

## References

- Amarin printing and publishing. Manual for plumber. Amarin printing and publishing, 1998.
- Chanthano Juntaro ; Sirichan Thongprasert. Project feasibility study for business and industries. Chulalongkorn University, 1993.
- Chulalongkorn University and University of Warwick. Manufacturing Process Technology. Chulalongkorn University, 1998.
- David R. ; Dennis J. ; and Thomas A. Statistics for business and economics. West Publishing, 6<sup>th</sup> edition, 1996.
- Industrial Finance Company Thailand. Situation of Industrial Business year 1998 and future trend. Industrial Finance Company Thailand, 1998.
- Mike N. Logistics and Operation Management. Warwick Manufacturing Group, 1998.
- Philip Kotler. Marketing management: Analysis, planning, Implementation, and Control. Prentice-Hall, 1994.
- Richard A. Brealey ; Stewart C. Myers, Principles of Corporate Finance. McGraw-Hill, 1996.
- Rubinetterie Teorema. General catalogue. Italy, 1997.
- Thailand. Center of Business Statistic. Major indicators of Thailand's economic. Bangkok: Ministry of Commerce, 1998.
- Thailand. The Customs of Thailand Information department. Import and export value of Thailand. The Customs of Thailand, 1993-1997.
- Thailand. Office of Industrial Standard. Thai Industrial Standard 1278-2538. 1995.
- Thailand. Office of the Board of Investment. Costs of doing business in Thailand. 1998.
- Wallstreet Finance and Securities research team. Security analysis handbook. Wallstreet Finance and Securities, 1993.
- World Bank. Global economic prospects. World Bank, 1998.

## Appendix-1

## Weight of faucet

The below figures came from sampling 30 sets of import faucet. These weights include the weight of packaging and accessories. An average weight is 2.15 kilogram per set.

| Ref. No. | Weight (kg) | Ref. No.    | Weight (kg) |
|----------|-------------|-------------|-------------|
| 84521    | 1.70        | 20.4520     | 1.52        |
| 84551    | 2.31        | 70.4210     | 2.02        |
| 84160    | 2.32        | 894510      | 1.90        |
| 84210    | 1.80        | 681250      | 3.18        |
| 98301    | 2.72        | A3500       | 2.70        |
| 98160    | 3.11        | A1507       | 2.14        |
| 62312    | 2.98        | A2507       | 2.70        |
| 90210    | 1.80        | A2500       | 2.83        |
| 62298    | 1.48        | G33149      | 1.98        |
| 90301    | 1.51        | A1410       | 1.40        |
| 87150    | 3.10        | PA45.211    | 1.20        |
| 99000    | 1.41        | G26610      | 1.62        |
| 99330    | 2.38        | TS304       | 3.08        |
| 92.4302  | 1.20        | 994219      | 2.00        |
| 92.1402  | 2.00        | 971420      | 2.38        |
| Total    | 31.82       | Total       | 32.65       |
|          |             | Grand total | 64.47       |
|          |             | Average     | 2.15        |

## Appendix-2

## Import single lever mixer in the market

After gathering number of import faucets that available in leading distributors in Bangkok area, we found out that 77.10% was single lever mixer.

| Name of distributors | Number of Import faucets classified by types (set) |       |           |       |
|----------------------|--|-------|-----------|-------|
|                      | Single lever                                       | Turn  | Automatic | Total |
| Bathroom Center      | 55   | 8     | 1         | 64    |
| Boonthavorn Ceramics | 256  | 80    | 2         | 338   |
| Decor Mart           | 148  | 35    | 0         | 183   |
| Home Pro             | 285  | 78    | 2         | 365   |
| Inter Sukhapan       | 201  | 48    | 2         | 251   |
| Piroj Sukhapan       | 54   | 17    | 0         | 71    |
| Sukhamol             | 45   | 40    | 0         | 85    |
| Sukhapan Center      | 230  | 65    | 0         | 295   |
| Total                | 1274   | 371   | 7         | 1652  |
| Percentage           | 77.1%  | 22.5% | 0.4%      | 100%  |

Month of survey : December 1998

## Appendix-3

## t Distribution

Entries in the table give  $t$  values for an area or probability in the upper tail of the  $t$  distribution. For example, with 10 degrees of freedom and a .05 area in the upper tail,  $t_{.05} = 1.812$ .

| Degrees<br>of Freedom | Area In Upper Tail |       |        |        |        |
|-----------------------|--------------------|-------|--------|--------|--------|
|                       | .10                | .05   | .025   | .01    | .005   |
| 1                     | 3.078              | 6.314 | 12.706 | 31.821 | 63.657 |
| 2                     | 1.886              | 2.920 | 4.303  | 6.965  | 9.925  |
| 3                     | 1.638              | 2.353 | 3.182  | 4.541  | 5.841  |
| 4                     | 1.533              | 2.132 | 2.776  | 3.747  | 4.604  |
| 5                     | 1.476              | 2.015 | 2.571  | 3.365  | 4.032  |
| 6                     | 1.440              | 1.943 | 2.447  | 3.143  | 3.707  |
| 7                     | 1.415              | 1.895 | 2.365  | 2.998  | 3.499  |
| 8                     | 1.397              | 1.860 | 2.306  | 2.896  | 3.355  |
| 9                     | 1.383              | 1.833 | 2.262  | 2.821  | 3.250  |
| 10                    | 1.372              | 1.812 | 2.228  | 2.764  | 3.169  |
| 11                    | 1.363              | 1.796 | 2.201  | 2.718  | 3.106  |
| 12                    | 1.356              | 1.782 | 2.179  | 2.681  | 3.055  |
| 13                    | 1.350              | 1.771 | 2.160  | 2.650  | 3.012  |
| 14                    | 1.345              | 1.761 | 2.145  | 2.624  | 2.977  |
| 15                    | 1.341              | 1.753 | 2.131  | 2.602  | 2.947  |
| 16                    | 1.337              | 1.746 | 2.120  | 2.583  | 2.921  |
| 17                    | 1.333              | 1.740 | 2.110  | 2.567  | 2.898  |
| 18                    | 1.330              | 1.734 | 2.101  | 2.552  | 2.878  |
| 19                    | 1.328              | 1.729 | 2.093  | 2.539  | 2.861  |
| 20                    | 1.325              | 1.725 | 2.086  | 2.528  | 2.845  |
| 21                    | 1.323              | 1.721 | 2.080  | 2.518  | 2.831  |
| 22                    | 1.321              | 1.717 | 2.074  | 2.508  | 2.819  |
| 23                    | 1.319              | 1.714 | 2.069  | 2.500  | 2.807  |
| 24                    | 1.318              | 1.711 | 2.064  | 2.492  | 2.797  |
| 25                    | 1.316              | 1.708 | 2.060  | 2.485  | 2.787  |
| 26                    | 1.315              | 1.706 | 2.056  | 2.479  | 2.779  |
| 27                    | 1.314              | 1.703 | 2.052  | 2.473  | 2.771  |
| 28                    | 1.313              | 1.701 | 2.048  | 2.467  | 2.763  |
| 29                    | 1.311              | 1.699 | 2.045  | 2.462  | 2.756  |
| 30                    | 1.310              | 1.697 | 2.042  | 2.457  | 2.750  |
| 40                    | 1.303              | 1.684 | 2.021  | 2.423  | 2.704  |
| 60                    | 1.296              | 1.671 | 2.000  | 2.390  | 2.660  |
| 120                   | 1.289              | 1.658 | 1.980  | 2.358  | 2.617  |
| $\infty$              | 1.282              | 1.645 | 1.960  | 2.326  | 2.576  |

