600 \times 7,56508 = 798.872,519$  → Rp. 798.900

biaya tetap =  $12 \times 668.635,6230 = 8.023.627,481$  → Rp. 8.023.600

## 3. Biaya Listrik

Bl	x	y	x <sup>2</sup>	xy
1	7.500	355.000	56.250.000	2.662.500.000
2	6.800	335.900	46.240.000	2.284.120.000
3	8.000	361.500	64.000.000	2.892.000.000
4	8.250	385.400	68.062.500	3.179.550.000
5	7.800	359.200	60.840.000	2.801.760.000
6	8.500	397.000	72.250.000	3.374.500.000
7	7.000	340.100	49.000.000	2.380.700.000
8	9.000	400.600	81.000.000	3.605.400.000
9	8.000	361.500	64.000.000	2.892.000.000
10	10.750	421.300	115.562.500	4.528.975.000
11	15.500	445.200	240.250.000	6.900.600.000
12	8.500	397.000	72.250.000	3.374.500.000
	105.600	4.559.700	989.705.000	40.876.605.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (40.820.605) - (105.600)(4.559.700)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{489.847.260.000 - 481.504.320.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{8.342.940.000}{725.100.000}$$

$$= 11,5059$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{4.559.700 - (11,5059)(105.600)}{12} \\
 &= \frac{4.559.700 - 1.215.023,04}{12} \\
 &= \frac{3.344.676,96}{12} \\
 &= 278.723,08
 \end{aligned}$$

biaya variabel =  $105.600 \times 11,5059 = 1.215.023,04 \rightarrow \text{Rp. } 1.215.000$

biaya tetap =  $12 \times 278.723,08 = 3.344.676,96 \rightarrow \text{Rp. } 3.344.700$

#### 4. Biaya Telepon

Bl	x	y	x <sup>2</sup>	xy
1	7.500	272.100	56.250.000	2.040.750.000
2	6.800	257.800	46.240.000	1.753.040.000
3	8.000	285.800	64.000.000	2.286.400.000
4	8.250	290.000	68.062.500	2.392.500.000
5	7.800	282.500	60.840.000	2.203.500.000
6	8.500	293.300	72.250.000	2.493.050.000
7	7.000	250.000	49.000.000	1.750.000.000
8	9.000	295.700	81.000.000	2.661.300.000
9	8.000	285.800	64.000.000	2.286.400.000
10	10.750	305.000	115.562.500	3.278.750.000
11	15.500	315.600	240.250.000	4.891.800.000
12	8.500	293.300	72.250.000	2.493.050.000
	105.600	3.426.900	989.705.000	30.530.540.000



$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (30.326.500.000) - (105.600)(3.396.900)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{363.918.000.000 - 358.712.640.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{5.205.360.000}{725.100.000}$$

$$= 7,1788$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{3.396.900 - (7,17881671)(105.600)}{12}$$

$$= \frac{3.396.900 - 758.083}{12}$$

$$= \frac{2.638.817}{12}$$

$$= 219.901,4167$$

biaya variabel = 105.600 x 7,1788 = 758.800 → Rp. 758.800

biaya tetap = 12 x 219.901,4167 = 2.638.819 → Rp. 2.630.800

## 5. Biaya Bahan Bakar

Bl	x	y	x <sup>2</sup>	xy
1	7.500	2.100.000	56.250.000	15.750.000.000
2	6.800	2.098.600	46.240.000	14.270.480.000
3	8.000	2.103.600	64.000.000	16.828.800.000
4	8.250	2.110.700	68.062.500	17.413.275.000
5	7.800	2.102.500	60.840.000	16.399.500.000
6	8.500	2.215.000	72.250.000	18.827.500.000
7	7.000	2.099.800	49.000.000	14.698.600.000
8	9.000	2.220.300	81.000.000	19.982.700.000
9	8.000	2.103.600	64.000.000	16.828.800.000
10	10.750	2.225.000	115.562.500	23.918.750.000
11	15.500	2.235.200	240.250.000	34.645.600.000
12	8.500	2.215.000	72.250.000	18.827.500.000
	105.600	25.829.300	989.705.000	228.391.505.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (228.391.505.000) - (105.600)(25.829.300)}{12 (989.705.000) - (105.600)^2}$$

$$= \frac{2.740.698.060.000 - 2.727.574.080.000}{11.876.460.000 - 11.151.360.000}$$

