Table VI-9 Unit Price and Unit Cost of Major Chemicals

| Salt Cake | បន\$ | 156 | /t | (| ₽ | 2,808/t) | |
|-------------------|--------|-------|------|----------|------|---|--|
| | | | | * . 1 | | | |
| Limestone | US\$ | 0. | 9/t | (| P | 16/t) | |
| Washer Additives | US\$ | 1,709 | /t | Ć | ₽ | 30,763/t) | |
| Pitch Dispersion | US\$ | 2,742 | /t | (| ₽ | 49,358/t) | |
| | | | | | | | |
| Chlorine | US\$ | 263 | /t | (| ₱ | 4,729/t) | |
| Caustic Soda | US\$ | 164 | /t | (| P | 2,949/t) | |
| Hypochlorite | US\$ | 431 | /t | (| ₱ | 7,752/t) | |
| Hydrogen Peroxide | US\$ | 2,094 | /t . | (| P | 37,683/t) | |
| Sodium Silicate | ប្នន\$ | 214 | /t | (| ₽ | 3,853/t) | |
| Sodium Sulfite | บร\$ | 223 | /t | (| ₽ | 4,019/t) | |
| Coco Oil | US\$ | 861 | /t | (| .‡₽. | 15,506/T) | |
| | | | | | | : · · · · · · · · · · · · · · · · · · · | |
| Alum | US\$ | 168 | /t | (| ₽ | 3,016/t) | |
| Rosin Size | US\$ | 2,038 | 7t | (| ₱ | 36,681/t) | |
| Acetic Acid | US\$ | 1,658 | /t | (- | ₱ | 29,840/t) | |
| Rhodamine Red | US\$ | 25. | 3/kg | (| ₱ | 455/kg) | |
| Methyl Violet | US\$ | 29. | 1/kg | (| ₱ | 523/kg) | |

Table VI-16 Annual Variable Cost Without Renovation (Unit ; 1,000 US\$)

| | * | | | | | | | | | |
|--|-----------------------------|--------------------------|--------------------------|-----------------------------|---|--------------------------|--------------------------|--------------------------|-----------------------------|--|
| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| A. RAW MATERIALS | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 | 15,943 |
| Pulpwood White Chip Red Chip | 13, 001 5, 762 7, 239 | 13,001 5,762 7,239 | 13,001 5,762 7,239 | 13, 001 5, 762 7, 239 | 13, 001 5, 7621 7, 239 | 13,001 5,762 7,239 | 13,001 5,762 7,239 | 13,001 5,762 7,239 | 13, 001 5, 762 7, 239 | 13,001 5,762 7,239 |
| N-UKP | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 | 2,942 |
| B. CHEMICALS | 5, 738 | 5, 738 | 5,738 | 5,738 | 5, 738 | 5,738 | 5,738 | 5, 738 | 5,738 | 5,738 |
| Salt Cake (100%) Limestone | 620 | 620 | 620 | 620 | 620 | 620 2 | 620 | 620 | 620 2 | 620 |
| Washer Additives | 173 | 65 143 | 143 | 163 | 95] 143] | 65 143 | 183 183 | 183 | 551 | 651 |
| Chlorine (100%) | 525 | 525 | 222 | 525 205 205 | 32 32 32 32 32 32 32 32 32 32 32 32 32 3 | 5251 2051 | 525 | 3251 3251 3351 | | 183 183 183 183 183 183 183 183 183 183 |
| ٠ | 375 | 375 | 375 | 375 | 375 1075 1075 | 375 | 375 | 33.51 | 375 | 375 |
| , O | 192 | 192 | 192 | 192 | 192 | 192 | 281 | 1921 | 351 251 | |
| Sodium Sulfite (199%) | 131 | 83 E | 131 88 131 131 | 13.58 | | 13.5 | 86 E3 | 131 8 | 8 E | 78 E |
| Alum Annt | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 407 | 487 |
| Acetic Acid | | 101 | 300 | 200 | 32 | 01 | 100 | 100 | 9 | 3 = 3 |
| Rhodamine Red Methyl Violet | 171 | 17. | 171 | 171 | 171 | 171 | 17. | 7 | 7 | 171 |
| Other Chemicals | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 | 1,066 |
| C. UTILITIES | 34,790 | 34, 790 | 34, 790 | 34, 790 | 34,790 | 34, 790 | 34, 798 | 34, 790 | 34,790 | 34,790 |
| Electric Power | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 | 2,867 |
| Surker C Oil for Lime Kiln Mill Water | 1,365 | 1,365 1,365 486 | 1,365 | 1,365 | 1,365 | 1,365 | 1,365 | 1,365 | 1,365 | 1,365 |
| D. MISCELLANEOUS MATERIALS | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 | 3,986 |
| F. TOTAL | 60,457 | 60, 457 | 60, 457 | 60, 457 | 60,457 | 68,457 | 60,457 | 60,457 | 60,457 | 60,457 |
| | | | | | | | | | | |

Table VI-11 Annual Variable Cost on Renovation of Plan A (Unit ; 1,000 US\$)

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1987 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|-----------------------------|-----------------------------|--------------------------|--------------------------|--------------------------|---|
| A. RAW MATERIALS | 17,485 | 23,884 | 25,803 | 26, 206 | 26,206 | 26,206 | 26, 206 | 26, 205 | 26,206 | 25, 206 |
| Pulpwood White Chip Red Chip | 10,023 4,815 5,208 | 13,516 6,250 7,266 | 14,579 6,630 7,949 | 14,787 6,626 8,161 | 14, 787 6, 626 8, 161 | 14, 787 6, 625 8, 161 | 14,787 6,626 8,161 | 14,787 6,626 8,161 | 14,787 6,626 8,161 | 14,787 6,626 8,161 |
| N-BKP N-UKP | 4, 770 2, 693 | 3,713 | 7,279 | 7,474 | 7,474 | 7,474 | 7,474 | 3,945 | 7,474 | 7,474 |
| B. CHEMICALS | 4,515 | 6, 190 | 5,695 | 6,806 | 6,806 | 6,806 | 6,806 | 6,806 | 6,806 | 6,806 |
| Salt Cake (100%) | 412 | 543 | 581 | 585 | 382 | 88. | - <u>18</u> | - <u>15</u> 6 | 282 | .585 |
| litives persion | 1011 | 1431 | 151 | | 13.88.E | 138 | <u> </u> | 28.2 | 138 13 | 18 13 |
| Chlorine (100%) | 153 65 | 213 91 | 2331 1901 | 239 | 2391 1639 | 88 | 88.5 | | 88 | 239 |
| Hypo-chlorite (as ave.CI) Hydrogen Peroxide | 100 | 1,374 | 1,503 | 1,543 | 157 | 1,543 | 1,543 | 1,543 | 157 | 1,543 |
| Sodium Silicate (190%) | 198 | 276 | 302 | 310 | 310 | | 33.0 | | 310 | 33,83 |
| | 151 | 209 | 229 | 235 | 232 | 2321 | 235 | | | |
| Sizing Agent | 212 | 95 | 7191 | 1017 1017 | 7191 | 719 | 719 | | 71. | 719 |
| Rhodamine Red | 3 E | 5. E. | | 28 | 58 | 21 F. | 型 路 | | <u>4</u> 88 | 4.83 |
| Methyl Violet | 153 | 214 | 234 | 240 | 240 | 240 | 240 | | 240 | 240 |
| STEATURE ORGANIZATION | 000 17 | 22.00 | 150061 | 1150 (T | 150 to 20 | 15.021 | 12. 3c | ် ပွ | 137 00 | 10. 10. 20. 20. 20. 20. 20. 20. 20. 20. 20. 2 |
| | 000 | 700 | 1000 | *01 00 | 50, 104 | #01 io | 3 7.5 | 5. | *51.00 | , 50° |
| Electric Power | 3,280 | 4,444 | 4,800 | 4,876 | 4.876 | 4,876 | 4,876 | 4,876 | 4,876 | 4,876 |
| Bunker C Oil for Lime Kiln Mill Water | 313 | 1,195 | 1,278 | 1,286 | 1,286 | 1,285 | 1,286 | 1,286 | 1,286 | 1,286 |
| D. MISCELLANEOUS MATERIALS | 3,589 | 4,924 | 5,346 | 5,454 | 5,454 | 5, 454 | 5, 454 | 5,454 | 5,454 | 5,454 |
| F. TOTAL | 49,958 | 67,983 | 73,461 | 74, 630 | 74,630 | 74,630 | 74,630 | 74,630 | 74,630 | 74,630 |
| · January Company of the Company of | | | | | | | | | | |

Table VI-12 Annual Variable Cost After Renovation of Plan B (Unit : 1,000 US\$)

| 1997 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | 782 | 73. | # 68 7 83 | 15 15 15 15 15 15 15 15 15 15 15 15 15 1 | 1,543 | 328 | 88.55 25.55 | 1,167 | 7 88 | 22.0 | | 750 1 50 | 5,437 | 1,720 | 700 | 6, 072 | 85,835 |
|------|------------------|------------------------------------|----------------|--------------|----------------|------------------|---------------------------|---|-------------------|----------------|---|--------------|-----------------|---------------|------------|-----------------|----------------|----------------------------|--------------|----------------------------|----------|
| 1996 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | - 2 <u>8</u> ~ | <u> </u> | 239 239 | 163 | 1,543 | | 232 | 1,167 | 77 68 78 68 | 220 | 000 5 | 780,88 | 5,437 | 1,720 | 700 | 6,072 | 85,835 |
| 1995 | 31,956 | 17,849. 9,688 8,161 | 7,474 | 8,115 | 782 | , w | 239 | 163 | 1,543 | 328 | 235 | 1,167 | <u> </u> | 240 | 000 S | 28, 687 | 5,437 | 1,720 | 700 | 6,072 | 85,835 |
| 1994 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | 782 | 3 20 3 | 239 239 | 163 | 1,543 | 328 | 235 | 1,167 | 73 E | 240 | 7000 | 38,682 | 5,437 | | 300 | 6,072 | 85,835 |
| 1993 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | 782 | 73. | 239 239 | 103 | 1,543 | 828 | 235 | 1,167 | 77 65 | 248 | , con | 35, 656 | 5, 437 | 1,720 | 7200 | 6,072 | 85, 835 |
| 1992 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | 782 | <u> </u> | 239 | 103 157 | 1,543 | 328 | 233 240 240 240 240 240 240 240 240 240 240 | 1,167 | 7. 2. | 240 | 7, 600 | 269,650 | 5,437 | 1,720 | 700 | 6,072 | 85,835 |
| 1991 | 31,956 | 17,849 9,688 8,161 | 7,474 | 8,115 | 782 | 33.5 | 239 | 103 | 1,543 | 388 | 235 | 1,167 | 38 14 | 240 | 7 | 38,035 | 5,437 | 1,720 | 786 | 6,072 | 85,835 |
| 1990 | 31,475 | 17,574 9,625 7,949 | 7,279 | 7,971 | 774 | 72 | 233 | 153 | 1,503 | 320 | 523 83 83 83 83 83 83 83 83 83 83 83 83 83 | 1,159 | 4 65 | 23.5 | 1,310 | 58, U08 | 5,350 | 1,703 | 670 | 5,952 | 84,466 |
| 1989 | 26, 223 | 14,813 7,547 7,266 | 6,655 | 6, 716 | 627 | 3 80 | 213 213 | 91 | 1,374 | 882 | 209 | 862 | 13 | 214 | | 32,300 | 4,523 | 1,380 | 746 | 5, 183 | 71,087 |
| 1988 | 17,486 | 18,023 4,815 5,208 | 4,770 | 4,515 | 412 | 33 | | 100 | 984 | 210 | 151 | 515 | ज हू ज | 153 | 1,000 | 74,308 | 3,280 | 906 | : CTC | 3,589 | 49,958 |
| | S | <u>.</u> | | | (190%) | itives | (100%) | Caustic Soda (100%) Hypo-chlorite (as ave.Cl) | eroxide | fite (100%) | | at | d Red | | 213 | | ower | Bunker C Oil for Lime Kiln | - | IS MATERIALS | |
| | A. RAW MATERIALS | Pulpwood White Chip Red Chip | N-BKP N-UKP | B. CHEMICALS | Sait Cake | Washer Additives | Pitch Dispersion Chlorine | Caustic Soda Hypo-chlorita | Hydrogen Peroxide | Sodium Sulfite | Coco 011 | Sizing Agent | Acetic Acid | Methyl Violet | Para Tarra | c. oileilles | Electric Power | Bunker C 0 | Tanga TITU | D. MISCELLANEOUS MATERIALS | F. TOTAL |

Table VI-13-1 Income Statement on Renovation of Plan A
Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | | | | | | | | | 7.4. | |
|--|--------------------------------|------------------------------|-------------------------------|---------------------------------|-------------------------------|-------------------------------|------------------------------|---------------------------------|---|--------------------------------|
| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 21,823 110,315 131,338 | 31,459 110,315 141,774 | 33, 598 110, 315 143, 913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33, 598 110, 315 143, 913 | 33,598 110,315 143,913 | 33,5981 110,3151 143,913 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 11,981 | 17,476 | 18,649 | 18,649 | 18,649 | 18,649 | 18,649 | 18,649 | 18,649 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10, 499 60, 457 49, 958 | 7,526 60,457 67,983 | 13, 004 60, 457 73, 461 | 14,173 60,457 74,630 | 14, 173 60, 457 74, 630 | 14, 173 60, 457 74, 630 | 14,173 60,457 74,630 | 14, 173 60, 457 74, 630 | 14, 173 60, 457 74, 630 | 14, 173 60, 457 74, 630 |
| B-2. Fixed Cost Related Labour Cost | 2,972 | 4,455 | 4,472 | | 4,476 | 4,476 | 4,475 | 4,476 | 4,476 | 4,476 |
| Maintenance Cost Tax & Insurance Overhead Cost | 1,143 | 1,143 | 2,030 1,143 419 51 | 1,143 419 55 | 1,143 | 1,143 | 1,143 | 1,143 1,143 419 55 | 1,143 | 1,143 |
| C. INCREMENT OF GROSS PROFIT | -5,812 | 9,042 | 13,983 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 |
| D. INCREMENT OF SALES EXPENSES E. INCREMENT OF EXCISE TAX | -534 | 841 | 1,258 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 |
| F. INCREMENT OF OPERATING PROFIT | -5, 038 | 7,800 | 12,127 | 12,962 | 12,962 | 12, 962 | 12,962 | 12,962 | 12,962 | 12,962 |
| G. INCREMENT OF INTEREST ON DEBT | | | 5,219 | 1,985 | 1,691 | 1,397 | 1,103 | 809 | 515 | 221 |
| H. INCREMENTAL NET PROFIT BEFORE INCOME TAX | -5, 038 | 7,800 | 6,908 | 18,977 | 11,271 | 11,565 | 11,859 | 12, 153 | 12,447 | 12,741 |