This table is reprinted by permission of Biometrika Trustees from Table 12, Percentage Points of the  $t$  Distribution, 3rd Edition, 1966. E. S. Pearson and H. O. Hartley, *Biometrika Tables for Statisticians*, Vol. 1

(Source: Statistics for Business and Economics, David R. Anderson, 6<sup>th</sup> edition, page B-3, 1996)

## Appendix-4

## Sample specification of an injection machine

## Specification

| Description               | Model | AV-50  | AP-90  | AP-120  | AP-150  | AP-180  | AP-210  | AP-250   |
|---------------------------|-------|--------|--------|---------|---------|---------|---------|----------|
| International Size Rating |       | 137/50 | 185/90 | 325/120 | 440/150 | 610/180 | 800/210 | 1177/250 |

## Injection Unit

| Shot Weight (P.S.)       | (oz)                  | 2.0 2.6 3.2    | 3.2 4.3 5.5    | 4.3 6.6 8.4    | 7.3 9.2 11.7   | 10.8 13.8 18.4 | 14.5 19.3 24.1 | 21.2 26.4 33.1 |
|--------------------------|-----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|                          | (gr)                  | 58 73 90       | 90 121 157     | 137 188 236    | 206 259 332    | 305 390 520    | 410 540 681    | 598 746 934    |
| Screw Diameter           | mm                    | 25 28 31       | 31 36 41       | 35 41 48       | 41 46 52       | 48 52 60       | 52 60 67       | 60 67 75       |
| Injection Pressure       | (kg/cm <sup>2</sup> ) | 2150 1710 1390 | 2100 1600 1230 | 2190 1590 1270 | 1990 1580 1240 | 1830 1430 1070 | 1790 1340 1000 | 1810 1450 1150 |
| Injection Rate           | (cc/sec)              | 38 48 58       | 55 74 97       | 61 84 106      | 84 104 136     | 111 141 188    | 170 226 282    | 168 209 263    |
| Screw Stroke             | (mm)                  | 130            | 130            | 155            | 170            | 200            | 210            | 230            |
| Screw Spindle (Stepless) | (RPM)                 | 0-170          | 0-210          | 0-195          | 0-170          | 0-155          | 0-150          | 0-130          |
| Plasticizing Capacity    | g/sec                 | 3.7 4.7 6.5    | 8.8 11.9 18    | 12.0 18.1 22.7 | 15.5 19.5 27   | 21.8 23.1 32.2 | 21.8 36 43.7   | 34.9 43.6 47.8 |

## Clamping Unit

|                       |          |         |         |         |         |         |         |         |
|-----------------------|----------|---------|---------|---------|---------|---------|---------|---------|
| Clamping Force        | (Mp)     | 50      | 90      | 120     | 150     | 180     | 210     | 250     |
| Opening Stroke        | (mm)     | 220     | 270     | 310     | 350     | 405     | 450     | 505     |
| Max. Daylight         | (mm)     | 540     | 620     | 710     | 800     | 955     | 1050    | 1145    |
| Mold Height (min-max) | (mm)     | 100-320 | 125-350 | 150-400 | 160-450 | 200-550 | 200-600 | 200-640 |
| Space Between Tie Bar | HxV(mm)  | 310x310 | 360x360 | 410x410 | 425x425 | 450x450 | 500x500 | 560x560 |
| Hydraulic Ejector     | (ronxmm) | 2.2x75  | 3x75    | 3x100   | 3x100   | 5x100   | 5x100   | 7x125   |

## Power

|                  |                       |           |          |          |            |          |          |          |
|------------------|-----------------------|-----------|----------|----------|------------|----------|----------|----------|
| Pump Motor       | (Kw)                  | 7.5(10HP) | 11(15HP) | 15(20HP) | 18.5(25HP) | 22(30HP) | 30(40HP) | 38(40HP) |
| Heating Capacity | (Kw)                  | 5.7       | 7.7      | 9.2      | 9.2        | 13.7     | 13.7     | 18.6     |
| System Pressure  | (Kg/cm <sup>2</sup> ) | 140       | 140      | 140      | 175        | 140      | 175      | 140      |
| Tank Capacity    | (L.)                  | 150       | 200      | 200      | 200        | 400      | 430      | 500      |

## General

|                   |          |             |             |             |             |             |             |             |
|-------------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Dry Cycle Time    | (sec)    | 2.1         | 2.2         | 2.4         | 2.4         | 3.2         | 3.8         | 4.5         |
| Machine Dimension | LxWxH(m) | 3.6x1.2x1.5 | 4.1x1.3x1.6 | 4.7x1.5x1.7 | 4.7x1.5x1.7 | 5.1x1.6x1.8 | 5.2x1.7x1.9 | 6.6x1.7x2.0 |
| Machine Weight    | (ton)    | 2.4         | 3.2         | 3.8         | 4.3         | 6.2         | 6.6         | 9.5         |

Source: Asian plastic machinery.

## Appendix-5

MS Excel spreadsheet for financial estimations and evaluations of the production  
referred to market share 20%

## INPUT

|                                      |               |            |            |            |            |
|--------------------------------------|---------------|------------|------------|------------|------------|
| Expected sales (set/year)            | 96,317.00     | 102,078.00 | 109,447.00 | 120,744.00 | 133,447.00 |
| Selling price increase               | 0% every year |            |            |            |            |
| Selling price (baht)                 | 1,000.00      | 1,000.00   | 1,000.00   | 1,000.00   | 1,000.00   |
| Raw mat. Increase                    | 5% every year |            |            |            |            |
| Material cost per unit (baht)        | 600.00        | 630.00     | 661.50     | 694.58     | 729.31     |
| Production volume (= expected sales) | 96,317.00     | 102,078.00 | 109,447.00 | 120,744.00 | 130,000.00 |
| Labor cost increase                  | 5% every year |            |            |            |            |
| Indirect cost increase               | 5% every year |            |            |            |            |
| Loan interest                        | 15%           |            |            |            |            |
| Income tax                           | 37% p.a.      |            |            |            |            |
| Loan payment                         | 2,400,000     | 2,400,000  | 2,400,000  | 2,400,000  | 2,400,000  |

**Details of production costs at capacity**

96,317 sets/year

**Total production cost**

| Item        | Description                | Amount (baht)     |
|-------------|----------------------------|-------------------|
| 1           | Direct material cost       | 57,790,200        |
| 2           | Direct labor costs         | 702,000           |
| 3           | Depreciation               |                   |
|             | 3.1 Machines and equipment | 288,220           |
|             | 3.2 Factory                | 400,000           |
| 4           | Indirect costs             | 592,069           |
| Total =     |                            | <u>59,772,489</u> |
| Unit cost = |                            | <u>620.58</u>     |

**Direct material****Colored faucet**

| Item  | Materials    | Unit  | Unit cost | Qty./unit | Total (baht) |
|-------|--------------|-------|-----------|-----------|--------------|
| 1     | PP           | Kg    | 38        | 0.35      | 13           |
| 2     | Color powder | Kg    | 100       | 0.04      | 4            |
| 3     | Cartridge    | Set   | 402       | 1.00      | 402          |
| 4     | Brass rod    | kg    | 100       | 0.30      | 30           |
| 5     | Aerator      | Set   | 91        | 1.00      | 91           |
| 6     | Rubber ring  | Piece | 1         | 2.00      | 2            |
| 7     | Packaging    | Set   | 10        | 1.00      | 10           |
| Total |              |       |           |           | <u>552</u>   |

Material cost for colored faucet      48,159 sets =      26,583,492 Baht.