$$= \frac{13.123.980.000}{725.100.000}$$

$$= 180,995$$

$$\begin{aligned} a &= \frac{(\sum y) - b \cdot \sum x}{n} \\ &= \frac{25.829.300 - (18,0995)(105,600)}{12} \\ &= \frac{25.829.300 - 19.113.072}{12} \\ &= \frac{6.716.228}{12} \\ &= 559.685,666 \end{aligned}$$

$$\text{biaya variabel} = 105,600 \times 180,995 = 19.113.072,55 \quad \rightarrow \text{Rp. 19.113.100}$$

$$\text{biaya tetap} = 12 \times 559.685,666 = 6.716.228 \quad \rightarrow \text{Rp. 6.716.228}$$

## Pemisahan BOP Standar Tahun 2001

## 1. Biaya Reparasi dan Pemeliharaan Gedung

Bl	x	y	x <sup>2</sup>	xy
1	10.700	525.100	114.490.000	5.618.570.000
2	9.800	518.000	96.040.000	5.076.400.000
3	12.500	538.200	156.250.000	6.727.500.000
4	11.000	528.300	121.000.000	5.811.300.000
5	9.500	517.800	90.250.000	4.919.100.000
6	10.000	520.900	100.000.000	5.209.000.000
7	11.250	530.600	126.562.500	5.969.250.000
8	12.500	538.200	156.250.000	6.727.500.000
9	9.500	517.800	90.250.000	4.919.100.000
10	13.300	540.500	176.890.000	7.188.650.000
11	15.900	543.800	252.810.000	8.646.420.000
12	18.050	562.700	325.802.500	10.156.735.000
	144.000	6.381.900	1.806.595.000	76.969.525.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (76.969.525) - (144.000)(6.381.900)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{923.634.300.000 - 918.993.600.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{4.640.700.000}{943.140.000}$$

$$= 4.920478$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{6.381.900 - (144.000)(4,920478)}{12} \\
 &= \frac{6.381.900 - 708.548,832}{12} \\
 &= \frac{5.673.351,16}{12} \\
 &= 472,779
 \end{aligned}$$

$$\text{biaya variabel} = 144.000 \times 4,920478 = 708.548,832 \quad \rightarrow \text{Rp. 708.549}$$

$$\text{biaya tetap} = 12 \times 472,779 = 5.673.351,16 \quad \rightarrow \text{Rp. 5.673.400}$$

## 2. Biaya Pemeliharaan Kendaraan

Bl	x	y	x <sup>2</sup>	xy
1	10.700	758.000	114.490.000	8.110.600.000
2	9.800	753.900	96.040.000	7.388.220.000
3	12.500	760.200	156.250.000	9.502.500.000
4	11.000	762.700	121.000.000	8.389.700.000
5	9.500	750.300	90.250.000	7.127.850.000
6	10.000	755.500	100.000.000	7.555.000.000
7	11.250	765.800	126.562.500	8.615.250.000
8	12.500	760.200	156.250.000	9.502.500.000
9	9.500	750.300	90.250.000	7.127.850.000
10	13.300	763.000	176.890.000	10.147.900.000
11	15.900	770.200	252.810.000	12.246.180.000
12	18.050	775.800	325.802.500	14.003.190.000
	144.000	9.125.900	1.806.595.000	109.716.740.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (109.716.740) - (144.000)(9.125.800)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{1.316.600.880.000 - 1.314.115.200.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{2.485.680.000}{943.140.000}$$

$$= 2,6355361$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{9.125.800 - (144.000)(2,6355361)}{12}$$

$$= \frac{9.125.800 - 379.517,1984}{12}$$

$$= \frac{8.746.282,800}{12}$$

$$= 728.856,9$$

biaya variabel =  $144.000 \times 2,6355361 = 379.517,1984$  → Rp. 379.500

biaya tetap =  $12 \times 728.856,9 = 8.746.282,8$  → Rp. 8.746.300

## 3. Biaya Listrik

Bl	x	y	x <sup>2</sup>	xy
1	10.700	472.300	114.490.000	5.053.610.000
2	9.800	458.000	96.040.000	4.488.400.000
3	12.500	480.200	156.250.000	6.002.500.000
4	11.000	473.500	121.000.000	5.208.500.000
5	9.500	457.100	90.250.000	4.342.450.000
6	10.000	470.600	100.000.000	4.706.000.000
7	11.250	474.000	126.562.500	5.332.500.000
8	12.500	480.200	156.250.000	6.002.500.000
9	9.500	457.100	90.250.000	4.342.450.000
10	13.300	483.500	176.890.000	6.430.550.000
11	15.900	487.600	252.810.000	7.752.840.000
12	18.050	495.700	325.802.500	8.947.385.000
	144.000	5.689.800	1.806.595.000	68.609.685.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (68.609.685.000) - (144.000)(5.689.800)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{823.316.220.000 - 819.331.200.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{3.985.020.000}{943.140.000}$$