Table VI-13-2 Income Statement on Renovation of Plan A After Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|--------------------------------|------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|---|-------------------------------|
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 21,023 110,315 131,338 | 31,459 110,315 141,774 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 | 33,598 110,315 143,913 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 11,981 | 17,476 | 18,649 | 18,649 | 18,649 | 18,649 | 18,649 | 18,649, | 18,649 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10, 499 60, 457 49, 958 | 7,526 60,457 87,983 | 13,004 60,457 73,461 | 14, 173 60, 457 74, 630 | 14,173 60,457 74,638 | 14, 173 60, 457 74, 630 | 14,173 60,457 74,630 | 14, 173 60, 457 74, 630 | 14,173 60,457 74,630 | 14, 173 60, 457 74, 630 |
| B-2. Fixed Cost Related | 2,972 | 4,455 | 4,472 | 4,476 | 4,476 | 4,476 | 4,476 | 4,476 | 4,476 | 4,476 |
| Depreciation & Amortization Maintenance Cost Tax & Insurance Overhead Cost | 1,429 1,143 419 -22 | 2,856 1,143 419 | 2,856 1,143 419 51 | 2,856 1,143 419 55 | 2,856 1,143 419 55 | 2,856 1,143 419 | 2,836 1,143 419 | 2,856 1,143 419 55 | 2,856 1,143 619 93 93 93 93 93 93 93 93 93 93 93 93 93 | 2,855 1,143 419 |
| C. INCREMENT OF GROSS PROFIT | -5,812 | 9,042 | 13,983 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 | 14,949 |
| D. INCREMENT OF SALES EXPENSES E. INCREMENT OF EXCISE TAX | -534 | 841 | 1,258 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 | 1,344 |
| F. INCREMENT OF OPERATING PROFIT | -5, 038 | 7,800 | 12, 127 | 12,962 | 12,962 | 12,962 | 12,962 | 12,962 | 12,962 | 12,962 |
| G. INCREMENT OF INTEREST ON DEBT | | | 5,219 | 1,985 | 1,691 | 1,397 | 1,103 | - 508 | 515 | 221 |
| H. INCREMENTAL NET PROFIT BEFORE INCOME TAX | -5, 038 | 7,800 | 6,908 | 10,977 | 11,271 | 11,565 | 11,859 | 12, 153 | 12,447 | 12,741 |
| I. INCREMENTAL INCOME TAX | - 5- | 2967 | 2,418 | 3,842 | 3,945 | 4,048 | 4,151 | 4,254 | 4,356 | 4,459 |
| J. INCREMENTAL NET PROFIT APTER INCOME TAX | -5,038 | 6,833 | 4,490] | 7,135 | 7,326 | 7,517 | 7,708 | 7,899 | 8, 091 | 8,282 |

Table VI-14-1 Income Statement on Renovation of Plan B
Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1988 | 1986 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|--|---|--|--|---|------------------------------|---|--|--------------------------------|-------------------------------------|
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 31,399 110,315 141,714 | 55,397 110,315 165,712 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,755 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 16,759 | 30,887 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32,261 | 32,261 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10, 499 60, 457 49, 958 | 10,630 60,457 71,087 | 24,009 60,457 84,466 | 25, 378 60, 457 85, 835 | 25, 378 68, 457 85, 835 | 25,378 60,457 85,835 | 25, 378 60, 457 85, 835 | 25,378 60,457 85,835 | 25,378 88,457 | 25,378 60,457 85,835 |
| B-2. Fixed Cost Related Labour Cost Depreciation \$ Amortization Maintenance Cost Tax & Insurance Overhead Cost | 2, 972 3 1, 429 1, 143 -22 | 6, 129 3, 565 1, 808 563 53 | 6,878 40 4,272 1,808 663 95 | 6, 883 40 4, 272 1,808 663 1001 | 6,883 40 4,272 1,808 663 100 | 6,883 401 1,808 100 | 6,883 40 4,272 1,808 663 100 | 6, 883 4, 272 1, 808 108 108 | 6,883 4,272 1,808 100 | 6,883 401 1,808 100 100 |
| C. INCREMENT OF GROSS FROFIT | -5,812 | 14,640 | 24,510 | 26, 180 | 26, 180 | 26, 180 | 26, 180 | 26, 180 | 26, 180 | 26,188 |
| D. INCREMENT OF SALES EXPENSES E. INCREMENT OF EXCISE TAX | -534 | 1,256 | 2,216 | 2,338 | 2,338 | 2,338 | 2,338[1,095] | 2,338 | 2,3381 | 2,338 |
| F. INCREMENT OF OPERATING PROFIT | -5,038 | 12,794 | 21,253 | 22, 747 | 22,747 | 22,747 | 22,747 | 22, 747 | 22,747 | 22,747 |
| G. INCREMENT OF INTEREST ON DEBT | | | 5,920 | 3,770 | 2,365 | 1,961 | 1, 555 | 1,149 | 747 | |
| H. INCREMENTAL NET PROFIT BEFORE INCOME TAX | -5,038 | 12, 794 | 15,333 | 18,977 | 20,382 | 20, 786 | 21, 192 | 21, 598 | 22,000 | 22,406 |

Table VI-14-2 Income Statement on Renovation of Plan B After Income Tax (Unit; 1.000 US\$)
Original Financing Plan

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|------------------------------|-------------------------------|------------------------------|-----------------------------------|------------------------------|-------------------------------|------------------------------|-------------------------------|------------------------------|------------------------------|
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 31,399 110,315 141,714 | 55,397 110,315 165,712 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 | 58,441 110,315 168,756 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 16,759 | 30,887 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32,261 | 32,261 | 32,261 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10,499 60,457 49,958 | 10, 630 60, 457 71, 087 | 24,009 60,457, 84,466 | 25, 378 60, 457 85, 835 | 25,378 60,4571 85,8351 | 25, 378 60, 457 85, 835 | 25,378 60,457 85,835 | 25, 378 60, 457 85, 835 | 25,378 68,457 85,835 | 25,378 60,457 85,835 |
| B-2. Fixed Cost Related | 2,972 | 6, 129 | 6,878 | 6,883 | 6,883 | 5,883 | 6,883 | 6,883 | 6,883 | 6,883 |
| Depreciation \$ Amortization Maintenance Cost Tax & Insurance Overhead Cost | 1,429 | 1, 38 88 83 83 83 | 4,272 1,808 663 951 | 4, 272] 1,808] 663] 100] | 4,272 1,808 663 100 | 1,808 | 4,272 1,808 663 100 | 4,272 1,808 663 100 | 4,272 1,808 663 100 | 4,272 1,808 663 100 |
| C. INCREMENT OF GROSS PROFIT | -5,812 | 14,640 | 24,510 | 26, 180 | 26, 180 | 26,180 | 26, 180 | 26,180 | 25,180 | 26,180 |
| D. INCREMENT OF SALES EXPENSES E. INCREMENT OF EXCISE TAX | -534 | 1,256 | 2,216 | 2,338 | 2,338 | 1,095 | 2,338 | 2,338 | 1,095 | 2,338 |
| F. INCREMENT OF OPERATING PROFIT | -5,038 | 12, 794 | 21, 253 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 |
| G. INCREMENT OF INTEREST ON DEBT | | · . | 5,920 | 3,770 | 2,365 | 1,961 | 1,555 | 1,149 | 747 | 341 |
| A. CUMULATIVE NET PROFIT BEFORE INCOME TAX | -5, 038 | 7,7,36 | 23, 089 | 42,066 | 62,448 | 83,234 | 104,426 | 126,024 | 148,824 | 170,430 |
| I. INCREMENTAL INCOME TAX | | 2,715 | 5,367 | 6,642 | 7,134 | 7,275 | 7,417 | 7,559 | 7,700 | 7,842 |
| J. INCREMENTAL NET PROFIT AFTER INCOME TAX | -5, 038 | 10,079 | 9,966 | 12,335 | 13,248 | 13,511 | 13,775 | 14,0391 | 14,300 | 14,564 |
| | | | | | | | | | | |

Table VI-14-3 Income Statement on Renovation of Plan B (ALT)
Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|--|--|---|--------------------------------|---|---|---------------------------------------|--------------------------------------|--------------------------------|---------------------------------|
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 29, 550 110, 315 139, 865 | 50,782 110,315 161,097 | 54,166 110,315 164,481 | 54, 166 110, 3151 164, 481 | 54,166 110,315 164,481 | 54,166 110,315 164,481 | 54, 166 110, 315 164, 481 | 54,166 110,315 164,481 | 54, 166 110, 315 164, 481 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 16,759 | 30,887 | 32,261 | 32,261 | 32,261 | 32,261 | 32,261 | 32,261 | 32, 261 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10, 499 60, 457 49, 958 | 10,630 60,457 71,087 | 24,009 60,457 84,466 | 25, 378 60, 457 85, 835 | 25,378 60,457 85,835 | 25, 378 60, 457] 85, 835 | 25,378 60,457 85,835 | 25,378 68,457 85,835 | 25, 378 60, 457 85, 835 | 25,378 60,457 85,835 |
| B-2. Fixed Cost Related Labour Cost Depreciation * Amortization Maintenance Cost Tax & Insurance Overhead Cost | 2, 972 3 1, 429 1, 143 419 | 6, 129 4, 40 3, 565 1, 808 663 53 | 6,878 4,272 1,808 1,808 953 | 6,883 4,272 1,808 100 | 6, 883 4 401 1, 808 108 108 | 6,883 40 4,272 1,808 663 100 | 6,883 4,272 1,808 663 100 | 6,883 40 4,272 1,808 100 | 6,883 4,272 1,808 100 | 6,883 401 1,808 1001 |
| C. INCREMENT OF GROSS PROFIT | -5,812 | 12, 791 | 19,895 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 |
| E. INCREMENT OF EXCISE TAX | -240 | 590 | 1,041 | 1,095 | 1,095 | 1,095 | 1,035 | 1,095 | 1,095 | 1,895 |
| F. INCREMENT OF OPERATING PROFIT G. INCREMENT OF INTEREST ON DEBT | -5, 038 | 11,019 | 16,823 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 |
| H. INCREMENTAL NET PROFIT. BEFORE INCOME TAX | -5, 038 | 11,019 | 10,903 | 14,873 | 16,278 | 16,682 | 17,088 | 17, 494 | 17,896 | 18,302 |

W.S.

Table VI-14-4 Income Statement on Renovation of Plan B (ALT)
After Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|------------------------------|---|-------------------------------|---------------------------------|--------------------------------|--------------------------------|-------------------------------|-----------------------------------|---------------------------------|--------------------------------|
| A. INCREMENTAL SALES REVENUE Sales Revenue Without Renovation Sales Revenue After Renovation | -13,339 110,315 96,976 | 29,550 110,315 139,865 | 50,782 110,315 161,097 | 54, 166 110, 315 164, 481 | 54,166 110,315 164,481 | 54,166 110,315 164,481 | 54,166 118,315 164,481 | 54,166 110,315 164,481 | 54,166 110,315 164,481 | 54,166 110,315 164,481 |
| B. INCREMENT OF MANUFACTURING COST | -7,527 | 16,759 | 30,887 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32, 261 | 32, 261 |
| B-1. Variable Cost Related Variable Cost Without Renovation Variable Cost After Renovation | -10,499 60,457 49,958 | 10,630 60,457 71,087 | 24, 009 60, 457 84, 466 | 25, 378 60, 457 85, 835 | 25, 378 60, 457 85, 835 | 25, 378 60, 457 85, 835 | 25, 378 60, 457 85, 835 | 25, 378 60, 457 85, 835 | 25, 378 60, 457 85, 835 | 25,378 60,457 85,835 |
| B-2. Fixed Cost Related Labour Cost | 2,972 | 6,129 | 6,878 | 6,883 | 6,883 | 6,883 | 6,883 | 6,883 | 6,883 | 6,883 |
| Depreciation \$ Amortization Maintenance Cost Tax & Insurance Overhead Cost | 1,429 1,143 419 -22 | 1, 808 563 583 583 583 583 | 4, 272 1, 808 663 95 | 4,272 1,808 663 100 | 4, 272 1, 808 663 100 | 4, 272 1, 808 663 100 | 4, 272 1,808 663 100 | 4, 272] 1, 808] 663 100 | 4,272 1,808 663 108 | 4,272 1,808 1,808 100 |
| C. INCREMENT OF GROSS PROFIT | -5,812 | 12,791 | 19,895 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 | 21,905 |
| D. INCREMENT OF SALES EXPENSES E. INCREMENT OF EXCISE TAX | -534 | 1,182 | 2,031 | 2,167 | 2,167 | 2,167 | 2,167 | 2,167 | 2,167 | 2,167 |
| F. INCREMENT OF OPERATING PROFIT | -5,038 | 11,019 | 16,823 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 |
| G. INCREMENT OF INTEREST ON DEBT | | - | 5,920 | 3,770 | 2,365 | 1,961 | 1,555 | 1,149 | 747 | 77 |
| H. INCREMENTAL NET PROFIT BEFORE INCOME TAX | -5,038 | 11,019 | 10,903 | 14,873 | 16,278 | 16,682 | 17,088 | 17,494 | 17,896 | 18,302 |
| I. INCREMENTAL INCOME TAX | | 2, 093 | 3,816 | 5,206 | 5,697 | 5,839 | 5, 981 | 6,123 | 6,264 | 6,406 |
| J. INCREMENTAL NET PROFIT AFTER INCOME TAX | -5,038 | 8,926 | 7,087 | 9,667 | 10,581 | 10,843 | 11,107 | 11,371 | 11,632 | 11,896 |