**Chrome-plated faucet**

| Item  | Materials   | Unit  | Unit cost | Qty./unit | Total (baht) |
|-------|-------------|-------|-----------|-----------|--------------|
| 1     | PP          | Kg    | 38        | 0.35      | 13           |
| 2     | Cartridge   | Set   | 402       | 1.00      | 402          |
| 3     | Brass rod   | kg    | 100       | 0.30      | 30           |
| 4     | Aerator     | Set   | 91        | 1.00      | 91           |
| 5     | Rubber ring | Piece | 1         | 2.00      | 2            |
| 6     | Plating     | Piece | 50        | 2.00      | 100          |
| 7     | Packaging   | Set   | 10        | 1.00      | 10           |
| Total |             |       |           |           | <u>648</u>   |

Material cost for chromium fauce      48,159 sets =      31,206,708 Baht.

Therefore, total direct material cost      =      57,790,200 Baht.

**Direct labor cost**

| Item               | Job description | Qty. | Salary    |          | Total (baht)   |
|--------------------|-----------------|------|-----------|----------|----------------|
|                    |                 |      | Per month | Per year |                |
| 1                  | Engineer        | 1    | 17,000    | 204,000  | 204,000        |
| 2                  | Technician      | 1    | 10,000    | 120,000  | 120,000        |
| 3                  | Worker          | 9    | 3,500     | 42,000   | 378,000        |
| Total direct labor |                 |      |           |          | <u>702,000</u> |

**Machine and equipment**

| <u>Item</u>                             | <u>Description</u>                 | <u>Qty.</u> | <u>Unit price</u> | <u>Total (baht)</u> |
|---|------------------------------------|-------------|-------------------|---------------------|
| 1                                       | Injection machine (50 tons)        | 1           | 1,100,000         | 1,100,000           |
| 2                                       | Cooling tower (10 tons)            | 1           | 22,000            | 22,000              |
| 3                                       | Mixing machine (single head 50 kg) | 1           | 44,000            | 44,000              |
| 4                                       | Hopper dryer                       | 1           | 44,000            | 44,000              |
| 5                                       | Lathe (4 feet)                     | 1           | 71,500            | 71,500              |
| 6                                       | Drilling machine                   | 1           | 22,000            | 22,000              |
| 7                                       | Sawing machine                     | 1           | 11,000            | 11,000              |
| 8                                       | Grinding machine                   | 1           | 50,000            | 50,000              |
| 9                                       | Pliers                             | 2           | 300               | 600                 |
| 10                                      | Hand tools                         | 2           | 5,000             | 10,000              |
| 11                                      | Test equipment                     | 1           | 50,000            | 50,000              |
| 12                                      | Trolley                            | 4           | 4,000             | 16,000              |
| Total machine and equipment cost        |                                    |             |                   | <u>1,441,100</u>    |
| Economic life for machine and equipment |                                    | =           | 5                 | <u>years</u>        |

Therefore,

Depreciation of machine and equipment = 288,220 baht/year

**Factory**

| <u>Item</u>                    | <u>Description</u> | <u>Amount (baht)</u> |
|--------------------------------|--------------------|----------------------|
| 1                              | building           | 8,000,000            |
| Total                          |                    | <u>8,000,000</u>     |
| Economic life of constructions |                    | = <u>20</u> years    |

Therefore,

Depreciation of factory = 400,000 baht / year

**Indirect costs**

Electricity charge

| <u>Item</u>                             | <u>Description</u>                 | <u>Qty.</u> | <u>Power(KW)</u> | <u>Total (KW)</u> |
|---|------------------------------------|-------------|------------------|-------------------|
| 1                                       | Injection machine (50 tons)        | 1           | 13.20            | 13.20             |
| 2                                       | Cooling tower (10 tons)            | 1           | 5.00             | 5.00              |
| 3                                       | Mixing machine (single head 50 kg) | 1           | 3.70             | 3.70              |
| 4                                       | Hopper dryer                       | 1           | 3.00             | 3.00              |
| 5                                       | Lathe (4 feet)                     | 1           | 5.50             | 5.50              |
| 6                                       | Drilling machine                   | 1           | 1.50             | 1.50              |
| 7                                       | Sawing machine                     | 1           | 1.50             | 1.50              |
| 8                                       | Grinding machine                   | 1           | 3.70             | 3.70              |
| Total                                   |                                    |             |                  | = 37.10           |
| Average efficiency of machines          |                                    | =           |                  | 90%               |
| Therefore, actual power                 |                                    | =           |                  | 41.22             |
| Average working hours per day           |                                    | =           |                  | 8                 |
| Thus, power requirement per day         |                                    | =           |                  | 329.78            |
| If working days per month               |                                    | =           |                  | 20                |
| Therefore, power requirement per month  |                                    | =           |                  | 6,595.56          |
| Energy charge (baht/KW)*                |                                    |             |                  |                   |
| -                                       | First 35 KW                        | =           |                  | 89.89             |
| -                                       | 35-150 KW                          | =           |                  | 1.12              |
| -                                       | 150-400 KW                         | =           |                  | 2.13              |
| -                                       | above 400 KW                       | =           |                  | 2.42              |
| Therefore, electricity charge per month |                                    | =           |                  | 18,800.69         |
| Electricity charge per year             |                                    | =           |                  | <u>225,608.33</u> |



|                                 |                                  |                     |
|---------------------------------|----------------------------------|---------------------|
| Water fee =                     | 600 baht/month =                 | 7,200.00 per year   |
| Hydraulic oil =                 | 30000 per 6 months =             | 60,000.00 per year  |
| injection molds =               |                                  | 150,000.00 per year |
| Cutting tools e.g. drill etc. = | 2000 baht/month                  | 24,000.00 per year  |
| Glove =                         | 500 baht/month                   | 6,000.00 per year   |
| Spare parts & mentainance =     | 5% of machine and equipment cost | 72,055.00 per year  |
| Insurance premium =             | 0.5% of factory + machine        | 47,205.50 per year  |

|            |
|------------|
| 366,460.50 |
|------------|

|                               |            |   |            |   |            |
|-------------------------------|------------|---|------------|---|------------|
| Total indirect costs per year | 225,608.33 | + | 366,460.50 | = | 592,068.83 |
|-------------------------------|------------|---|------------|---|------------|

### Vehicles

| Item  | Description  | Qty | Unit price | Amount (baht)    |
|-------|--------------|-----|------------|------------------|
| 1     | Car          | 2   | 800,000    | 1,600,000        |
| 2     | Pickup truck | 2   | 400,000    | 800,000          |
| 3     | Motorcycle   | 3   | 50,000     | 150,000          |
| Total |              |     |            | <u>2,550,000</u> |

|                             |         |             |
|-----------------------------|---------|-------------|
| Economic life of vehicles = | 5       | years       |
| Depreciation of vehicles =  | 510,000 | baht / year |