$$= 4.22526$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{5.689.800 - (144.000)(4,22526)}{12} \\
 &= \frac{5.689.800 - 608.438,7048}{12} \\
 &= \frac{5.081.361,29}{12} \\
 &= 423.446
 \end{aligned}$$

$$\text{biaya variabel} = 144.000 \times 4,22526 = 608.438,7048 \rightarrow \text{Rp. 608.400}$$

$$\text{biaya tetap} = 12 \times 423.446 = 5.081.361,29 \rightarrow \text{Rp. 5.081.400}$$

#### 4. Biaya Telepon

Bl	x	y	x <sup>2</sup>	xy
1	10.700	305.500	114.490.000	3.268.850.000
2	9.800	301.100	96.040.000	2.950.780.000
3	12.500	316.700	156.250.000	3.958.750.000
4	11.000	309.000	121.000.000	3.399.000.000
5	9.500	300.900	90.250.000	2.858.550.000
6	10.000	302.600	100.000.000	3.026.000.000
7	11.250	310.000	126.562.500	3.487.500.000
8	12.500	316.700	156.250.000	3.958.750.000
9	9.500	300.900	90.250.000	2.858.550.000
10	13.300	325.800	176.890.000	4.333.140.000
11	15.900	330.200	252.810.000	5.250.180.000
12	18.050	340.000	325.802.500	6.137.000.000
	144.000	3.759.400	1.806.595.000	45.487.050.000



$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (45.487.050.000) - (144.000)(3.759.400)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{545.844.600.000 - 541.353.600.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{4.491.000.000}{943.140.000}$$

$$= 4,76175$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{3.759.400 - (144.000)(4,76175)}{12}$$

$$= \frac{3.759.400 - 685.692,474}{12}$$

$$= \frac{3.073.707,526}{12}$$

$$= 256.144,2938$$

$$\text{biaya variabel} = 144.000 \times 4,76175 = 685.692,474 \quad \rightarrow \text{Rp. 685.700}$$

$$\text{biaya tetap} = 12 \times 256.144,2938 = 3.073.707,526 \quad \rightarrow \text{Rp. 3.073.700}$$

## 5. Biaya Bahan Bakar

Bl	x	y	x <sup>2</sup>	xy
1	10.700	2.132.000	114.490.000	22.812.400.000
2	9.800	2.128.700	96.040.000	20.861.260.000
3	12.500	2.138.200	156.250.000	26.727.500.000
4	11.000	2.132.500	121.000.000	23.457.500.000
5	9.500	2.125.300	90.250.000	20.190.350.000
6	10.000	2.131.300	100.000.000	21.313.000.000
7	11.250	2.135.400	126.562.500	24.023.250.000
8	12.500	2.138.200	156.250.000	26.727.500.000
9	9.500	2.125.300	90.250.000	20.190.350.000
10	13.300	2.140.700	176.890.000	28.471.310.000
11	15.900	2.143.000	252.810.000	34.073.700.000
12	18.050	2.185.600	325.802.500	39.450.080.000
	144.000	25.656.200	1.806.595.000	308.298.200.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (308,298,200,000) - (144,000)(25.656.200)}{12 (1.806.595.000) - (144,000)^2}$$

$$= \frac{3.699.710.400.000 - 3.694.492.800.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{5.217.600.000}{943.140.000}$$

$$= 55,3215$$

$$\begin{aligned} a &= \frac{(\sum y) - b \cdot \sum x}{n} \\ &= \frac{25.656.200 - (144.000)(55,3215)}{12} \\ &= \frac{25.656.200 - 7.966.308,289}{12} \\ &= \frac{17.689.891,71}{12} \\ &= 1.474.157,643 \end{aligned}$$

$$\text{biaya variabel} = 144.000 \times 55,3215 = 7.966.308,289 \quad \rightarrow \text{Rp. 7.966.309}$$

$$\text{biaya tetap} = 12 \times 1.474.157,643 = 17.689.891,71 \quad \rightarrow \text{Rp. 17.689.891}$$