Cash Flow Statement on Renovation of Plan A Before Income Tax (Unit; 1,000 US\$) Original Financing Plan Table VI-15-1

| | | | | | | | | | | | - |
|---|-------|---------|----------|-----------------|---------------|----------|---------|-------------|--|-------------|------------------|
| | 1987 | 1988 | 1989 | 1990 | 1931 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| A. Source of Cash | 4,105 | 37,267 | 10,656 | 14,983 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 |
| A-1. Cash Generated From Operation | | -3,609 | 10,656 | 14,983 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 |
| Operating Profit Depreciation & Amortization | | -5,038 | 7,800 | 12,127 | 12, 962 | 12,962 | 12, 962 | 12, 962 | 12,962 | 12,962 | 12,962 |
| A-2. Financial Resources | 4,105 | 40,876 | | | <u> </u> | | | | | | |
| PICOP's Own Funds Long Term Loan | 4,105 | 18,470 | | <u></u> | | | | | and the second s | | |
| B. Uses of Cash | 4,105 | 40,876 | - 6 | 8,019 | 4, 785 | 4,491 | 4,197 | 3,903 | 3,609 | 3,315 | 3,027 |
| B-1. Investment | 4,105 | 33, 991 | | | | | | | | | |
| B-2. Inventory & Start-up Expenses | | 6,885 | | . . | - | <u>_</u> | | | | | |
| B-3. Debt Service | | | ·- · · · | 8,019 | 4,785 | 4,491 | 4,197 | 3, 903 | 3,609 | 3,315 | 3,027 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,806 |
| B-4. Income Tax Payment | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C. Cash Increase or (Decrease) | | -3,609 | 18,656 | 6,964 | 11,033 | 11,327 | 11,621 | 11,915 | 12,209 | 12, 503 | 12, 791 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | | -3,609 | -3,609 | 7,047 | 14,011 | 25,044 | 36, 371 | 47,992 | 59,907] | 72,116 | 84,619 97,410 |
| | | | | | | | | | | | |

Table VI-15-2 Cash Flow Statement on Renovation of Plan A After Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1981 | 1992 | 1993 | 1994 | 1995 | 1396 | 1997 |
|---|---|------------------|-------------------|---------|--------|------------------|---|-------------------------------------|--------|--|-----------|
| A. Source of Cash | 4,105 | 37,267 | 10,656 | 14,983 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 |
| A-1. Cash Generated From Operation | ·• | -3,609 | 10,656 | 14,983 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 | 15,818 |
| Operating Profit Depreciation & Amortization | | -5, 038 | 7,800 | 12, 127 | 12,962 | 12,962 | 12,962 | 12,952 | 12,962 | 12,962 | 12,962 |
| A-2. Financial Resources | 4,105 | 40,876 | | | | | | , , , , , , , , , , , , , , , , , , | | | |
| PICOP's Own Funds Long Term Loan | 4,105 | 18,470 22,406 | | | | | | | | | · . |
| B. Uses of Cash | 4,105 | 40,876 | 967 | 10,437 | 8,627 | 8,436 | 8,245 | 8, 054 | 7,863 | 7,671 | 7,486 |
| B-1. Investment | 4,105 | 33, 991 | | | | | | | | ······································ | · · · · · |
| B-2. Inventory & Start-up Expenses | ··· | 6,885 | - | | | | *************************************** | | | | |
| B-3. Debt Service | - · - · · · · · · · · · · · · · · · · · | <u></u> | | 8,019 | 4,785 | 4,491 | 4,197 | 3,903 | 3,609 | 3,315 | 3,027 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,800 | 2,806 |
| B-4. Income Tax Payment | - | 0 | 2967 | 2,418 | 3,842 | 3,945 | 4,048 | 4, 151 | 4,254 | 4,356 | 4,459 |
| C. Cash Increase or (Decrease) | 8 | -3, 609 | 9,689 | 4,546 | 7,191 | 7,382 | 7,573 | 7,764 | 7,955 | 8,147 | 8,332 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | | -3,609 | -3, 609 6, 080 | 6, 080 | 10,626 | 17,817 25,199 | 25, 199 32, 772 | 32,772 40,536 | 40,536 | 48,491 | 55,638 |
| | | ! | | | | | | | | | |

Table VI-16-1 Cash Flow Statement on Renovation of Plan B Before Income Tax (Unit : 1,000 US\$) Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|--------|----------|-------------------|---------------------------|---------|---------|---------|--------|---------|-------------|------------------------|
| A. Source of Cash | 5,752 | 53,815 | 20,850 | 25,525 | 27,019 | 27.019 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 |
| A-1. Cash Generated From Operation | | -3,609 | 16,359 | 25, 525 | 27,019 | 27,819 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 |
| Operating Profit Depreciation & Amortization | | -5,038 | 12, 794 3, 565 | 21, 253 | 22,747 | 22, 747 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 |
| A-2. Financial Resources | 5, 752 | 57,424 | 4,491 | | | | | | | | |
| PICOP's Own Funds Long Term Loan | 5,752 | 26, 562 | 4,491 | THE STATE OF THE STATE OF | | | | | | | |
| B. Uses of Cash | 5, 752 | 57,424 | 4, 491 | 9,436 | 7,626 | 6,221 | 5,817 | 5,411 | 5,005 | 4,603 | 4,204 |
| 8-1. Investment | 5, 752 | 50,539 | 3,963 | | | | | | | <u></u> | |
| 8-2. Inventory & Start-up Expenses | | 5,885 | 228 | | | | | | ÷ | | |
| 8-3. Debt Service | | <u> </u> | | 9,436 | 7,626 | 6,221 | 5,817 | 5,411 | 5,005 | 4,603 | 4,204 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 3,516 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,863 |
| B-4. Income Tax Payment | | 0 | 0 | | 0 | 6 | -6 | 6 | 6 | | -5 |
| G. Cash Increase or (Decrease) | 0 | -3,609 | 16,359 | 16,089 | 19, 393 | 20,798 | 21,202 | 21,608 | 22,014 | 22,416 | 22,815 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | 0 | -3,609 | -3,609 | 12, 750 28, 839 | 28,839 | 48, 232 | 69, 030 | 90,232 | 111,840 | 133,854 | 156, 270] 179, 085] |
| | | | | | | | | | | | |

Table VI-16-2 Cash Flow Statement on Renovation of Plan B
After Income Tax (Unit: 1,000 US\$)
Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|--------|-----------------|-------------------|---------|---------|--------|----------------|-------------|----------------------|--------|---------|
| A. Source of Cash | 5, 752 | 53,815 | 20,850 | 25, 525 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 |
| A-1. Cash Generated From Operation | | -3,609 | 16,359 | 25, 525 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 | 27,019 |
| Operating Profit Depreciation & Amortization | | -5,038 1,429 | 12, 794 3, 565 | 21,253 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 | 22,747 |
| A-2. Financial Resources | 5,752 | 57, 424 | 4,491 | | | | | | | | |
| PICOP's Own Funds Long Term Loan | 5,752 | 26, 562 | 4,491 | | · | | | | | | |
| B. Uses of Cash | 5,752 | 57, 424 | 7,206 | 14,803 | 14,268 | 13,355 | 13,092 | 12,828 | 12,564 | 12,303 | 12,046 |
| 8-1. Investment | 5, 752 | 50, 539 | 3, 963 | | | | ., | | | | |
| B-2. Inventory & Start-up Expenses | | 6,885 | 228 | | | | | | | | |
| B-3. Debt Service | | ···· | | 9,436 | 7,626 | 6,221 | 5,817 | 5,411 | 5,005 | 4,603 | 4,204 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 3,516 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,863 |
| B-4. Income Tax Payment | | - - | 2,715 | 5,367 | 6,642 | 7,134 | 7,275 | 7,417 | 7, 559 | 7,700 | 7,842 |
| C. Cash Increase or (Decrease) | 0 | -3,609 | 13,644 | 10,722 | 12,751 | 13,664 | 13,927 | 14, 191 | 14, 455 | 14,716 | 14,973 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | 0 | -3,609 | -3,689 | 10,035 | 20, 757 | 33,508 | 47,172 | 61,099 | 75, 290 89, 745 | 89,745 | 104,451 |
| | | | | | | | | | | | |

Table VI-16-3 Cash Flow Statement on Renovation of Plan B (ALT)

Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|--------|---------|--------|-------------|---------|---------|--------------|--------|-------------------|----------------------|----------|
| A. Source of Cash | 5,752 | 53,815 | 19,075 | 21,095 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 |
| A-1. Cash Generated From Operation | | -3,609] | 14,584 | 21,095 | 22,915 | 22, 915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 |
| Operating Profit Depreciation & Amortization | | -5,038 | 11,019 | 16,823 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 |
| A-2. Financial Resources | 5,752 | 57,424 | 4,491 | | | | - | | | | |
| PICOP's Own Funds Long Term Loan | 5, 752 | 26,562 | 4,491 | | | | | | | | |
| B. Uses of Cash | 5,752 | 57,424 | 4,491 | 9,436 | 7,626 | 6,221 | 5,817 | 5,411 | 5,605 | 4,603 | 4,204 |
| B-1. Investment | 5,752 | 58, 539 | 3,963 | | | | | | | - | |
| 8-2. Inventory & Start-up Expenses | | 6,885 | 228 | | | | · · | | ····· ·- | 4. | |
| B-3. Debt Service | | | | 9, 436 | 7,626 | 6,221 | 5,817 | 5, 411 | 5,005 | 4,603 | 4,204 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 3,516 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,863 |
| B-4. Income Tax Payment | | 0 0 | 0 | 0 | 0. | 0 | 0 | 0 | 0 | 0 | |
| C. Cash Increase or (Decrease) | 0 | -3, 609 | 14,584 | 11,659 | 15,289 | 16,694 | 17,098 | 17,504 | 17,910 | 18,312 | 18,711 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | 0 | -3,609 | -3,609 | 10,975 | 22, 634 | 37,923 | 54,617 | 71,715 | 89,219 107,129 | 107, 129 125, 441 | 125, 441 |
| | | | | | , | | | | | | |

Table VI-16-4 Cash Flow Statement on Renovation of Plan B (ALT)
After Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1981 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|---|-----------|-----------------|-----------------|---------|---|-------------|--|----------|---------------------------------------|---------|---------|
| A. Source of Cash | 5,752 | 53, 815 | 19, 075 | 21,095. | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22, 915 |
| A-1. Cash Generated From Operation | | -3,609 | 14,584 | 21,095 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 | 22,915 |
| Operating Profit Depreciation & Amortization | | -5,038 1,429 | 3,565 | 16,823 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 | 18,643 |
| A-2. Financial Resources | 5,752 | 57,424 | 4,491 | | | | | | · · · · · · · · · · · · · · · · · · · | | |
| PICOP's Own Funds Long Term Loan | 5,752 | 26, 562 | 4,491 | | · · · · | | | ·· ·· ·· | | | |
| B. Uses of Cash | 5, 752 | 57,424 | 6, 584 | 13, 252 | 12,832 | 11,918 | 11,656 | 11,392 | 11,128 | 10,867 | 10,610 |
| B-1. Investment | 5, 752 | 50,539 | 3,963 | | · | | | | | · | |
| B-2. Inventory & Start-up Expenses | | 6,885 | 228 | | * to ********************************** | | ······································ | | | · · | |
| B-3. Debt Service | | | | 9,436 | 7,626 | 6,221 | 5,817 | 5,411 | 5, 805 | 4,603 | 4,204 |
| Repayment of Long Term Loan Interest on Long Term Loan | | | | 3,516 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,856 | 3,863 |
| 8-4. Income Tax Payment | | | 2, 193 | 3,816 | 5,206 | 5,697 | 5,839 | 5,981 | 6,123 | 6,264 | 6,406 |
| C. Cash Increase or (Decrease) | 8 | -3,609 | 12,491 | 7,843 | 10,083 | 10,997 | 11,259 | 11,523 | 11,787 | 12,048] | 12,305 |
| C-1. Beginning Cash Balance C-2. Ending Cash Balance | | -3,609 | -3,609 8,882 | 8,882 | 16, 725 | 26,808 | 37,805 | 49, 064 | 60,587 | 72,374 | 84, 422 |
| | | | | | | | | | | | |