### Indirect labor

| Item  | Job description | Qty. | Salary    |          | Total (baht)     |
|-------|-----------------|------|-----------|----------|------------------|
|       |                 |      | Per month | Per year |                  |
| 1     | Manager         | 2    | 35,000    | 420,000  | 840,000          |
| 2     | Secretary       | 2    | 12,000    | 144,000  | 288,000          |
| 3     | Clerk           | 5    | 8,000     | 96,000   | 480,000          |
| 4     | Driver          | 2    | 8,000     | 96,000   | 192,000          |
| 5     | Messenger       | 3    | 6,000     | 72,000   | 216,000          |
| Total |                 |      |           |          | <u>2,016,000</u> |

### Office equipment

| Item  | Description        | Amount (baht)  |
|-------|--------------------|----------------|
| 1     | Office furniture   | 200,000        |
| 2     | Office equipment   |                |
|       | Computer & printer | 200,000        |
|       | Telephone          | 6,000          |
|       | Facsimile machine  | 12,000         |
|       | Copying machine    | 40,000         |
|       | Miscellaneous      | 10,000         |
| 3     | Air-condition      | 300,000        |
| Total |                    | <u>768,000</u> |

|                                    |         |             |
|------------------------------------|---------|-------------|
| Economic life of constructions =   | 5       | years       |
| Depreciation of office equipment = | 153,600 | baht / year |

### Expenses before operating (6 months)

| Item  | Description                                 | Amount (baht)  |
|-------|---|----------------|
| 1     | Project manager salary (35,000 baht/month)  | 210,000        |
| 2     | Secretary salary (12,000 baht/month)        | 72,000         |
| 3     | Office rental (8,000 baht/month)            | 48,000         |
| 4     | Office expenses (7,000 baht/month)          | 42,000         |
| 5     | Transportation expenses (10,000 baht/month) | 60,000         |
| 6     | Registration and taxes                      | 15,000         |
| 7     | Miscellaneous (10,000 baht/month)           | 60,000         |
| Total |   | <u>507,000</u> |

**Fixed assets**

| Item | Description           | Amount (baht) | Remaining value after ending project in % and value (baht) |            | book value | gain/loss |
|------|-----------------------|---------------|--|------------|------------|-----------|
| 1    | Land (0.4 acre)       | 4,400,000     | 100%   | 4,400,000  | 4,400,000  | -         |
| 1    | Factory               | 8,000,000     | 60%  | 4,800,000  | 6,000,000  | 1,200,000 |
| 2    | Machines and equipmen | 1,441,100     | 40%  | 576,440    | 0          | 576,440   |
| 4    | Office equipment      | 768,000       | 5%   | 38,400     | 0          | 38,400    |
| 3    | Vehicles              | 2,550,000     | 20%  | 510,000    | 0          | 510,000   |
|      | Total                 | 17,159,100    |  | 10,324,840 | -          | 75,160    |

**Working capital**

| Item | Description        | Amount (baht) |              |
|------|--------------------|---------------|--------------|
|      |                    | Per year      | Per 3 months |
| 1    | Direct materials   | 57,790,200    | 14,447,550   |
| 2    | Direc labor cost   | 702,000       | 175,500      |
| 3    | Indirect materials | 592,069       | 148,017      |
| 4    | Selling expenses   | 6,537,600     | 1,634,400    |
|      | Total              |               | 16,405,467   |

**Capital investment**

| Item | Description                 | Amount (baht) |
|------|-----------------------------|---------------|
| 1    | Expensense before operating | 507,000       |
| 2    | Fixed assets                | 17,159,100    |
| 3    | Working cap                 | 16,405,467    |
|      |                             | 34,071,567    |

**Sources of fund**

|                                   |                  |
|-----------------------------------|------------------|
| - Loan (70% of fixed asset value) | 12,000,000 baht. |
| -Shareholders                     | 22,071,567 baht. |
| Total                             | 34,071,567 baht. |

**Estimation of Administrative expenses for 1999-2003**

|              | 1999      | 2000      | 2001      | 2002      | 2003      |
|--------------|-----------|-----------|-----------|-----------|-----------|
| Salary       | 2,016,000 | 2,116,800 | 2,222,640 | 2,333,772 | 2,450,461 |
| Fuel         | 198,000   | 217,800   | 239,580   | 263,538   | 289,892   |
| Insurance    | 1,260,000 | 1,260,000 | 1,260,000 | 1,260,000 | 1,260,000 |
| Depreciation |           |           |           |           |           |
| -off equip   | 153,600   | 153,600   | 153,600   | 153,600   | 153,600   |
| -vehicle     | 510,000   | 510,000   | 510,000   | 510,000   | 510,000   |
| Selling exp. | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 |
| Total        | 6,537,600 | 6,658,200 | 6,785,820 | 6,920,910 | 7,063,952 |

Remark: ' Salary ' increases 5% every year

**CASHFLOW**

|                              | 1998              | 1999              | 2000               | 2001               | 2002               | 2003               |
|------------------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|
| <i>Cash in (baht)</i>        |                   |                   |                    |                    |                    |                    |
| Sales                        |                   | 96,317,000        | 102,078,000        | 109,447,000        | 120,744,000        | 133,447,000        |
| Loan                         | 12,000,000        |                   |                    |                    |                    |                    |
| Shareholder                  | 22,071,567        |                   |                    |                    |                    |                    |
| Revenue from sales of assets |                   |                   |                    |                    |                    | 10,324,840         |
| <i>Total inflow</i>          | <i>34,071,567</i> | <i>96,317,000</i> | <i>102,078,000</i> | <i>109,447,000</i> | <i>120,744,000</i> | <i>143,771,840</i> |
| <i>Cash out (baht)</i>       |                   |                   |                    |                    |                    |                    |
| Expenses before operating    | 507,000           |                   |                    |                    |                    |                    |
| Land                         | 4,400,000         |                   |                    |                    |                    |                    |
| Factory                      | 8,000,000         |                   |                    |                    |                    |                    |
| Machine & equipment          | 1,441,100         |                   |                    |                    |                    |                    |
| Office equipment             | 768,000           |                   |                    |                    |                    |                    |
| Vehicle                      | 2,550,000         |                   |                    |                    |                    |                    |
| Raw material cost            | 57,790,200        | 64,309,140        | 72,399,191         | 83,866,368         | 94,810,300         |                    |
| Direct labor cost            | 702,000           | 737,100           | 773,955            | 812,653            | 853,286            |                    |
| Indirect cost                | 592,069           | 621,672           | 652,756            | 685,394            | 719,664            |                    |
| Salary                       | 2,016,000         | 2,116,800         | 2,222,640          | 2,333,772          | 2,450,461          |                    |
| Fuel                         | 198,000           | 217,800           | 239,580            | 263,538            | 289,892            |                    |
| Insurance                    | 1,260,000         | 1,260,000         | 1,260,000          | 1,260,000          | 1,260,000          |                    |
| Selling exp.                 | 2,400,000         | 2,400,000         | 2,400,000          | 2,400,000          | 2,400,000          |                    |
| Income tax                   | 10,436,557        | 10,220,757        | 10,014,812         | 10,008,669         | 10,684,275         |                    |
| Loan payment                 | 2,400,000         | 2,400,000         | 2,400,000          | 2,400,000          | 2,400,000          |                    |
| Loan interest                | 1,800,000         | 1,440,000         | 1,080,000          | 720,000            | 360,000            |                    |
| <i>Total outflow</i>         | <i>17,666,100</i> | <i>79,594,826</i> | <i>85,723,269</i>  | <i>93,442,933</i>  | <i>104,750,393</i> | <i>116,227,877</i> |
| <i>Net cashflow</i>          | <i>16,405,467</i> | <i>16,722,174</i> | <i>16,354,731</i>  | <i>16,004,067</i>  | <i>15,993,607</i>  | <i>27,543,963</i>  |