## Pemisahan BOP Sesungguhnya Tahun 2001

## 1. Biaya Reparasi dan Pemeliharaan Gedung

Bl	x	y	x <sup>2</sup>	xy
1	10.700	625.000	114.490.000	6.687.500.000
2	9.800	622.100	96.040.000	6.096.580.000
3	12.500	635.700	156.250.000	7.946.250.000
4	11.000	627.300	121.000.000	6.900.300.000
5	9.500	620.800	90.250.000	5.897.600.000
6	10.000	624.900	100.000.000	6.249.000.000
7	11.250	630.500	126.562.500	7.093.125.000
8	12.500	635.700	156.250.000	7.946.250.000
9	9.500	620.800	90.250.000	5.897.600.000
10	13.300	639.800	176.890.000	8.509.340.000
11	15.900	642.200	252.810.000	10.210.980.000
12	18.050	657.000	325.802.500	11.858.850.000
	144.000	7.581.800	1.806.595.000	91.293.375.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (91.293.375.000) - (144.000)(7.581.800)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{1.095.520.500.000 - 1.091.779.200.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{3.741.300.000}{943.140.000}$$

$$= 39,6685$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{7.581.800 - (144.000)(39,6685)}{12} \\
 &= \frac{7.581.800 - 5.712.264}{12} \\
 &= \frac{1.869.536}{12} \\
 &= 155.794,666
 \end{aligned}$$

$$\text{biaya variabel} = 144.000 \times 39,6685 = 5.712.264 \quad \rightarrow \text{Rp. 5.712.300}$$

$$\text{biaya tetap} = 12 \times 155.794,666 = 1.869.536 \quad \rightarrow \text{Rp. 1.869.500}$$

## 2. Biaya Pemeliharaan Kendaraan

Bl	x	y	x <sup>2</sup>	xy
1	10.700	930.500	114.490.000	9.956.350.000
2	9.800	928.100	96.040.000	9.095.380.000
3	12.500	942.800	156.250.000	11.785.000.000
4	11.000	932.000	121.000.000	10.252.000.000
5	9.500	927.500	90.250.000	8.811.250.000
6	10.000	929.700	100.000.000	9.297.000.000
7	11.250	933.600	126.562.500	10.503.000.000
8	12.500	936.800	156.250.000	11.710.000.000
9	9.500	927.500	90.250.000	8.811.250.000
10	13.300	942.400	176.890.000	12.533.920.000
11	15.900	947.200	252.810.000	15.060.480.000
12	18.050	968.700	325.802.500	17.485.035.000
	144.000	11.246.800	1.806.595.000	135.300.665.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (135.250.665.000) - (144.000)(11.246.800)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{1.623.007.980.000 - 1.619.539.200.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{3.468.780.000}{943.140.000}$$

$$= 367,7905$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{11.246.800 - (144.000)(36,77905)}{12}$$

$$= \frac{11.246.800 - 5.296.183,28}{12}$$

$$= \frac{5.950.661,672}{12}$$

$$= 495.884,7267$$

biaya variabel =  $144.000 \times 367,7905 = 5.296.183,28$  → Rp. 5.296.200

biaya tetap =  $12 \times 495.884,7267 = 5.950.061.672$  → Rp. 5.950.600

## 3. Biaya Listrik

Bl	x	y	x <sup>2</sup>	xy
1	10,700	562,500	114,490,000	6,018,750,000
2	9,800	560,300	96,040,000	5,490,940,000
3	12,500	565,700	156,250,000	7,071,250,000
4	11,000	563,000	121,000,000	6,193,000,000
5	9,500	559,900	90,250,000	5,319,050,000
6	10,000	561,100	100,000,000	5,611,000,000
7	11,250	563,800	126,562,500	6,342,750,000
8	12,500	565,700	156,250,000	7,071,250,000
9	9,500	559,900	90,250,000	5,319,050,000
10	13,300	568,200	176,890,000	7,557,060,000
11	15,900	572,500	252,810,000	9,102,750,000
12	18,050	597,000	325,802,500	10,775,850,000
	144,000	6,799,600	1,806,595,000	81,872,700,000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (81.872.700.000) - (144.000)(6.799.600)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{982.472.400.000 - 979.142.400.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{3.330.000}{943.140.000}$$