Table VI-17-1 Balance Sheet on Renovation of Pian A
Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | | | | | , | | | | | | |
|--|------------------|---------|---------------|--------|---------|--------------------|---------|---------|---------------------|--------------------|------------------|
| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1394 | 1995 | 1996 | 1997 |
| A. Total Assets | 4, 105 | 36, 620 | 45,847 | 49,955 | 58,132 | 66, 603 | 75,368 | 84, 427 | 33, 780 | 103, 427 | 113,362 |
| A-1. Current Assets | | -3,609 | 7,047 | 14,011 | 25,044 | 36, 371 | 47,992 | 59, 907 | 72,116 | 84,619 | 97,410; |
| 4-2. Inventory | | 2,133 | 2,133 | 2,133 | 2,133 | 2, 133 | 2, 133 | 2,133 | 2, 133 | 2,133 | 2,133 |
| A-3. Net Fixed Assets | 4,105 | 38, 096 | 36, 667 | 33,811 | 30,955 | 28, 099 | 25, 243 | 22,387 | 19, 531 | 16, 675 | 13,819 |
| B. Total Liability | 4, 105 | 36,620 | 45,847 | 49,955 | 58, 132 | 66, 603 | 75, 368 | 84,427 | 93, 780 | 103, 427 | 113,362 |
| B-1. Balance of Long Term Foreign Loan | - - - | 22,406 | 22,406 | 19,608 | 16,806 | 14,006 | 11,206 | 8,406 | 5, 606 | 2,306 | - CO |
| B-2. Total Equity | 4,105 | 14,214 | 23,441 | 30,349 | 41,326 | 52, 597 | 64,162 | 76,021 | 88, 174 | 100,621 | 113,362 |
| PICOP'S Own Funds Retained Earnings | 4, 105 | 22,575 | 22,575 866 | 22,575 | 22,575 | 22, 575 30, 022 | 22,575 | 22, 575 | 22, 575, 65, 599 | 22, 575 78, 646 | 22,575 90,787 |
| Return on Investment %/y | | -11.2 | 17.3 | 28.7 | 32.9 | 35.4 | 38.4 | 41.8 | 46 | 51.1 | 57.4 |
| | | | | | | | | | | | |

ole VI-17-2 Balance Sheet on Renovation of Plan A After Income Tax (Unit; 1,000 US\$) Original Financing Plan

| | | | | | | | | : | | | |
|--|----------------|---------|---------|--------|------------------|--------------------|---------|------------------|---------|------------------|------------------|
| | 1987 | 1988 | 1989 | 1990 | 1661 | 1992 | 1993 | 1994 | 1995 | 3651 | 1997 |
| A. Total Assets | 4, 105 | 36, 620 | 44,880 | 45,570 | 50,905 | 55,431 | 60,148 | 65, 056 | 70, 135 | 75,446 | 80,922 |
| A-1. Current Assets | | -3,609 | 6,080 | 10,626 | 17,817 | 25, 199 | 32,772 | 40,535 | 48,491 | 56, 638 | 64,970 |
| A-2. Inventory | | 2,133 | 2,133 | 2, 133 | 2, 133 | 2, 133 | 2,133 | 2,133 | 2,133 | 2, 133 | 2,133 |
| A-3. Net Fixed Assets | 4, 105 | 38, 096 | 36, 667 | 33,811 | 30,955 | 28, 099 | 25, 243 | 22, 387 | 19,531 | 16,675 | 13,819 |
| B. Total Liability | 4,105 | 36,620 | 44,880 | 46,570 | 50,905 | 55,431 | 60,148 | 65, 056 | 70,155 | 75,446 | 80,922 |
| B-1. Balance of Long Term Foreign Loan | _ _ | 22,406 | 22,406 | 19,686 | 16,806 | 14,006 | 11,206 | 8,406 | 5,606 | 2,806 | ප |
| B-2. Total Equity | 4,105 | 14,214 | 22,474 | 26,964 | 34,099 | 41,425 | 48,942 | 56,650 | 64,549 | 72,640 | 80,922 |
| PICOP'S Own Funds Retained Earnings | 4,105 | 22, 575 | 22,575 | 22,575 | 22,575 11,524 | 22, 575 18, 850 | 22, 575 | 22,575 34,075 | 22,575 | 22,575 50,865 | 22,575 58,347 |
| Return on Investment %/y | | -11.2 | 15.2 | 23 | 23.2 | 24.6 | 26.4 | 28.4 | 30.9 | 33.9 | 37.7 |

Table VI-18-1 Balance Sheet on Renovation of Plan B
Before Income Tax (Unit; 1,000 US\$)
Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|---------------|---------|---------|---------|---------|---------|--------------------|-------------------|---------|-------------------|----------|
| A. Total Assets | 5, 752 | 54,815 | 73, 927 | 86, 451 | 101,572 | 118,098 | 135, 028 | 152, 364 | 170,106 | 188,250 | 206, 793 |
| A-1. Current Assets | - | -3,609 | 12,750 | 28,839 | 48, 232 | 69, 030 | 90, 232 | 111,840 | 133,854 | 156,270 | 179,085 |
| A-2. Inventory | | 2, 133 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2, 352 | 2,352 | 2,352 | 2,352 |
| A-3. Net Fixed Assets | 5, 752 | 56, 291 | 58,825 | 55,260 | 50,988 | 46,716 | 42,444 | 38, 172 | 33,900 | 29, 628 | 25, 356 |
| B. Total Liability | 5, 752 | 54,815 | 73,927 | 86, 451 | 101,572 | 118,098 | 135,028 | 152,364 | 170,105 | 188, 250 | 206, 793 |
| B-1. Balance of Long Term Foreign Loan | === | 30, 862 | 30,862 | 27,346 | 23, 490 | 19,634 | 15, 778 | 11,922 | 8, 166 | 4,210 | 32.7 |
| B-2. Total Equity | 5, 752 | 23, 953 | 43, 065 | 59, 105 | 78, 082 | 98, 464 | 119,250 | 140,442 | 162,040 | 184,040 | 206,446 |
| PICOP'S Own Funds Retained Earnings | 5,752 | 32,314 | 36,805 | 36, 805 | 36,805 | 36,805 | 36, 805 82, 445 | 36,805 103,637 | 36,805 | 36,805 147,235 | 36,805 |
| Return on Investment %/y | | ₩ | 18.9 | 33.1 | 37.7 | 40.3 | 43.3 | 46.7 | 50.7 | 55.5 | 61.2 |

Table VI-18-2 Balance Sheet on Renovation of Plan B After Income Tax (Unit: 1,000 US\$) Original Financing Plan

| | 1987 | 1988 | 1986 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|--------|------------------|--------|--------------------|---------|--------|--------------------|---------|---------|---------|----------|
| A. Total Assets | 5, 752 | 54,815 | 71,212 | 78,369 | 86,848 | 96,240 | 105,895 | 115,814 | 125,997 | 136,441 | 147,142 |
| A-1. Current Assets | | -3, 609 | 10,035 | 20,757 | 33, 508 | 47,172 | 61,099 | 75, 290 | 89,745 | 104,461 | 119,434 |
| A-2. Inventory | T.T.T. | 2, 133 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 |
| A-3. Net Fixed Assets | 5,752 | 56, 291 | 58,825 | 55,260 | 50,988 | 46,716 | 42,444 | 38, 172 | 33,900 | 29, 628 | 25, 356 |
| B. Total Liability | 5,752 | 54,815 | 71,212 | 78,369 | 86,848 | 96,240 | 105,895 | 115,814 | 125,997 | 136,441 | 147,142 |
| B-1. Balance of Long Term Foreign Loan | | 30,862 | 30,862 | 27,346 | 23, 490 | 19,634 | 15,778 | 11,922 | 8,066 | 4,210 | 347 |
| B-2. Total Equity | 5,752 | 23, 953 | 40,350 | 51,023 | 63, 358 | 76,606 | 90,117 | 103,892 | 117,931 | 132,231 | 146, 795 |
| PICOP'S Own Funds Retained Earnings | 5,752 | 32,314 -8,361 | 36,805 | 36, 805 14, 218 | 36,805 | 36,805 | 36, 805 53, 312 | 36,805 | 36,805 | 36, 805 | 36, 895 |
| Return on Investment %/y | | 8 | 14.9 | 24.8 | 26.7 | 27.7 | 23.4 | 31.5 | 33.8 | 36.7 | 40.1 |

ble VI-18-3 Balance Sheet on Renovation of Plan B (ALT)
Before Income Tax (Unit; 1,600 US\$)
Original Financing Plan

| | | | | | | | | | | . ! | |
|--|----------------|---------|---------|------------------|------------------|-------------------|---------|---------|--------------------|----------|---------|
| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
| A. Total Assets | 5, 752 | 54,815 | 72,152 | 80,246 | 91,263 | 103, 685 | 116,511 | 129,743 | 143,381 | 157, 421 | 171,860 |
| A-1. Current Assets | - | -3, 609 | 10,975 | 22, 634 | 37, 523 | 54,617 | 71,715 | 89,219 | 107,129 | 125,441 | 144,152 |
| A-2 Inventory | | 2, 133 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2, 352 | 2,352 | 2,352 | 2, 352 |
| A-3. Net Fixed Assets | 5,752 | 56, 291 | 58,825 | 55, 260 | 50, 988 | 46,716 | 42,444 | 38, 172 | 33,900 | 29,628 | 25, 356 |
| 8. Total Liability | 5, 752 | 54,815 | 72, 152 | 80,246 | 91,263 | 103,685 | 116,511 | 129,743 | 143, 381 | 157,421 | 171,860 |
| B-1. Balance of Long Term Foreign Loan | - | 30,862 | 30,862 | 27,346 | 23, 490 | 19,634 | 15,778 | 11,922 | 8, 366 | 4,216 | 347 |
| B-2. Total Equity | 5, 752 | 23, 953 | 41,290 | 52,900 | 67,773 | 84,051 | 100,733 | 117,821 | 135,315 | 153, 211 | 171,513 |
| PICOP'S Own Funds Retained Earnings | 5,752 | 32,314 | 36,805 | 36,805 16,095 | 36,805 30,968 | 36,805 47,246 | 36,865 | 36,805 | 35, 805 98, 510 | 36,805 | 36,805 |
| Return on Investment %/y | | 8- | 16.3 | 26.2 | 30.9 | 33 | 35.5 | 38.3 | 41.5 | 45.5 | 50.2 |

hble VI-18-4 Balance Sheet on Renovation of Plan B (ALI) After Income Tax (Unit; 1,000 US\$) Original Financing Plan

| | 1987 | 1988 | 1989 | 1990 | 1931 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|----------|---------|---------|--------------------|------------------|--------|---------|------------------|--------------------|----------|----------|
| A. Total Assets | 5, 752 | 54,815 | 70,059 | 74,337 | 80,148 | 86,873 | 93,860 | 101,111 | 108,626 | 116,402 | 124, 435 |
| A-1. Current Assets | | -3, 609 | 8,882 | 16, 725 | 26,808 | 37,805 | 49, 064 | 60, 587 | 72,374 | 84, 422 | 96, 727 |
| A-2. Inventory | | 2, 133 | 2, 352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 | 2,352 |
| A-3. Net Pixed Assets | 5,752 | 56, 291 | 58,825 | 55, 260 | 50,988 | 46,716 | 42,444 | 38, 172 | 33, 900 | 29, 628 | 25,356 |
| B. Total Liability | 5,752 | 54,815 | 70, 859 | 74,337 | 80,148 | 86,873 | 93,860 | 101,111 | 108, 626 | 116,402 | 124,435 |
| B-1. Balance of Long Term Foreign Loan | — | 30, 862 | 30,862 | 27,346 | 23, 490 | 19,634 | 15, 778 | 11,922 | 8, 056 | 4,210 | 347 |
| B-2. Total Equity | 5,752 | 23, 953 | 39, 197 | 46, 991 | 56,658 | 67,239 | 78, 082 | 89, 189 | 100,560 | 112, 192 | 124,088 |
| PICOP'S Own Funds Retained Earnings | 5, 752 | 32,314 | 36,805 | 36, 805 10, 186 | 36,805 19,853 | 36,805 | 36,805 | 36,805 52,384 | 38, 805 63, 755 | 36,805 | 36,805 |
| Return on Investment %/y | | <u></u> | 13.2 | 20.3 | 22.3 | 22.9 | 24.4 | 28 | 27.9 | 30.2 | 32.9 |
| | | | | | - | | 4 | | | | |

Table VI-19-1 IRR Calculation on Renovation of Plan & Before Income Tax (Unit: 1,080 US\$) Original Financing Plan

| Year | [ota] | Profit Before | Less Tages | 2 | Depreciatn Interest | | Total | at. | Discounted Cash | ash. |
|-----------------|------------------|------------------|---------------|---------------|---------------------|---------|-----------|--------------|-----------------|---------|
| | י וואכט השכזו זי | TILOUIS TAY | | TILCOIIIE 18X | אוווסע רגעש רוו | on peot | עב רחן זו | ເດເວ | VGI-190 | 10-110W |
| 1987 | 4,105 | · . | | | | | | | 4,105 | 0 |
| 1988 | 40,876 | က် | | -5,038 | | | -3,609 | 0.78909882 | 32, 255 | -2,847; |
| 1989 | | 7,800 | | 7,800 | 2,856 | | 10,656 | 0.62267695 | | 6,635 |
| 1990 | | 6,908 | | 6,908 | | 5,219 | | 0.49135365 | | 7,361 |
| 1991 | | | | 10,977 | | 1,985 | | | | 6,133 |
| 1992 | | | | 11,271 | | 1,691 | ٠., | 0.305954591 | | 4,839 |
| 1993 | | | | 11,565 | | 1,397 | | ;; ;;;;;; | | 3,818 |
| 1994 | | | | 11,859 | | 1,103 | | 0.19051087 | | 3,013 |
| 1995 | | | | 12,153 | : | 808 | | | | 2,377 |
| 1996 | : | 12,447 | ٠ | 12,447 | | 515 | - | 0.11862673 | | 1,876 |
| 1997 | -17,848 | 12, | | 12,741 | | 221 | 15,818 | 0.09360821 | -1,670 | 1,480 |
| fotal | | 92, 683 | | 92, 683 | 27,133 | 12,940 | 132,756 | | 34, 689 | 34,689 |
| | | | | | | | | | | |
| Internal Rate | • | | | | | | | 1. F | _ | - |
| of Return (IRR) | 26.7 | | | | | | | | | |
| %/% | | | | | | | | | ; ; ; | |
| Return on | | | | | | | | | | r |
| دب | 30.3 | · · | · = | | | | | | | |
| V 401 / 4/3 | | | | | | | | • | | |