## PROFIT AND LOSS ACCOUNT

|                                 | 1999       | 2000        | 2001        | 2002        | 2003        |
|---------------------------------|------------|-------------|-------------|-------------|-------------|
| Sales                           | 96,317,000 | 102,078,000 | 109,447,000 | 120,744,000 | 133,447,000 |
| Cost of goods sold              | 59,772,489 | 66,356,132  | 74,514,122  | 86,052,635  | 97,071,470  |
| Gross profit                    | 36,544,511 | 35,721,868  | 34,932,879  | 34,691,365  | 36,375,530  |
| Administrative expense          | 6,537,600  | 6,658,200   | 6,785,820   | 6,920,910   | 7,063,952   |
| Gain/loss from sale of assets   |            |             |             |             | -75,160     |
| Earning before tax and interest | 30,006,911 | 29,063,668  | 28,147,059  | 27,770,455  | 29,236,418  |
| Loan interest                   | 1,800,000  | 1,440,000   | 1,080,000   | 720,000     | 360,000     |
| Earning before tax              | 28,206,911 | 27,623,668  | 27,067,059  | 27,050,455  | 28,876,418  |
| Income tax                      | 10,436,557 | 10,220,757  | 10,014,812  | 10,008,669  | 10,684,275  |
| Net profit                      | 17,770,354 | 17,402,911  | 17,052,247  | 17,041,787  | 18,192,143  |

## BALANCE SHEET

|                                   | 1998       | 1999       | 2000       | 2001       | 2002       | 2003        |
|-----------------------------------|------------|------------|------------|------------|------------|-------------|
| <b>Assets</b>                     |            |            |            |            |            |             |
| <i>current asset</i>              |            |            |            |            |            |             |
| Cash                              | 16,405,467 | 33,127,641 | 49,482,372 | 65,486,439 | 81,480,046 | 109,024,009 |
| Inventory                         | 0          | 0          | 0          | 0          | 0          | 0           |
| Account Receivables               | 0          | 0          | 0          | 0          | 0          | 0           |
| <i>Property, Plant, Equipment</i> | 0          | 0          | 0          | 0          | 0          | 0           |
| Land                              | 4,400,000  | 4,400,000  | 4,400,000  | 4,400,000  | 4,400,000  | 0           |
| Factory                           | 8,000,000  | 7,600,000  | 7,200,000  | 6,800,000  | 6,400,000  | 0           |
| Machines and equipment            | 1,441,100  | 1,152,880  | 864,660    | 576,440    | 288,220    | 0           |
| Office equipment                  | 768,000    | 614,400    | 460,800    | 307,200    | 153,600    | 0           |
| Vehicles                          | 2,550,000  | 2,040,000  | 1,530,000  | 1,020,000  | 510,000    | 0           |
| Total                             | 33,564,567 | 48,934,921 | 63,937,832 | 78,590,079 | 93,231,866 | 109,024,009 |
| <b>Liabilities &amp; Equity</b>   |            |            |            |            |            |             |
| Account Payable                   | 0          | 0          | 0          | 0          | 0          | 0           |
| Loan                              | 12,000,000 | 9,600,000  | 7,200,000  | 4,800,000  | 2,400,000  | 0           |
| Shareholder's equity              | 22,071,567 | 22,071,567 | 22,071,567 | 22,071,567 | 22,071,567 | 22,071,567  |
| Retain Earnings                   | -507,000   | 17,263,354 | 34,666,265 | 51,718,512 | 68,760,299 | 86,952,442  |
| Total                             | 33,564,567 | 48,934,921 | 63,937,832 | 78,590,079 | 93,231,866 | 109,024,009 |

**NPV**

| Year | Net cashflow | Discount fac | Present value     |
|------|--------------|--------------|-------------------|
|      |              | 12%          |                   |
| 0    | -34,071,567  | 1.000        | -34,071,567       |
| 1    | 16,722,174   | 0.893        | 14,932,901        |
| 2    | 16,354,731   | 0.797        | 13,034,721        |
| 3    | 16,004,067   | 0.712        | 11,394,896        |
| 4    | 15,993,607   | 0.636        | 10,171,934        |
| 5    | 27,543,963   | 0.567        | 15,617,427        |
|      | <b>NPV</b>   |              | <b>31,080,312</b> |

**IRR**

| Year | Net cashflow | Discount fac | Present value |
|------|--------------|--------------|---------------|
|      |              | 42.18%       |               |
| 0    | -34,071,567  | 1.000        | -34,071,567   |
| 1    | 16,722,174   | 0.703        | 11,760,908    |
| 2    | 16,354,731   | 0.495        | 8,089,835     |
| 3    | 16,004,067   | 0.348        | 5,567,686     |
| 4    | 15,993,607   | 0.245        | 3,913,262     |
| 5    | 27,543,963   | 0.172        | 4,739,877     |
|      | <b>NPV</b>   |              | <b>0</b>      |

**SUMMARY**

|                          |            |         |         |         |         |
|--------------------------|------------|---------|---------|---------|---------|
| Expected sales 1999-2003 | 96,317     | 102,078 | 109,447 | 120,744 | 133,447 |
| Production volume        | 96,317     | 102,078 | 109,447 | 120,744 | 130,000 |
| IRR                      | 42.18%     |         |         |         |         |
| Unit cost (baht)         | 620.58     |         |         |         |         |
| Working capital (baht)   | 16,405,467 |         |         |         |         |
| Shareholder (baht)       | 22,071,567 |         |         |         |         |
| Loan (baht)              | 12,000,000 |         |         |         |         |

## Appendix-6

**MS Excel spreadsheet for financial estimations and evaluations of the production  
referred to market share 10%**

**INPUT**

|                                      |               |           |           |           |           |           |
|--------------------------------------|---------------|-----------|-----------|-----------|-----------|-----------|
| Expected sales (set/year)            |               | 48,159.00 | 51,039.00 | 54,724.00 | 60,372.00 | 66,759.00 |
| Selling price increase               | 0% every year |           |           |           |           |           |
| Selling price (baht)                 |               | 1,000.00  | 1,000.00  | 1,000.00  | 1,000.00  | 1,000.00  |
| Raw mat. Increase                    | 5% every year |           |           |           |           |           |
| Material cost per unit (baht)        |               | 600.00    | 630.00    | 661.50    | 694.58    | 729.31    |
| Production volume (= expected sales) |               | 48,159.00 | 51,039.00 | 54,724.00 | 60,372.00 | 66,759.00 |
| Labor cost increase                  | 5% every year |           |           |           |           |           |
| Indirect cost increase               | 5% every year |           |           |           |           |           |
| Loan interest                        | 15%           |           |           |           |           |           |
| Income tax                           | 37% p.a.      |           |           |           |           |           |
| Loan payment                         |               | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 |