$$= 35,3075895$$

$$\begin{aligned}
 a &= \frac{(\sum y) - b \cdot \sum x}{n} \\
 &= \frac{6.799.600 - (144.000)(35,3075895)}{12} \\
 &= \frac{6.799.600 - 5.084.292,888}{12} \\
 &= \frac{1.715.307,11}{12} \\
 &= 142.942,259
 \end{aligned}$$

biaya variabel =  $144.000 \times 35,3075895 = 5.084.292,88$  → Rp. 5.084.300

biaya tetap =  $12 \times 142.942,259 = 1.715.307,11$  → Rp. 1.715.300

#### 4. Biaya Telepon

Bl	x	y	x <sup>2</sup>	xy
1	10.700	358.100	114.490.000	3.831.670.000
2	9.800	355.900	96.040.000	3.487.820.000
3	12.500	362.800	156.250.000	4.535.000.000
4	11.000	359.000	121.000.000	3.949.000.000
5	9.500	354.900	90.250.000	3.371.550.000
6	10.000	357.200	100.000.000	3.572.000.000
7	11.250	360.300	126.562.500	4.053.375.000
8	12.500	362.800	156.250.000	4.535.000.000
9	9.500	354.900	90.250.000	3.371.550.000
10	13.300	365.400	176.890.000	4.859.820.000
11	15.900	379.200	252.810.000	6.029.280.000
12	18.050	398.700	325.802.500	7.196.535.000
	144.000	4.369.200	1.806.595.000	52.792.600.000



$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (52.792.600.000) - (144.000)(4.369.200)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{633.511.200.000 - 629.164.800.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{4.346.400}{943.140.000}$$

$$= 4,60843565$$

$$a = \frac{(\sum y) - b \cdot \sum x}{n}$$

$$= \frac{4.369.200 - (144.000)(4,60843565)}{12}$$

$$= \frac{4.369.200 - 663.614,7336}{12}$$

$$= \frac{3.705.585,20}{12}$$

$$= 308.798,772$$

biaya variabel =  $144.000 \times 4,60843565 = 663.614,733$  → Rp. 663.600

biaya tetap =  $12 \times 308.798,772 = 3.705.585,20$  → Rp. 3.705.600

## 5. Biaya Bahan Bakar

Bl	x	y	x <sup>2</sup>	xy
1	10.700	2.220.400	114.490.000	23.758.280.000
2	9.800	2.218.900	96.040.000	21.745.220.000
3	12.500	2.225.700	156.250.000	27.821.250.000
4	11.000	2.221.600	121.000.000	24.437.600.000
5	9.500	2.217.000	90.250.000	21.061.500.000
6	10.000	2.219.100	100.000.000	22.191.000.000
7	11.250	2.222.300	126.562.500	25.000.875.000
8	12.500	2.225.700	156.250.000	27.821.250.000
9	9.500	2.217.000	90.250.000	21.061.500.000
10	13.300	2.228.500	176.890.000	29.639.050.000
11	15.900	2.230.000	252.810.000	35.457.000.000
12	18.050	2.240.200	325.802.500	40.435.610.000
	144.000	26.686.400	1.806.595.000	320.430.135.000

$$b = \frac{n \cdot \sum xy - \sum x \cdot \sum y}{n \cdot \sum x^2 - (\sum x)^2}$$

$$b = \frac{12 \cdot (320.429.620.000) - (144.000)(26.686.400)}{12 (1.806.595.000) - (144.000)^2}$$

$$= \frac{3.845.149.620.000 - 3.842.841.600.000}{21.679.140.000 - 20.736.000.000}$$

$$= \frac{2.308.020.000}{943.140.000}$$

$$= 24,4716585$$

$$\begin{aligned} a &= \frac{(\sum y) - b \cdot \sum x}{n} \\ &= \frac{26.686.400 - (144.000)(244,716585)}{12} \\ &= \frac{26.686.400 - 3.523.917,6585}{12} \\ &= \frac{23.162.482,34}{12} \\ &= 1.930.206,862 \end{aligned}$$

$$\begin{aligned} \text{biaya variabel} &= 144.000 \times 24,4716585 = 3.523.917,65 \quad \rightarrow \text{Rp. 3.523.900} \\ \text{biaya tetap} &= 12 \times 1.930.206,862 = 23.162.482,34 \quad \rightarrow \text{Rp. 23.162.500} \end{aligned}$$

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