Table VI-19-2 IRR Calculation on Renovation of Plan A After Income Tax (Unit: 1,000 US\$)
Original Financing Plan

| Year | Total | Profit Before | Less | Profit After | Depreciatn And | Interest | [ota] | Discount | Discounted Cash | Sesh |
|--------------------------------------|---------------|------------------|----------------|-----------------|-------------------|----------------|---------------------------------------|------------|-----------------|---------|
| | Investment | Income | Tax Income Tax | Income Tax | rtizatn | on Debt | Return | Factor | Out-flow | In-flow |
| 1987 | 4,105 | | : | | | | | • | 4,105 | 6 |
| 1988 | 40,876 | ភោ | | -5,038 | 1,429 | 3 | -3,609 | 0.83242055 | 34,026 | -3,004 |
| 1989 | | 7,804 | • | 6,833 | | | 689 6 | 0.69292414 | | 6,713 |
| 1990 1991 | | 6,908 | 2,418 3,842 | 7, 135 | 2,836 2,856 | 5,219 1,985 | 12, 565 11, 976 | 0.27680437 | | 5,750 |
| 1992 | | | က် | 7,326 | | | 11,873 | 0.39968167 | | 4,745 |
| 1993 | | 11, 259 | ਚੀ ਚੀ | 7.718 | | 1+ | 11,770 | 0.332/0328 | | 3,231 |
| 1995 | - | | ંચં | 7,899 | | | 11,564 | 0.23053814 | | 2,665 |
| 1996 | | | ÷ | 8,091 | . • | | 11,462 | 0.19190471 | • | 2,1991 |
| 1997 | -17,848 | 12 | 4,459 | 8, 282 | | · · | 11,359 | 0.15974544 | -2,851 | 1,814 |
| Total | | 92,683 | 32,440 | 60,243 | 27,133 | 12,940 | 100,316 | | 35, 279 | 35, 279 |
| | | | | | | |) - | | | |
| Internal Rate of Return (IRR) | 20.1 | | · | | | | | | | |
| | | | | | | | | | | |
| Return on Investment (ROI) %/y | 7. | | | | | | · · · · · · · · · · · · · · · · · · · | | | |
| | | | | | | | | | • | |

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| IRR Calculation on Renovation of Plan B | (Unit: 1,000 US\$) | Plan |
|---|----------------------|-------------------------|
| IRR Calculation on | Before Income Tax | Original Financing Plan |
| Table VI-20-1 | | |

| | | | | | | - | | | | | |
|---------------|------------|------------------|------------|------------------|----------------------------|---------|----------|------------|-----------------|---------|----------|
| | Total | Profit Before | Less | Profit Before | Depreciatn Interest And | | Total | Discount | Discounted Cash | ash | |
| | Investment | Tax | Income Tax | Tax | Amortizatn | on Debt | Return | Factor | Out-flow | In-flow | |
| | 5,752 | | | | | | | | 5, 752 | 6 | |
| | 57,424 | : | : | 5,038 | 1 | | -3,609 | 0.75067308 | 43,680 | -2,745 | |
| | 4,491 | 15, (94) | | 12, 794 | 3,000 | 5 920 | 75,838 | 0.57862353 | 2,538 | 9,455 | |
| • | | 18,977 | | 18,977 | | 3,776 | 27,018 | 0.33480519 | | 9,046 | |
| | | 20,382 | | 20,382 | | 2,365 | 27,019 | 0.25467730 | | 5,881 | |
| | | 20,786 | | 20,786 | | 1,961 | 27,019 | 0.19372617 | | 5,234 | |
| | | 21,192 | | 21,192 | | 1,555 | 27,019 | 0.14736228 | | 3,981 | <i>t</i> |
| | | 21,598 | | 21,598 | | 1,149 | 27,019 | 0.11209452 | | 3, 028 | |
| 1996 | | | | 22,000 | | 147 | 27,019 | 0.08526728 | | 2,303 | |
| | -28,497 | | | 22, 406 | 4,272 | 341 | 27,019 | 0.06486053 | -1,848 | 1,752 | |
| ž.e | | 170,430 | | 170,430 | 39,170 | 17,808 | 227, 408 | | 50, 183 | 50, 183 | |
| | | 1 | | | | | 4 | | , | | |
| Internal Rate | 1 (| | | | | | | | | | |
| Return (IKR) | | | | , | | | | | | | : |
| %/yr | | | | ٠. | | | | | 3 | | |
| Return on | | | | | | | | | | | |
| Investment | 34.8 | - | | | | | | | | | |
| %/ yr | | *** | | | | | | | | | |
| | | | | | + | | | | - | | |

Table VI-20-2 IRR Calculation on Renovation of Plan B
After Income Tax (Unit: 1,000 US\$)
Original Financing Plan

* 10.00

| Year | Total | Profit Before | Less | Profit After | Depreciate Interest | Interest | Total | Discount | Discounted Cash | Cash |
|---------------|--------------|------------------|------------|-----------------|---------------------|----------|---------|------------|---|---------|
| | Investment | Income Tax | Income Tax | е Тах | | on Debt | Return | Factor | Out-flow | In-flow |
| 1987 | 5,752 | | | | | | | | 5.752 | Û |
| 1988 | 57,424 | | | | . : | | -3,609 | 0.81134119 | 46,590 | -2,528 |
| 1989 | 4,491 | 12, 794 | 2,715 | ٠. | | | 13,644 | : | 2,956 | 8,981 |
| 1990 | : | 15, 333 | | | | | . : | | | 10,766 |
| 1991 | | 18,977 | | | | | | - 3 | | 8 |
| 1992 | <u>- 112</u> | 20,382 | | | | | | 0.35157470 | | 9,99 |
| 1993 | _ | 20, 786 | ٠ | | | | | | . <u>. </u> | (S) |
| 1994 | | 21,192 | | • | 4: | ٠. | | `. | | 4,538 |
| 1995 | | 21,598 | | | | | | | | 3,65 |
| 1996 | <u>.</u> | 22,000 | | | | : . | ٠ | 0.15234623 | | 2,94 |
| 1997 | -28,497 | | : | 14,564 | 4,272 | 341 | | 0.12360477 | -3,522 | |
| Total | | 170,430 | 59,651 | 110,779 | 39,170 | 17,808 | 167,757 | | 51,776 | 51,776 |
| | | | | | | | | | | |
| Internal Rate | 6 66 | | * | | | | | | | |
| TA/X | 3 | | · · | | | | - | | | |
| Return on | | | | | | | | | | |
| Investment | 23.8 | · : | | · | | | | | | |
| (ROI) %/yr | | - | · | | | | | | | |
| | | | _ | _ | | | • | _ | | |

Table VI-20-3 IRR Calculation on Renovation of Plan B (ALT)

Before Income Tax (Unit: 1,000 US\$)
Original Rinancing Plan

| Year | Total | Profit Less Before | Profit Before | Depreciatn Interest And | | Total | Discount | Discounted Cash | ť3 |
|-----------------|-------------------|-----------------------|------------------|----------------------------|--------|----------|------------|-----------------|---------|
| | Investment Income | Income Tax Income Tax | Income Tax | Amortizatn on | Debt | Return | Factor | Out-flow I | In-flow |
| 1987 | 5,752 | | | | | | | 5, 752; | 9 |
| 1988 | 57,424 | ကို | 5,038 | · · | | -3,609 | 0.79078176 | 45,409 | -2,853 |
| 1989 | 4,491 | Ħ | 11,019 | - | | 14,584 | 0.62533580 | 2,808 | 9,119 |
| 1990 | | 10,903 | 10,903 | | 5,920 | 21,095 | 0.49450414 | | 10,431 |
| 1991 | | 14,873; | 14,873 | 4,272 | 3,770 | 22,915 | 0.39104486 | | 8,360 |
| 1992 | | 18,278 | 16,278 | | 2,365 | 22,915 | 0.30923114 | | 7,086 |
| 1993 | | 16,682 | 16,582 | | 1,961 | 22,915 | 0.24453435 | · — | 5,603 |
| 1994 | | 17, 088 | 17,088 | | 1,555 | 22,915 | 0.19337330 | | 4,431 |
| 1995 | | 17, 494; | 17,494 | | 1,149 | 22,915 | 0.15291608 | | 3, 504 |
| 1996 | | 17, | 17,896 | | 747 | 22,915 | 0.12092325 | | 2,770 |
| 1997 | -28, 497 | 18 | 18,302 | 4,272 | 341 | 22,915 | 0.05562390 | -2, 724 | 2,191 |
| Total | | 135, 497 | 135,497 | 39,170 | 17,808 | 192, 475 | | 51,245 | 51,245 |
| | | | | | | • | | | |
| Internal Rate | | | | | 7 | | | | |
| of Return (IRR) | 28.5 | | | | | | | | |
| 14 /W | | | | | | | - | | |
| Return on | | | | | | - | | | |
| Investment | 28.4 | | | | | | | | |
| (ROI) %/yr | : : : | | | | ••••• | | | A | |

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Table VI-20-4 IRR Calculation on Renovation of Plan B (ALT) After Income fax (Unit: 1,000 US\$) Original Financing Plan

| Year | Total | Profit | Less | Profit | Depreciate Interest | Interest | Total | Discount | Discounted Cash | - [] |
|-----------------|------------|---------|------------|------------|---------------------|----------|----------|------------|-----------------|------------------|
| | Investment | Tax | Income Tax | income Tax | rtizatn | on Debt | Return | Factor | Out-flow In | In-flow |
| 1987 | 5,752 | | | | | | | | 5,752 | 0 |
| 1988 | 57,424 | | | ıų, | 1,429 | | -3,609 | 0.83572672 | 47,990 | -3,016 |
| 1989 | 4,491 | 11,019 | 2,093 | 8,926 | 3, 565 | | 12,491 | 0.69843914 | 3,136 | 8, 724 |
| 1990 | | 10,903 | | <u></u> | 4,272 | 5,920 | | 0.58370425 | | 10,085 |
| 1991 | | 14,873 | ()) | တ် | 4,272 | i et | | 0.48781724 | | 8, 638 3 |
| 1992 | | 16,278 | | E, | 4,272 | | 1 | 0.40768190 | | 7,019 |
| 1993 | = | 16,682 | | 10, | 4,272 | | | 0.34071065 | | 5,817 |
| 1994 | | 17,088 | | 11, | 4,272 | | | 0.28474099 | | 4,821 |
| 1995 | | 17,494 | | Ï | 4,272 | | | 0.23796566 | | 3,995 |
| 1996 | | 17,896 | | II, | 4,272 | | <u>.</u> | 0.19887426 | | 3,311 |
| 1997 | -28, 497 | 18,302 | | | 4,272 | | | 0.16620453 | -4,736 | 2,743 |
| Total | | 135,497 | 47,425 | 88, 072 | 39,170 | 17,808 | 145,050 | | 52,143 | 52,143 |
| | | | | | - 0 | | | | | |
| Internal Rate | | | | | | | | | | |
| of Return (IRR) | 19.7 | | | | · . | | | | | |
| %/yr | | | | | | | | | | |
| Return on | | | | | | | | | | |
| · | 19.6 | | | | | | | | | |
| 16 XO1) 6/ yr | | | | | | | | | | |

Table VI-25 Projected Income Statement Without Renovation PICOP's Estimation (1988 ~ 1997) (Enit : 1,000 USS)

| 1997 | 124, 837 21, 751 54, 916 27, 310 20, 860 | 79,772 16,432 37,651 15,384 18,305 | 45,065 5,319 17,285 11,928 10,535 | 7.827 | 37,238 | 4,272 | 32,966 11,538 | 21,428 | 201,920 |
|------|---|---|--|-----------------------------------|--|--------------------|---|------------------------------|--|
| 1996 | 124, 837 21, 751 54, 916 27, 310 20, 860 | 79, 772 16, 432 37, 651 15, 384 10, 385 | 45, 065 5, 319 17, 265 11, 926 10, 555 | 7,827 | 37,238 | | 32,966 | 21,428 | 180, 492 201, 920 |
| 1995 | 124,837 21,751 54,916 27,310 20,860 | 79,772 16,432 37,651 15,384 10,305 | 45,065 5,319 17,265 11,928 10,555 | 7,827 | 97,238 | 4,272 | 32, 966 11, 538 | 21,428 | 159,064 180,492 |
| 1994 | 124,837 21,751 54,916 27,310 20,860 | 79,772 16,432 37,651 15,384 10,305 | 45, 065 5, 319 17, 265 11, 926 18, 555 | 7,827 | 37, 238 | 4,272 | 32,966 11,538 | 21,428 | 137,636 159,064 |
| 1993 | 124,837 21,751 54,916 27,310 20,860 | 79,772 16,432 37,651 15,384 10,305 | 45,065 5,319 17,265 11,926 10,555 | 7,827 | 37,238 | 4,272 | 32,966 11,538 | 21,428 | 116,208 137,636 |
| 1992 | 124,276 19,784 55,792 27,611 21,089 | 78, 385 15, 000 37, 696 15, 384 10, 305 | 45, 891 4, 784 18, 096 12, 227 10, 784 | 7,844 | 38,047 | 4,826 | 33,221 | 21,593 | 94,615 116,208 |
| 1991 | 122, 085 16, 943 56, 442 27, 611 21, 089 | 76,432 12,931 37,812 15,384 10,305 | 45,653 4,012 18,630 12,227 10,784 | 7,777 | 37,876 | 5, 702 | 32,174 | 20,907 | 73,708 |
| 1990 | 127, 561 18, 333 58, 940 28, 511 21, 777 | 77,677 14,037 37,951 15,384 10,305 | 49,884 4,296 20,989 13,127 11,472 | 7,902 | 194 | 7,671 | 34,117 | 22,176 | 51, 532 73, 708 |
| 1989 | 128,112 18,333 59,491 28,511 21,777 | 76, 788 14, 037 37, 071 15, 378 10, 302 | 51, 324 4, 296 22, 420 13, 133 11, 475 | 7,676 | 2,713 | 10,305 | 30,630 | 19,909 | 31,623 51,532 |
| 1988 | 135, 152 22, 111 61, 430 29, 261 22, 350 | 80,780 17,008 38,130 15,365 10,277 | 54, 372 5, 103 23, 300 13, 896 12, 073 | 7,483 | 2,713 | 15,946 | 9,881 | 18,349 | 13,274 |
| | | 5 , | | TRATION EXPENSES | PREISAL INCREASE | | INCOME TAX | INCOME TAX | (DEFICIT) AT BEGINNING AT ENDING |
| | NET SALES Timber Products Newsprint Linerboard Corrugating Medium | COST OF SALES Timber Products Newsprint Linerboard Corrugating Medium | GROSS PROFIT Timber Products Newsprint Linerboard Corrugating Medium | GENERAL & ADMINISTRATION EXPENSES | DEPRECIATION ON APREISAL INCREASE OPERATING INCOME | FINANCIAL EXPENSES | NET INCOME BEFORE INCOME TAX INCOME TAX | NET INCOME AFTERE INCOME TAX | CUMULATIVE PROFIT |