### Details of production costs at capacity 48,159 sets/year

#### Total production cost

| Item        | Description                | Amount (baht)     |
|-------------|----------------------------|-------------------|
| 1           | Direct material cost       | 28,895,400        |
| 2           | Direct labor costs         | 702,000           |
| 3           | Depreciation               |                   |
|             | 3.1 Machines and equipment | 288,220           |
|             | 3.2 Factory                | 400,000           |
| 4           | Indirect costs             | 592,069           |
| Total =     |                            | <u>30,877,689</u> |
| Unit cost = |                            | <u>641.16</u>     |

#### Direct material

##### Colored faucet

| Item  | Materials    | Unit  | Unit cost | Qty./unit | Total (baht) |
|-------|--------------|-------|-----------|-----------|--------------|
| 1     | PP           | Kg    | 38        | 0.35      | 13           |
| 2     | Color powder | Kg    | 100       | 0.04      | 4            |
| 3     | Cartridge    | Set   | 402       | 1.00      | 402          |
| 4     | Brass rod    | kg    | 100       | 0.30      | 30           |
| 5     | Aerator      | Set   | 91        | 1.00      | 91           |
| 6     | Rubber ring  | Piece | 1         | 2.00      | 2            |
| 7     | Packaging    | Set   | 10        | 1.00      | 10           |
| Total |              |       |           |           | <u>552</u>   |

Material cost for colored faucet                      24,080 sets =                      13,291,884 Baht.

##### Chrome-plated faucet

| Item  | Materials   | Unit  | Unit cost | Qty./unit | Total (baht) |
|-------|-------------|-------|-----------|-----------|--------------|
| 1     | PP          | Kg    | 38        | 0.35      | 13           |
| 2     | Cartridge   | Set   | 402       | 1.00      | 402          |
| 3     | Brass rod   | kg    | 100       | 0.30      | 30           |
| 4     | Aerator     | Set   | 91        | 1.00      | 91           |
| 5     | Rubber ring | Piece | 1         | 2.00      | 2            |
| 6     | Plating     | Piece | 50        | 2.00      | 100          |
| 7     | Packaging   | Set   | 10        | 1.00      | 10           |
| Total |             |       |           |           | <u>648</u>   |

Material cost for chromium fauce                      24,080 sets =                      15,603,516 Baht.

Therefore, total direct material cost                      =                      28,895,400 Baht.

#### Direct labor cost

| Item               | Job description | Qty. | Salary    |          | Total (baht)   |
|--------------------|-----------------|------|-----------|----------|----------------|
|                    |                 |      | Per month | Per year |                |
| 1                  | Engineer        | 1    | 17,000    | 204,000  | 204,000        |
| 2                  | Technician      | 1    | 10,000    | 120,000  | 120,000        |
| 3                  | Worker          | 9    | 3,500     | 42,000   | 378,000        |
| Total direct labor |                 |      |           |          | <u>702,000</u> |

**Machine and equipment**

| Item                                    | Description                        | Qty. | Unit price | Total (baht) |
|---|------------------------------------|------|------------|--------------|
| 1                                       | Injection machine (50 tons)        | 1    | 1,100,000  | 1,100,000    |
| 2                                       | Cooling tower (10 tons)            | 1    | 22,000     | 22,000       |
| 3                                       | Mixing machine (single head 50 kg) | 1    | 44,000     | 44,000       |
| 4                                       | Hopper dryer                       | 1    | 44,000     | 44,000       |
| 5                                       | Lathe (4 feet)                     | 1    | 71,500     | 71,500       |
| 6                                       | Drilling machine                   | 1    | 22,000     | 22,000       |
| 7                                       | Sawing machine                     | 1    | 11,000     | 11,000       |
| 8                                       | Grinding machine                   | 1    | 50,000     | 50,000       |
| 9                                       | Pliers                             | 2    | 300        | 600          |
| 10                                      | Hand tools                         | 2    | 5,000      | 10,000       |
| 11                                      | Test equipment                     | 1    | 50,000     | 50,000       |
| 12                                      | Trolley                            | 4    | 4,000      | 16,000       |
| Total machine and equipment cost        |                                    |      |            | 1,441,100    |
| Economic life for machine and equipment |                                    | =    | 5          | years        |

Therefore,

Depreciation of machine and equipment = 288,220 baht/year

**Factory**

| Item                           | Description | Amount (baht) |
|--------------------------------|-------------|---------------|
| 1                              | building    | 8,000,000     |
| Total                          |             | 8,000,000     |
| Economic life of constructions |             | = 20 years    |

Therefore,

Depreciation of factory = 400,000 baht / year

**Indirect costs**

Electricity charge

| Item                                    | Description                        | Qty. | Power(KW) | Total (KW) |
|---|------------------------------------|------|-----------|------------|
| 1                                       | Injection machine (50 tons)        | 1    | 13.20     | 13.20      |
| 2                                       | Cooling tower (10 tons)            | 1    | 5.00      | 5.00       |
| 3                                       | Mixing machine (single head 50 kg) | 1    | 3.70      | 3.70       |
| 4                                       | Hopper dryer                       | 1    | 3.00      | 3.00       |
| 5                                       | Lathe (4 feet)                     | 1    | 5.50      | 5.50       |
| 6                                       | Drilling machine                   | 1    | 1.50      | 1.50       |
| 7                                       | Sawing machine                     | 1    | 1.50      | 1.50       |
| 8                                       | Grinding machine                   | 1    | 3.70      | 3.70       |
| Total                                   |                                    |      |           | 37.10      |
| Average efficiency of machines          |                                    | =    |           | 90%        |
| Therefore, actual power                 |                                    | =    |           | 41.22      |
| Average working hours per day           |                                    | =    |           | 8          |
| Thus, power requirement per day         |                                    | =    |           | 329.78     |
| If working days per month               |                                    | =    |           | 20         |
| Therefore, power requirement per month  |                                    | =    |           | 6,595.56   |
| Energy charge (baht/KW)*                |                                    |      |           |            |
| -                                       | First 35 KW                        | =    |           | 89.89      |
| -                                       | 35-150 KW                          | =    |           | 1.12       |
| -                                       | 150-400 KW                         | =    |           | 2.13       |
| -                                       | above 400 KW                       | =    |           | 2.42       |
| Therefore, electricity charge per month |                                    | =    |           | 18,800.69  |
| Electricity charge per year             |                                    | =    |           | 225,608.33 |



|   |                                  |                     |
|---|----------------------------------|---------------------|
| Water fee =                                   | 600 baht/month =                 | 7,200.00 per year   |
| Hydraulic oil =                               | 30000 per 6 months =             | 60,000.00 per year  |
| injection molds (design changed every year) = |                                  | 150,000.00 per year |
| Cutting tools e.g. drill etc. =               | 2000 baht/month                  | 24,000.00 per year  |
| Glove =                                       | 500 baht/month                   | 6,000.00 per year   |
| Spare parts & maintenance =                   | 5% of machine and equipment cost | 72,055.00 per year  |
| Insurance premium =                           | 0.5% of factory + machine        | 47,205.50 per year  |

|            |
|------------|
| 366,460.50 |
|------------|

|                               |            |   |            |   |            |
|-------------------------------|------------|---|------------|---|------------|
| Total indirect costs per year | 225,608.33 | + | 366,460.50 | = | 592,068.83 |
|-------------------------------|------------|---|------------|---|------------|