Table VI-26 Projected Income Statement on Renovation of Plan A Team's Estimation (1988 ~ 1997)

| | 1988 | 1989 | 1990 | 1661 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--|---------|---------|-------------|---------|----------|---------|----------|-----------------------|----------|----------|
| NET SALES | 119,087 | 149,671 | 160,107 | 160,856 | 163,697 | 165,664 | 165,664 | 165, 664 | 165,664 | 165,664 |
| Timber Products | 22,111 | 18,333 | 18,333 | 16,943 | 19, 784 | 21,751 | 21,751 | 21,751 | 21,751 | 21,751 |
| Newsprint | 52, 336 | 73,013 | 79,856 | 81,995 | 81,995 | 81,995 | 81,995 | 81,995 | 81,995 | 81, 995! |
| Linerboard | 26,065 | 35,930 | 38,175 | 38; 175 | 38,175 | 38,175 | 38, 175! | 38, 175 | 38, 175 | 38, 175 |
| Corrugating Medium | 18,575 | 22, 395 | 23,743 | 23, 743 | 23, 743 | 23, 743 | 23, 743 | 23, 743 | 23, 743 | 23,743 |
| COST OF SALES | 79,990 | 97, 552 | | 104,782 | 106, 710 | 108,062 | 108.062 | 108, 062 | 108,062 | 108,062 |
| Timber Products | 17,008 | 14,037 | | 12,931 | 15,000 | 16,432 | 16,432 | 16,432 | 16,432 | 16,432 |
| Paper & Paperboard Products | 62, 982 | 83,515 | | 91,851 | 91,710 | 91,630 | 91, 630 | 91,630 | 91,630 | 91,630 |
| Cost without Renovation | 71, 283 | 70,292 | 71,466 | 71,215 | 71,074 | 70,994 | 70,994 | 70,994 | 70,994 | 70, 994 |
| Incremental Cost | -8,301 | 13,223 | | 20, 636 | 20,636 | 20,636 | 20,636 | 20,638 | 20,636] | 20,636 |
| GROSS PROFIT | 39, 097 | 52,119 | 55, 272 | 56,074 | 56, 987 | 57,602 | 57,602 | 57,602 | 57,602 | 57,602 |
| DEPRECIATION ON | | | | | | | | | | |
| APREISAL INCREASE | 2,713 | 2,713 | 194 | 6 | - 6 | 6 | - 0 | 8 | = | -6 |
| OPERATING INCOME | 36,384 | 49,406 | 55, 078 | 56,074 | 56,987 | 57,602 | 57,602 | 57,602 | 57,602 | 57,602 |
| FINANCIAL EXPENSES | 15,946 | 10,305 | 12,890 | 7,687 | 6,517] | 5,669 | 5,375 | 5, 881 | 4,787 | 4,493 |
| Existing Expenses Incremental Expenses | 15,946 | 10,305 | 7,671 | 5,702 | 4,826 | 4,272 | 4,272 | 4,27 2 809 | 4,272 | 4,272 |
| NET INCOME BEFORE INCOME TAX | 20,438 | 39,101 | 42,188 | 48,387 | 50, 470 | 51,933 | 52, 227 | 52, 521 | 52,815 | 53, 1091 |
| INCOME TAX | 7,153 | 13,685 | 14,766 | 16,935 | 17,665 | 18,177 | 18,279 | 18, 382 | 18,485 | 18,588 |
| NET INCOME AFTERE INCOME TAX | 13,285 | 25,416 | 27, 422 | 31, 452 | 32,805 | 33,756 | 33,948 | 34,139 | 34, 330 | 34,521 |
| CUMULATIVE PROFIT (DEFICIT) AT BEGINNING | 13,274 | 26, 559 | 51,975 | 79, 397 | 110,849 | 143,654 | 177,410 | 211,358 | 245, 497 | 728,827 |
| מעוקאים דע | 500,000 | 01,010 | 13, 031 | 110,043 | 140,004 | 1014.11 | 621, 300 | | 170 6217 | 074, 040 |

APPENDIX

Appendix A-1

PULP QUALITY TEST DATA

Tested by Oji's Central Research Laboratory

Sample No.

| 1. | TMP | (Outlet of 1ry Ref.) | |
|-----|-----------------|-------------------------------------|---------------------------------------|
| 2. | RGP | (Outlet of 1ry Ref. in RGP II line) | |
| 3. | RGP | (Outlet of 1ry Ref. in RGP I line) | |
| 4. | TMP + RGP | (Outlet of 2ry Ref. in RGP II line) | |
| 5. | TMP + RGP | (Outlet of 2ry Ref. in RGP I line) | |
| 6. | TMP + RGP | (Outlet of thickener) | |
| 7. | TMP + RGP | (Outlet of bleaching tower) | |
| 8. | EBK (UKP) | (Outlet of No. 4 wash filter) | e e e e e e e e e e e e e e e e e e e |
| 9. | EBK (UKP) | (Outlet of deshive refiner) | |
| 10. | Typical data in | Japan TMP (Outlet of thickener) | |
| 11. | Typical data in | Japan RGP (Outlet of thickener) | for reference |

Sampling position of PICOP's RGP/TMP plant is referred to Fig. III-2-2.

| ···· | | | | | | | | |
|--------|---------------------------------------|-----------------|--------------|-------------|-------------|--|--------------|--|
| 11. | 58.5 | 2.38 | 45.7 | 46.5 | 97.4 | 627.1 81.74 196.5 | 123 | 14.0 23.7 22.8 9.7 29.8 |
| 10. | 61.8 0.39 | 3.71 | £.26 | 7.67 | 2.79 | 631.3 79.45 174.6 | 79 | 30.6 17.8 14.9 5.5 |
| . 9. | 60.9 (61.1) 0.69 (0.85) | 5.36 (6.76) | 107.6 (89.2) | 30.4 | 98.3 (92.0) | 405.9 (222.7) 171.9 (140.9) 298.7 (239.5) | 470 (266) | 1.6 42.0 37.7 5.6 13.1 |
| φ * | 60.2 (60.1) 0.68 (0.85) | 5.32 (6.80) | 109.7 (92.2) | 30.3 (24.8) | 97.7 | 377.8 (222.3) 160.8 (136.2) 295.4 (264.4) | 470 (283) | 4.0 45.7 31.3 4.1 |
| 7. | 60.7 | 1.67 | 22.9 | 62.5 | 5.96 | 800.6 37.44 93.91 | 223 | 3.1 16.5 15.3 36.0 |
| 9 | 59.7 | 1,44 | 21.6 | 42.7 | 7 66 | 721.7 145.9 223.9 | 234 | 2.4 12.6 27.2 15.9 41.9 |
| 5. | 59.7 | 1.55 | 22.5 | 43.7 | 9.66 | 849.6 142.0 220.9 | 225 | 15.5 31.8 32.6 32.0 |
| 4. | 62.6 | 1.48 | 20.2 | 41.1 | 99.4 | 669.8 146.6 227.5 | 200 | 2.1 11.6 29.5 17.8 39.0 |
| m | 59.1 | 0.73 | 22.2 | 38.7 | 98.9 | 596.7 140.4 259.0 | 525 | 22.2 22.1 21.4 21.4 6.6 |
| .2 | 60.8 | 1.14 | 21.1 | 41.8 | 7.66 | 717.9 . 136.8 . 225.6 | 335 | 7.5 23.0 27.6 10.3 31.6 |
| 1. | 59.6 | 0.53 | 8.6 | 40.2 | 98.7 | 578.0 126.4 222.9 | 406 | 2.2 7.8 30.6 15.0 |
| No. | g/m ² g/cm ³ | r B | - | \$-¢ | 3-6 | cm ² /g cm ² /g cm ² /g | ,-i E | 26 |
| Sample | (B.D) | ц | : | | | (Green (Green filter) (Blue filter | (CSF) | % |
| Item | Basis weight (B.D Density (A.D | Breaking length | Tear factor | Brightness | Opacity | Scattering coefficient Absorbing coefficient Absorbing | Freeness | Fractionation 24 mesh on 42 mesh on 80 mesh on 150 mesh on 150 mesh on 150 mesh pass |

t () : Beated by PFI mill

Appendix A-2

SHEET QUALITY TEST DATA

Tested by Oji's Central Research Laboratory

| | Sample | *************************************** | STD | GMP | RGNP | TDY |
|------------------------|----------------------|---|-------|-------|---------|---------|
| Item | - | | 315 | Omi | I KOIN | IDI . |
| | | | | | 1 11 | |
| Basis weight | g/m² | , | 50.0 | 53.8 | 49.7 | 34.9 |
| Thickness | mm | | 0.088 | 0.133 | 0.084 | 0.067 |
| Density | g/cm ³ | | 0.57 | 0.40 | 0.59 | 0.52 |
| Moisture | % | | 8.8 | 9.1 | 8.6 | 8.5 |
| Ash | % | | 0.8 | 1.2 | 8,0 | 0.7 |
| Brightness (HU) | % | Top | 42.6 | 34.2 | 57.5 | 40.3 |
| | | Bot. | 43.7 | 36.4 | 57.5 | 35.5 |
| Opacity | % | | 94.8 | 98.6 | 90.8 | 72.9 |
| Tensile strength | kg | MD | 4.28 | 4.19 | 4.06 | 2.89 |
| 4. | | CD | 1.75 | 1.96 | 1.65 | 1.29 |
| Elongation | % | MD | 1.7 | 1.5 | 1.5 | 1.5 |
| | | CD | 3.0 | 2.3 | 2.4 | 1.8 |
| Tearing strength | g | MD | 25 | 30 | 20 | 23 |
| | | CD · | 28 | 31 | 24 | 30 |
| Smoothness | sec | Top | 29 | 6 | 37 | 31 |
| | • | Bot. | 26 | 6 | 29 | 25 |
| Air permeability | sec/100 m | ıl | 62 | 27 | 47 | 23 |
| Clark stiffness | cm ³ /100 | MD | 70. | 130 | 62 | 32 |
| | | CD | 21 | 46 | 22 | 13 |
| Stöckigt sizing degree | sec | . <u>i</u> | _ | ·— | below 1 | below 1 |
| Oil absorptiveness | sec | - | 63 | 20 | 62 | - 76 |
| Dust | mm²/m² | Тор | 22 | 32 | 62 | 50 |
| | | Bot. | 38 | 30 | 18 | 42 |
| Dust count | piece/m ² | Top | 140 | 100 | 180 | 120 |
| | | Bot. | 180 | 140 | 40 | 160 |

Sample:

STD

(Standard newsprint)

RGP/TMP 55%, KP 45%

GMP (Groundwood mimeo paper) RGP/TMP 55%, KP 45%

RGNP (Roto gravure newsprint) RGP/TMP 55%, KP 45%

TDY (Telephone directry yellow) RGP/TMP 50%, KP 25%, NBKP 25%

MD Machine direction

CD

Cross direction

PROFITABILITY CALCULATION

Profitability calculation between mixing softwood pulp and present pulp combination

1. Precondition

a. Pulp combination

Assuming; mixing of 7% softwood pulp improves paper machine efficiency up to 85%

| | Present | Mixing softwood |
|---------|---------|-----------------|
| | | |
| RGP/TMP | 55% | 55% |
| LSBKP*1 | 45% | 38% |
| NBKP*2 | | 7% |

*1: Semi-bleached hardwood kraft pulp

*2: Bleached softwood kraft pulp

b. Paper machine condition

| | Present | Mixing softwood |
|----------------------|------------|--|
| PM efficiency | 78% | 85% |
| Machine speed | 690 m/min. | 690 m/min. |
| Operation days | 324 days | 324 days |
| Av. daily production | 231 t/d | 231 x 85/78 = 252 t/d |
| Steam consumption | | |
| Middle pressure | 0.75 t/t | $0.75 \times 78/85 = 0.69 \text{ t/t}$ |
| Low pressure | 2.1 t/t | 2.1 x 78/85 = 1.93 t/t |
| Power consumption | 715 kWh/t | 715 x 78/85 = 656 kWh/t |





2. Variable cost

*

a. Furnish cost

| | Pulp cost *1 | Present | Mixing softwood | |
|------------------------------|--|---|---|--|
| RGP/TMP LSBKP*1 NBKP*2 | 232 US\$/BDt 251 US\$/BDt 680 US\$/BDt | (55%) 127.6 US\$/BDt (45%) 113 US\$/BDt – | (55%) 127.6 US\$/BDt (38%) 95.4 US\$/BDt (7%) 47.6 US\$/BDt | |
| Furnish cost | nish cost per BD pulp 240.6 U | | 270.6 US\$/BDt | |
| Equivalent pa | aper cost x 0.97*2 | 262.5 US\$/BDt | | |

*1: Pulp cost is referred to Appendix A-4.

*2: (a) Moisture 7%

(b) Total loss of No. 1 paper machine

| Total | 4.4% |
|------------------|------|
| Over rewinding | 0,3% |
| Over weight | 0.6% |
| Reject of screen | 1.0% |
| Fiber loss | 2.5% |

Equivalent coefficient from 1 ton of paper to 1 ton of pulp

$$(1-0.07) / (1-0.044) = 0.97$$

b. Steam and power cost

| | Unit cost | Present | Mixing softwood | |
|-----------------|-----------------|-------------|-----------------|--|
| Steam cost M.P. | 18.6 US\$/t | 14.0 US\$/t | 12.8 US\$/t | |
| L.P. | 17.2 US\$/t | 36.1 US\$/t | 33.2 US\$/t | |
| Total | | 50.1 US\$/t | 46.0 US\$/t | |
| Power cost | 0.0413 US\$/kWh | 29.5 US\$/t | 27.1 US\$/t | |

c. Total of variable cost

| | Present | Mixing softwood |
|------------|--------------|-----------------|
| Pulp cost | 233.4 US\$/t | 262.5 US\$/t |
| Steam cost | 50.1 US\$/t | 46.0 US\$/t |
| Power cost | 29.5 US\$/t | 27.1 US\$/t |
| Total | 313.0 US\$/t | 335.6 US\$/t |

3. Profitability calculation

a. Price of newsprint

756 US\$/t (July, 1984)

13

b. Annual profit

Present:

$$(756 - 313) \times 231 \text{ t/d} \times 324 \text{ d/y} - B^{*1} = 33,156 \times 10^{3} - B \text{ (US$/y)}$$

Mixing softwood:

$$(756 - 335.6) \times 252 \text{ t/d} \times 324 \text{ d/y} - B = 34,325 \times 10^3 - B \text{ (US$/y)}$$

*1: B; Sales expenses, fixed cost, etc.

c. Difference between present and mixing softwood

$$34,325 \times 10^3 - B \text{ US}\$/y$$

-) $33,156 \times 10^3 - B \text{ US}\$/y$

 $1,169 \times 10^3$ US\$/y

4 Recult

Assuming that paper machine efficiency improves up to 85% to mixing 7% softwood pulp using existing equipment, annual profit of mixing softwood increases in $1,169 \times 10^3$ US\$ than present.

PULP UNIT CONSUMPTION AND PULP COST

Pulp unit cost

| | Unit | RGP | СТМР | | LSBKP | NBKP |
|----------------------------------|---------------------|-------|-------|---------|----------------|------|
| | Unit | KGP | CIMP | Present | Af. Renovation | NBKP |
| Wood | m³/BDt | 4.10 | 4.28 | 7.60 | 7.61 | |
| Steam | | : | | | | |
| Mid. pressure | t/BDt | | | 1.79 | 1.72 | |
| Low pressure | t/BDt | | 0.10 | 0.51 | 0.49 | |
| L.P. (bleaching) | t/BDt | 0,35 | 0.35 | 0.35 | 0.35 | |
| L.P. total | t/BDt | 0.35 | 0.45 | 0.86 | 0.84 | |
| Power | kWh/BDt | 2,718 | 2,500 | 206 | 198 | 200 |
| For bleaching | kWh/BDt | | | 63 | 63 | |
| Total | kWh/BDt | 2,718 | 2,500 | 269 | 261 | |
| Chemicals | | | | | | |
| Saltcake | kg/BDt | · | | 44.4 | 42.8 | 1. |
| Limestone | kg/BDt | | • | 26.7 | 25.7 | |
| Cl ₂ | kg/BDt | | | 55 | 40 | |
| NaOH | kg/BDt | 17 | 17 | 35 | 28 | |
| NaOCl | kg/BDt | · | | 23 | 16 | |
| H ₂ O ₂ | kg/BDt | 7.5 | 7.5 | [| | |
| Na ₂ SiO ₃ | kg/BDt | 17 | 17 | | | |
| Na ₂ SO ₃ | kg/BDt | | 30 | | | |
| Water | m³/BDt | 88.1 | 88.1 | 35.7 | 34.3 | 32.2 |
| For bleaching | m ³ /BDt | | | 80.6 | 80.6 | |
| Total | m³/BDt | 88.1 | 88.1 | 116.3 | 114.9 | |

(Unit: US\$/BDt)

| | Unit cost | RGP | СТМР | LSBKP | | NBKP | |
|----------------------------------|--------------------------|--------|--------|---------|----------------|------|--|
| | Omt cost | KOI | CIMI | Present | Af. Renovation | MDRI | |
| Wood | 19.5 US\$/m ³ | 79.95 | 83,46 | 148.2 | 148.40 | | |
| Purchased pulp | | | | | | 670 | |
| Steam cost | | | | | | | |
| M.P. | 18.6 US\$/t | | | 33,3 | 31.9 | | |
| L.P. | 17.2 US\$/t | 6.02 | 7.73 | 14.8 | 14.42 | | |
| Total | | 6.02 | 7.73 | 48.1 | 46.32 | | |
| Power cost | 0.0413 US\$/kWh | 112.19 | 103,19 | 11.11 | 10.78 | 8.26 | |
| Chemicals | | | | ** | | | |
| Saltcake | 0.156 US\$/kg | | | 6.93 | 6.67 | | |
| Limestone | 0.0009 US\$/kg | | | 0.024 | 0.02 | | |
| Cl_2 | 0.263 US\$/kg | . ' | | 14.47 | 10.52 | - | |
| NaOH | 0.164 US\$/kg | 2.79 | 2.79 | 5.74 | 4.59 | | |
| NaOCl | 0.431 US\$/kg | | | 9.91 | 6.89 | | |
| H_2O_2 | 2.09 US\$/kg | 15.70 | 15.70 | | | | |
| Na ₂ SiO ₃ | 0.214 US\$/kg | 3.64 | 3.64 | | | | |
| Na ₂ SO ₃ | 0.238 US\$/kg | | 7.14 | | | | |
| Total | | 22.13 | 29.27 | 37,07 | 28.69 | | |
| Water cost | 0.054 US\$/m³ | 4.77 | 4.77 | 6.28 | 6.22 | 1.74 | |
| Refiner plate cost | | 6.8 | 6.8 | | | | |
| Total | US\$/BDt | 231.86 | 235.22 | 250.76 | 240.41 | 680 | |

STANDARD OF LINERBOARD (JIS P 3902)

1. Class

| | Basis weight (g/m²) | | | | Name and American State of the | | | | |
|---|---------------------|--|------|------|---|------|-----|--|--|
| A | Class | | 180, | 200, | 220, | 280, | 320 | | |
| В | Class | | 220, | 300, | 340 | | | | |
| с | Class | | 200, | 220 | | | | | |

2. Quality

| Class | Basis Weight g/m² | Basis Weight Allowance % | Burst Index | Burst Strength kg/cm² | Ring Crush Index (CD) | Ring Crush (CD) kg | Moisture % (*1) |
|-------|-------------------------|-----------------------------------|----------------|-----------------------------|--------------------------------|-----------------------------|-----------------------|
| A | 180 200 220 | | >3.3 | >6.0 >6.6 >7.3 | >12 | > 21.6 > 24.0 > 26.4 | |
| | 280 320 | ±5 | > 3.1 | > 8.8 > 10.0 | > 13 | > 36.4 > 41.6 | 7.5 ± 1.5 |
| В | 220 300 340 | ±3 | >2.9 | > 6.4 > 8.7 > 10.0 | >11 | > 24.2 > 33.0 > 37.4 | 1.J ÷ 3.J |
| С | 200 220 | | >2.1 | > 4.2 > 4.6 | >10 | > 20.0 > 22.0 | |

(*1): On Reel

STANDARD OF CORRUGATING MEDIUM (JIS P 3904)

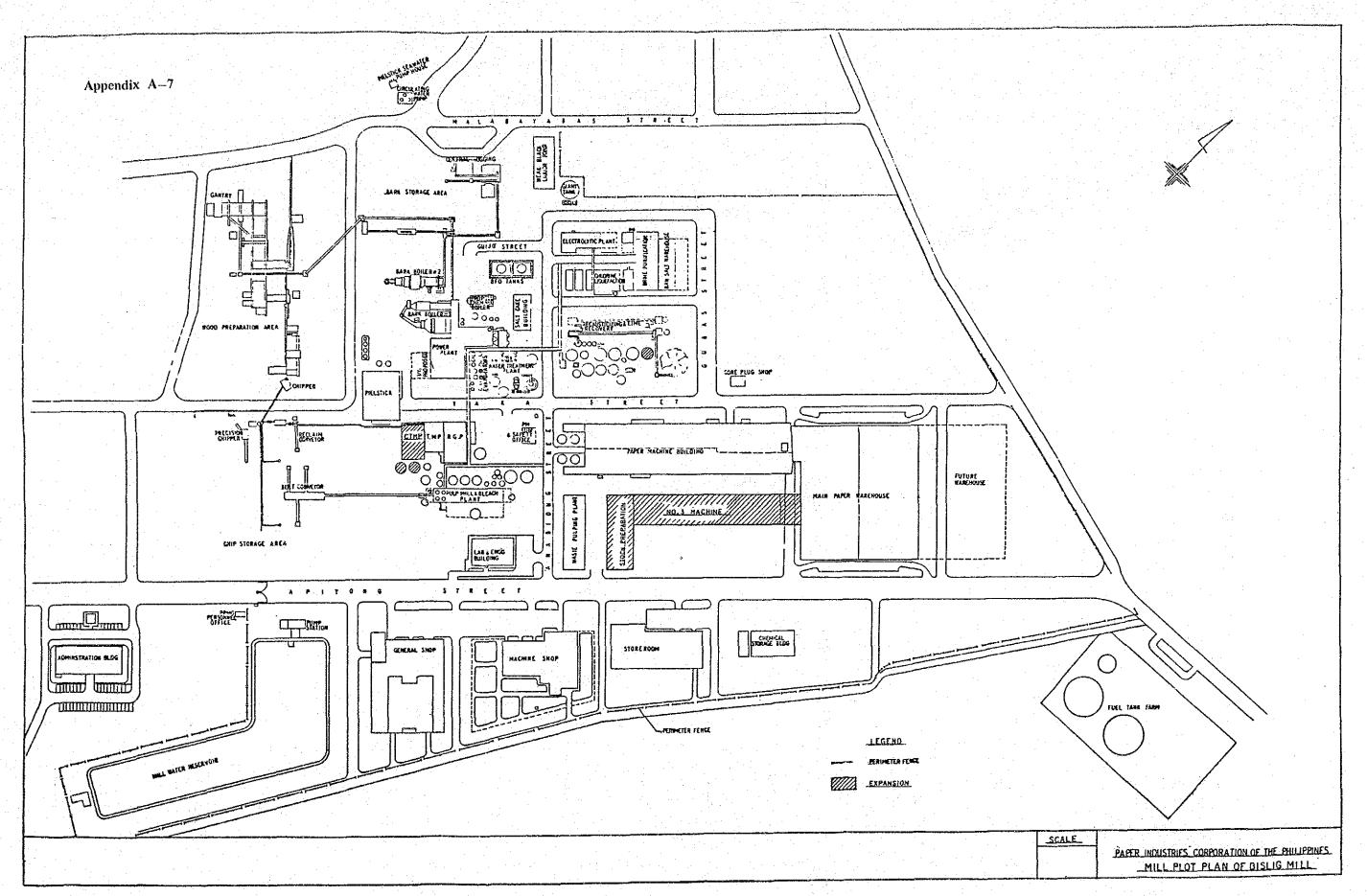
1. Class

A. B. C

2. Quality

| Class | Basis Weight g/m² | Basis Weight Allowance % | Thickness mm | Breaking Length km | Ring Crush (CD) kgf | Ring Crush Index (CD) | Moisture % (*1) |
|-------|-------------------------|-----------------------------------|-----------------|--------------------------|------------------------------|--------------------------------|-----------------------|
| A | | | | >4.0 | > 13.8 | >11 | |
| В | 125 | ±5 | 0.21-0.26 | > 3.5 | >11.3 | >9 | 8.5 ± 1.5 |
| С | | | | > 3.0 | > 8.8 | > 7 | ad a |