**Vehicles**

| Item  | Description  | Qty | Unit price | Amount (baht) |
|-------|--------------|-----|------------|---------------|
| 1     | Car          | 2   | 800,000    | 1,600,000     |
| 2     | Pickup truck | 2   | 400,000    | 800,000       |
| 3     | Motorcycle   | 3   | 50,000     | 150,000       |
| Total |              |     |            | 2,550,000     |

Economic life of vehicles = 5 years

Depreciation of vehicles = 510,000 baht / year

**Indirect labor**

| Item  | Job description | Qty. | Salary    |          | Total (baht) |
|-------|-----------------|------|-----------|----------|--------------|
|       |                 |      | Per month | Per year |              |
| 1     | Manager         | 2    | 35,000    | 420,000  | 840,000      |
| 2     | Secretary       | 2    | 12,000    | 144,000  | 288,000      |
| 3     | Clerk           | 5    | 8,000     | 96,000   | 480,000      |
| 4     | Driver          | 2    | 8,000     | 96,000   | 192,000      |
| 5     | Messenger       | 3    | 6,000     | 72,000   | 216,000      |
| Total |                 |      |           |          | 2,016,000    |

**Office equipment**

| Item  | Description        | Amount (baht) |
|-------|--------------------|---------------|
| 1     | Office furniture   | 200,000       |
| 2     | Office equipment   |               |
|       | Computer & printer | 200,000       |
|       | Telephone          | 6,000         |
|       | Facsimile machine  | 12,000        |
|       | Copying machine    | 40,000        |
|       | Miscellaneous      | 10,000        |
| 3     | Air-condition      | 300,000       |
| Total |                    | 768,000       |

Economic life of constructions = 5 years

Depreciation of office equipment = 153,600 baht / year

**Expenses before operating (6 months)**

| Item  | Description                                 | Amount (baht) |
|-------|---|---------------|
| 1     | Project manager salary (35,000 baht/month)  | 210,000       |
| 2     | Secretary salary (12,000 baht/month)        | 72,000        |
| 3     | Office rental (8,000 baht/month)            | 48,000        |
| 4     | Office expenses (7,000 baht/month)          | 42,000        |
| 5     | Transportation expenses (10,000 baht/month) | 60,000        |
| 6     | Registration and taxes                      | 15,000        |
| 7     | Miscellaneous (10,000 baht/month)           | 60,000        |
| Total |   | 507,000       |

**Fixed assets**

| Item  | Description           | Amount (baht) | Remaining value after ending<br>project in % and value (baht) |            | book value | gain/loss |
|-------|-----------------------|---------------|---|------------|------------|-----------|
| 1     | Land (0.4 acre)       | 4,400,000     | 100%  | 4,400,000  | 4,400,000  | -         |
| 1     | Factory               | 8,000,000     | 60%   | 4,800,000  | 6,000,000  | 1,200,000 |
| 2     | Machines and equipmen | 1,441,100     | 40%   | 576,440    | 0          | 576,440   |
| 4     | Office equipment      | 768,000       | 5%  | 38,400     | 0          | 38,400    |
| 3     | Vehicles              | 2,550,000     | 20%   | 510,000    | 0          | 510,000   |
| Total |                       | 17,159,100    |   | 10,324,840 | -          | 75,160    |

**Working capital**

| Item  | Description        | Amount (baht) |              |
|-------|--------------------|---------------|--------------|
|       |                    | Per year      | Per 3 months |
| 1     | Direct materials   | 28,895,400    | 7,223,850    |
| 2     | Direc labor cost   | 702,000       | 175,500      |
| 3     | Indirect materials | 592,069       | 148,017      |
| 4     | Selling expenses   | 6,537,600     | 1,634,400    |
| Total |                    |               | 9,181,767    |

**Capital investment**

| Item  | Description              | Amount (baht) |
|-------|--------------------------|---------------|
| 1     | Expense before operating | 507,000       |
| 2     | Fixed assets             | 17,159,100    |
| 3     | Working cap              | 9,181,767     |
| Total |                          | 26,847,867    |

**Sources of fund**

|                                   |                  |
|-----------------------------------|------------------|
| - Loan (70% of fixed asset value) | 12,000,000 baht. |
| -Shareholders                     | 14,847,867 baht. |
| Total                             | 26,847,867 baht. |

**Estimation of Administrative expenses for 1999-2003**

|              | 1999      | 2000      | 2001      | 2002      | 2003      |
|--------------|-----------|-----------|-----------|-----------|-----------|
| Salary       | 2,016,000 | 2,116,800 | 2,222,640 | 2,333,772 | 2,450,461 |
| Fuel         | 198,000   | 217,800   | 239,580   | 263,538   | 289,892   |
| Insurance    | 1,260,000 | 1,260,000 | 1,260,000 | 1,260,000 | 1,260,000 |
| Depreciation |           |           |           |           |           |
| -off equip   | 153,600   | 153,600   | 153,600   | 153,600   | 153,600   |
| -vehicle     | 510,000   | 510,000   | 510,000   | 510,000   | 510,000   |
| Selling exp. | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 | 2,400,000 |
| Total        | 6,537,600 | 6,658,200 | 6,785,820 | 6,920,910 | 7,063,952 |

Remark: ' Salary ' increases 5% every year

## CASHFLOW

|                              | 1998              | 1999              | 2000              | 2001              | 2002              | 2003              |
|------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| <i>Cash in (baht)</i>        |                   |                   |                   |                   |                   |                   |
| Sales                        |                   | 48,159,000        | 51,039,000        | 54,724,000        | 60,372,000        | 66,759,000        |
| Loan                         | 12,000,000        |                   |                   |                   |                   |                   |
| Shareholder                  | 14,847,867        |                   |                   |                   |                   |                   |
| Revenue from sales of assets |                   |                   |                   |                   |                   | 10,324,840        |
| <i>Total inflow</i>          | <i>26,847,867</i> | <i>48,159,000</i> | <i>51,039,000</i> | <i>54,724,000</i> | <i>60,372,000</i> | <i>77,083,840</i> |
| <i>Cash out (baht)</i>       |                   |                   |                   |                   |                   |                   |
| Expenses before operating    | 507,000           |                   |                   |                   |                   |                   |
| Land                         | 4,400,000         |                   |                   |                   |                   |                   |
| Factory                      | 8,000,000         |                   |                   |                   |                   |                   |
| Machine & equipment          | 1,441,100         |                   |                   |                   |                   |                   |
| Office equipment             | 768,000           |                   |                   |                   |                   |                   |
| Vehicle                      | 2,550,000         |                   |                   |                   |                   |                   |
| Raw material cost            |                   | 28,895,400        | 32,154,570        | 36,199,926        | 41,933,184        | 48,688,006        |
| Direct labor cost            |                   | 702,000           | 737,100           | 773,955           | 812,653           | 853,286           |
| Indirect cost                |                   | 296,035           | 310,836           | 326,378           | 342,697           | 359,832           |
| Salary                       |                   | 2,016,000         | 2,116,800         | 2,222,640         | 2,333,772         | 2,450,461         |
| Fuel                         |                   | 99,000            | 108,900           | 119,790           | 131,769           | 144,946           |
| Insurance                    |                   | 1,260,000         | 1,260,000         | 1,260,000         | 1,260,000         | 1,260,000         |
| Selling exp.                 |                   | 2,400,000         | 2,400,000         | 2,400,000         | 2,400,000         | 2,400,000         |
| Income tax                   |                   | 3,418,706         | 3,348,527         | 3,281,789         | 3,313,104         | 3,208,101         |
| Loan payment                 |                   | 2,400,000         | 2,400,000         | 2,400,000         | 2,400,000         | 2,400,000         |
| Loan interest                |                   | 1,800,000         | 1,440,000         | 1,080,000         | 720,000           | 360,000           |
| <i>Total outflow</i>         | <i>17,666,100</i> | <i>43,287,140</i> | <i>46,276,733</i> | <i>50,064,478</i> | <i>55,647,179</i> | <i>62,124,632</i> |
| <i>Net cashflow</i>          | <i>9,181,767</i>  | <i>4,871,860</i>  | <i>4,762,267</i>  | <i>4,659,522</i>  | <i>4,724,821</i>  | <i>14,959,208</i> |

## PROFIT AND LOSS ACCOUNT

|                                 | 1999       | 2000       | 2001       | 2002       | 2003       |
|---------------------------------|------------|------------|------------|------------|------------|
| Sales                           | 48,159,000 | 51,039,000 | 54,724,000 | 60,372,000 | 66,759,000 |
| Cost of goods sold              | 30,581,655 | 33,890,726 | 37,988,479 | 43,776,754 | 50,589,344 |
| Gross profit                    | 17,577,346 | 17,148,274 | 16,735,521 | 16,595,246 | 16,169,656 |
| Administrative expense          | 6,537,600  | 6,658,200  | 6,785,820  | 6,920,910  | 7,063,952  |
| Gain/loss from sale of assets   |            |            |            |            | -75,160    |
| Earning before tax and interest | 11,039,746 | 10,490,074 | 9,949,701  | 9,674,336  | 9,030,543  |
| Loan interest                   | 1,800,000  | 1,440,000  | 1,080,000  | 720,000    | 360,000    |
| Earning before tax              | 9,239,746  | 9,050,074  | 8,869,701  | 8,954,336  | 8,670,543  |
| Income tax                      | 3,418,706  | 3,348,527  | 3,281,789  | 3,313,104  | 3,208,101  |
| Net profit                      | 5,821,040  | 5,701,547  | 5,587,912  | 5,641,232  | 5,462,442  |

## BALANCE SHEET

|                                   | 1998       | 1999       | 2000       | 2001       | 2002       | 2003       |
|-----------------------------------|------------|------------|------------|------------|------------|------------|
| <b>Assets</b>                     |            |            |            |            |            |            |
| <i>current asset</i>              |            |            |            |            |            |            |
| Cash                              | 9,181,767  | 14,053,627 | 18,815,893 | 23,475,415 | 28,200,236 | 43,159,444 |
| Inventory                         | 0          | 0          | 0          | 0          | 0          | 0          |
| Account Receivables               | 0          | 0          | 0          | 0          | 0          | 0          |
| <i>Property, Plant, Equipment</i> |            |            |            |            |            |            |
| Land                              | 4,400,000  | 4,400,000  | 4,400,000  | 4,400,000  | 4,400,000  | 0          |
| Factory                           | 8,000,000  | 7,600,000  | 7,200,000  | 6,800,000  | 6,400,000  | 0          |
| Machines and equipment            | 1,441,100  | 1,152,880  | 864,660    | 576,440    | 288,220    | 0          |
| Office equipment                  | 768,000    | 614,400    | 460,800    | 307,200    | 153,600    | 0          |
| Vehicles                          | 2,550,000  | 2,040,000  | 1,530,000  | 1,020,000  | 510,000    | 0          |
| Total                             | 26,340,867 | 29,860,907 | 33,271,353 | 36,579,055 | 39,952,056 | 43,159,444 |
| <b>Liabilities &amp; Equity</b>   |            |            |            |            |            |            |
| Account Payable                   | 0          | 0          | 0          | 0          | 0          | 0          |
| Loan                              | 12,000,000 | 9,600,000  | 7,200,000  | 4,800,000  | 2,400,000  | 0          |
| Shareholder's equity              | 14,847,867 | 14,847,867 | 14,847,867 | 14,847,867 | 14,847,867 | 14,847,867 |
| Retain Earnings                   | -507,000   | 5,314,040  | 11,015,586 | 16,603,498 | 22,244,730 | 27,707,172 |
| Total                             | 26,340,867 | 29,761,907 | 33,063,453 | 36,251,365 | 39,492,597 | 42,555,039 |

**NPV**

| Year       | Net cashflow | Discount fac | resent value             |
|------------|--------------|--------------|--------------------------|
|            |              | 12%          |                          |
| 0 -        | 26,847,867   | 1.000        | -26,847,867              |
| 1          | 4,871,860    | 0.893        | 4,350,571                |
| 2          | 4,762,267    | 0.797        | 3,795,527                |
| 3          | 4,659,522    | 0.712        | 3,317,580                |
| 4          | 4,724,821    | 0.636        | 3,004,986                |
| 5          | 14,959,208   | 0.567        | 8,481,871                |
|            |              | NPV          | <u><u>-3,897,332</u></u> |
| <b>IRR</b> |              | IRR          | 6.93%                    |

| Year | Net cashflow | Discount fac | resent value    |
|------|--------------|--------------|-----------------|
|      |              | 6.93%        |                 |
| 0 -  | 26,847,867   | 1.000        | -26,847,867     |
| 1    | 4,871,860    | 0.935        | 4,556,173       |
| 2    | 4,762,267    | 0.875        | 4,165,092       |
| 3    | 4,659,522    | 0.818        | 3,811,164       |
| 4    | 4,724,821    | 0.765        | 3,614,157       |
| 5    | 14,959,208   | 0.715        | 10,701,280      |
|      |              | NPV          | <u><u>0</u></u> |

**SUMMARY**

|                               |            |        |        |        |        |
|-------------------------------|------------|--------|--------|--------|--------|
| Expected sales (1999-2003)    | 48.159     | 51.039 | 54,724 | 60,372 | 66,759 |
| Production volume (1999-2003) | 48.159     | 51.039 | 54,724 | 60,372 | 66,759 |
| IRR                           | 6.93%      |        |        |        |        |
| Unit cost (baht)              | 641.16     |        |        |        |        |
| Working capital (baht)        | 9,181,767  |        |        |        |        |
| Shareholder (baht)            | 14,847,867 |        |        |        |        |
| Loan (baht)                   | 12,000,000 |        |        |        |        |

## Biography

Rarm Itarat was born in 1971. He graduated the Bachelor's Degree in Industrial Engineering from Chulalongkorn University in 1994. Then, he worked for Seagate Technology (Thailand) for a year. After that he has joined in an import company which provided faucets and bathroom accessories.