(*1): On Reel



Appendix B-1 Log Production from Natural Forest

 $V: 1,000 \text{ m}^3$

Figure in () = $\frac{1983 + 198}{2}$

| | T | 1980 | | | 1981 | | | 1982 | | | 1983 | | T | 1984 | | 8 | Sub-tot. | al | | 1985 | | | 1986 | | | 1987 | | | 1988 | | | 1989 | | ļ | 1990 | · : . | 1 |
|--|-------|-----------------------------|-------|----------|-----------------------------|-----|-------|-----------------------------|-----|-------|-----------------------------|------|-------|----------------|-----|--------|-----------------------------|-------|-------|-----------------------------|-----|-------|-----------------------------|-----|-------|-----------------------------|-----|-------|----------------------------|-----|----------|----------------|----------|-----------------|---|----------|---|
| | на | (Age) m ³ /ha | | на | (Age) m ³ /ha | v | АН | (Age) m ³ /ha | V | на | (Age) m ³ /ha | v | на | (Age) m³/ha | v | на | (Age) m ³ /ha | V | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | V | на | (Age) m ³ /ha | v | на | (Age) _M 3/ha | v | на | (Age) m³/ha | v | HV | (Age) m³/ha | ٧ | |
| Selective Logging Virgin Forest | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sawtimber, etc. | | | | | | | | | | | 97 | 237 | | 69 | 173 | | (83) | | | 53 | 122 | | 57 | 100 | | 64 | 130 | | 48 | 58 | | | | | | - | 1 |
| Pulpwood (red only) | | | | | | | | | | | 65 | 158 | | 49 | 124 | | (57) | | | 32 | 71 | | 33 | 58 | | 39 | 79 | | 27 | 32 | <u> </u> | | _ | | , | - | 1 |
| Fuel wood | | | | | | | | | | | 11 | 26 | | 1.1 | 27 | | (11) | | | 16 | 36 | | 13 | | | 14 | 29 | | 12 | 15 | | ļ | - | 1 | <u>.</u> | | 4 |
| Sub-total | 4,501 | 143 | 643 | 3,170 | 167 | 528 | 2,070 | 184 | 340 | 2,439 | 173 | 421 | 2,500 | 129 | 324 | 14,680 | 154 | 2,256 | 2,275 | 101 | 229 | 1,750 | 103 | 181 | 2,036 | 117 | 238 | 1,210 | 87 | 105 | | - | | ļ. - | - | - | 1 |
| Selective Logging Second Growth Forest | | | | | | | | | | | | | | | | | | | | | | | | | | | | | · · · · · | | | | | | | <u> </u> | 1 |
| Sawtimber, etc. | | | | | | | | | | | | | | | | | · . | | | | - | | | - | | | | | 48 | 113 | | 48 | 113 | | 48 | 113 | - |
| Pulpwood (red only) | | | | | | | | | | | | | | | | | | | | | | | 1 | - | | | | | 24 | 55 | | 24 | 55 | } | 24 | 55 | - |
| Fuel wood | | | | | | | | | | | | | | | | | | | | | - | | | - | | | | | 17 | 39 | | 17 | 39 | | 17 | 39 | 4 |
| Sub-total | | | | | | | | | | | 1 | | | | | | | | - | | ~ | - | | - | - | - | | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | - |
| Timber Stand Improvement | | | | | | | | | | | | | | - | | | | | | | | | | | | | | | | | | | <u> </u> | | <u>; - </u> | | |
| Sawtimber, etc. | | | | | | | | | | | | | | | | | | | | - | - | | | - | | | - | | | - | | - | - | 1 | - | - | |
| Pulpwood (red only) | | | | | | | | | | | | 8 | | | | | | 8 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | |
| Fuel wood | 1 | | | <u> </u> | | | | | | | | 11 | | | 2 | | | 13 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | ļ | 30 | 30 | 1 | 30 | 30 | |
| Sub-total | | | - | | | - | | | - | | | 19 | | | 2 | | | 21 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | _ |
| Clearcut | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ļ | <u>:</u> | <u> </u> | |
| Sawtimber, etc. | | | | | | | | | | | . 72 | 210 | | 59 | 178 | | (66) | | | 57 | 183 | | 56 | 178 | | 56 | 180 | | | - | | į | | | <u> </u> | - | |
| Pulpwood (red only) | 1 | | | | | | | | | | 56 | 162 | | 77 | 232 | | (67) | | | 73 | 232 | | 61 | 197 | | 62 | 198 | | | | | ļ | - | | <u> </u> | - | |
| Fuel wood | | | | | | | | | | | 55 | 160 | | 43 | 128 | | (49) | | | 56 | 180 | | 90 | 287 | | 92 | 293 | | | - | | | - | | <u> </u> | - | |
| Sub-total | 2,612 | 170 | 444 | 2,336 | 176 | 411 | 2,821 | 170 | 478 | 2,912 | 183 | 532 | 3,000 | 179 | 538 | 3 ,68 | 1 176 | 2,403 | 3,200 | 186 | 595 | 3,200 | 207 | 662 | 3,187 | 210 | 671 | - | - | - | | _ | - | | | - | 1 |
| Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | · | <u> </u> | _ | | ! | 4 |
| Sawtimber, etc. | | 96 | 686 | | 91 | 500 | | 89 | 436 | | 84 | 447 | | 64 | 351 | | 85 | 2,420 | | 47 | 305 | | 47 | 278 | | 50 | 310 | | 38 | 171 | | 34 | 113 | | 34 | 113 | |
| Pulpwood (red only) | | 53 | 373 | | 64 | 354 | | 63 | 308 | | 61 | 328 | | 65 | 356 | | 61 | 1,719 | | 50 | 323 | | 46 | 275 | | 48 | 297 | | 24 | 107 | | 22 | 75 | | 22 | 75 | |
| Fuel wood | 1 | 4 | 28 | | 15 | 85 | 1 | 15 | 74 | | 37 | 197 | | 28 | 157 | | 19 | 541 | | . 38 | 246 | | 57 | 340 | | 56 | 352 | | 18 | 84 | | 21 | 69 | | 21 | 69 | _ |
| Total | 7 112 | 163 | 1 097 | 5,506 | 171 | 939 | 4,891 | 167 | 010 | 5 251 | 107 | 0.72 | E 500 | 157 | 064 | 20.26 | 1 165 | 4 600 | c 475 | 125 | 974 | 5 950 | 150 | 893 | 6.223 | 154 | 959 | 4,541 | 80 | 362 | 3,331 | 77 | 257 | 3,331 | 77 | 257 | |

V: 1,000 m

Figure in () = $\frac{1983 + 1984}{2}$

| | | · · | | | oo m | | | | | | | Γ | | *********** | · · · · · · · · · · · · · · · · · · · | | | | | | | | · | T | | | T T | *************************************** | | T | | | | | | 1 | P-4- | | 1 | | | | | | | | |
|-----------|-------------|-------------|-------------------|------------|--------|-----------------|------|-------------|-------|----------------|-------|--------|-----------------------------|-------------|---------------------------------------|-----------------------------|-----|-------|-----------------------------|----------|--------------|-----------------------------|----------------|--|----------------|----------|-------|---|--------------|----------|-----------------------------|-----|-------|-----------------------------|-----|----------|-----------------------------|-------------|--------------|-----------------------------|-----|-------|--------------|---------|-------------|-------------|---|
| 82 (e) | | | 198 | 83 | - | | 84 | | | ub-tot | | | 1985 (Age) | | | 1986 | | | 1987 | | | 1988 | -1 | ļ | 1989 | | | 1990 | , | 1 | 1991 | | | 1992 | | | 1993 | | | 1994 | | | Sub-to | tal | | | |
| ha . | v | HA | m ³ /h | e) ha V | н | IA (Ag | ha V | <i>i</i> | на | (Age) m³/ha | v | на | (Age) m ³ /ha | V | на | (Age) m ³ /ha | V | на | (Age) m ³ /ha | v | HA | (Age) m ³ /ha | V | на | (Age) m³/ha | v | HA | (Age) m ³ /ha | v | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | v | НА | (Age) m ³ /ha | ı V | HA | m³/ha | ı V | HA | <u> </u> | V |
| | | | | | | | | | | | | | | | | | | - | | | | | | | : | | | | | | | | | | | | | | | | | | | | | | |
| | | | 97 | 7 23 | 7 | 6 | 9 17 | 73 | | (83) | | | 53 | 122 | | 57 | 100 | | 64 | 130 | ·· | 48 | 58 | | | - | | | - | | | _ | | : | - | | | - | | | - | _ | 57 | 410 | | | |
| | | | 65 | 5 15 | 8 | 4 | 9 12 | 24 | | (57) | | | 32 | 71 | | 33 | 58 | | 39 | 79 | 1 | 27 | 32 | | | - | | | - | | | 1 | | | - | | | ~ | | | - | | 33 | 240 | | | |
| | | | 13 | 1 2 | 6 | 1 | .1 2 | 27 | | (11) | | | 16 | 36 | | 13 | 23 | | 14 | 29 | | 12 | 15 | | | - | 5 t | | - | | | - | | | _ | | | - | | | - | | 14 | 103 | | | |
| 84 | 340 | 2,439 | 173 | 3 42 | 1 2.5 | 00 12 | 9 32 | 24 14 | 4,680 | 154 | 2,256 | 2,275 | 101 | 229 | 1,750 | 103 | 181 | 2,036 | 117 | 238 | 1,210 | 87 | 105 | - | - | - | - | - | - | - | - | - | - | - | _ | - | - | - | - | - | - | 7,27 | 104 | 753 | | | |
| | | | | | | i | | | | | | | · · · | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | - | | | - | | 48 | 113 | | 48 | 113 | | 48 | 113 | | 48 | 113 | | 48 | 113 | | 48 | 113 | | 48 | 113 | | 48 | 791 | | | |
| | | | | | - | | | | | | | | | | | | | | | - | | 24 | 55 | | 24 | 55 | | 24 | 55 | | 24 | 55 | | 24 | .55 | | 24 | 55 | | 24 | 55 | | 24 | 385 | | | |
| | · | | | | | | | _ | | | | | | | | | ~ | | | - | 1 | 17 | 39 | | 17 | 39 | | 17 | 39 | | 17 | 39 | | 17 | 39 | | 17 | 39 | | 17 | 39 | | 17 | 273 | | 1 | |
| | | | | | | - | | + | | | | - | - | - | - | - | - | - | _ | - | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 2,331 | 89 | 207 | 16,31 | 7 89 | 1 , 449 | , | | |
| | • | | | | | | | | 1 | | | | | | | | | | | <u> </u> | | | | | | | | | | | | | | | _ | | | | | | | | | | | | |
| | | | | | - | _ | | | | | | | - | - | | - | - | | | - | | - | - | | - | - | | - | - | | | - | | - | - | | - | - | | - | - | | - | _ | | | |
| | | | | | 8 | | | | | | 8 | • | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20. | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 20 | | 20 | 200 | | | |
| | | | | 1 | 1 | | | 2 | | | 13 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | | 30 | 30 | - | 30 | 300 | | | |
| - | - | | | 1 | 9 | | | 2 | | | 21 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 1,000 | 50 | 50 | 10,00 | 50 | 500 | | | |
| | | | | | | | | | | | | | | | | | | | | <u></u> | | | | | | | | | | | | | | | | | | | | | Ì | | | | - | | |
| | | | 72 | 2 210 | 0 | 5 | 9 17 | 78 | | (66) | | | 57 | 183 | | 56 | 178 | | 56 | 180 | 1 | | - | | | - | | | - | | | - | | | | | | - | | | - | | 56 | 541 | | | |
| | | | 56 | 5 16 | 2 | 7 | 7 23 | 32 | | (67). | | | 7 3 | . 232 | | 61 | 197 | | 62 | 198 | | | - | | | _ | | | - | | | | | | - | | | - | | | - | | 66 | 627 | 1 | | |
| | | | 55 | 5 160 | 0 | 4 | 3 12 | 28 | | (49) | | | . 56 | 180 | | 90 | 287 | | 92 | 293 | | | - | | | - | | | _ | | | - | | | - | | | - | | | - | | 79 | 760 | | | |
| 70 | 478 | 2,912 | 183 | 3 53 | 2 3,00 | 00 17 | 9 53 | 38 13 | ,681 | 1.76 | 2,403 | 3,200 | 186 | 595 | 3,200 | 207 | 662 | 3,187 | 210 | 671 | - | - | - | - | - | - | | - | - | - | | - | - | - | | | | - | - | - | ~ | 9,587 | 201 | 1,928 | 3 | | |
| | | | | | | | | \dashv | | | | | | | | | | - | <u> </u> | | | | - | | | | | | - | | | | | | | | | | | | | | | | <u> </u> | | |
| 39 | 436 | | 84 | 1 44 | 7 | 6 | 4 35 | 1 | | 85 | 2,420 | | 47 | 305 | | 47 | 278 | | 50 | 310 | | 38 | 171 | | 34 | 113 | | 34 | 113 | | 34 | 113 | | 34 | 113 | | 34 | 113 | | 34 | 113 | | 40 | 1,742 | 2 | | |
| 53 | 308 | | 61 | 1 32 | Ω | - 6 | 5 35 | 16 | | 61 | 1,719 | | 50 | 323 | | 46 | 275 | | 48 | 297 | | 24 | 107 | | 22 | 75 | | 22 | 75 | | 22 | 75 | | 22 | 75 | | 22 | 75 | - | 22 | 75 | | 34 | 1,452 | 2 | | - |
| - | | | - | | | | | | | | | - | | | | | | | | <u> </u> | ļ <u>.</u> | | — | | | <u> </u> | ļ | 21 | 69 | - | | 69 | | 21 | 69 | | 21 | 69 | | 21 | 69 | | 22 | 1,436 | - | | - |
| 1.5 | 74 | | 37 | 7 19 | 7 | 21 | 8 15 | 7 | | 19 | 541 | | 38 | 246 | | 57 | 340 | | 56 | 352 | ļ | | 84 | | | 69 | | <u> </u> | <u> </u> | <u> </u> | | | | | | <u> </u> | | <u> </u> | | <u> </u> | | | | | ļ | - | _ |
| 57 | 818 | 5,351 | 182 | 97 | 2 5,50 | 00 15 | 7 86 | 4 28 | ,361 | 165 | 4,680 | 6 ,475 | 135 | 874 | 5,950 | 150 | 893 | 6,223 | 154 | 959 | 4,54 | 80 | 362 | 3,331 | 77 | 257 | 3,331 | 77 | 257 | 3,331 | 77 | 257 | 3,331 | 77 | 257 | 3.331 | 77 | 257 | 3,331 | .77 | 257 | 43,17 | \$ 107 | 4,630 |) | | |
| | 818 | 5,351 | 182 | 97. | 2 p,50 | 00 15 | 7 86 | 4 28 | ,361 | 165 | 4,680 | 6,475 | 135 | 8/4 | 5,950 | 150 | 893 | 0,223 | 154 | 939 | 4,54 | . 60 | 302 | 3,331 | ,, | 237 | 3,331 | | 237 | 3,331 | | | 3,332 | | | | | 1 | 3,331 | <u> </u> | | 1-, | Ĭ | | <u></u> | <u> </u> | |

Appendix B-2 Planting & Harvesting Plan of I.T.P. for White Chips (Falcata)

V: 1000 m³, T: Thinning

| Plan | nted | I | Damaged | Harvested | Dalance | | 198 | | | 19 | 981 | | | 1982 | | | 1983 | | T | 19 | 84 | | | -tota | L | | 1985 | | | 1986 | , , , | | 1987 | | | 1988 | | | 1989 | | | 1990 | • | |
|--------------|--------------------|----------------|-----------------|--|------------------|--------------|--------------|-----|----------|-----|------------|-----------------|-------|-----------------------------|-----|-------|--|----------|------------|---------------------------|----------|--------|------|--------------|-----|-----|-----------------------------|-----|-----|-----------------------------|----------|-------|-----------------------------|-----|-----|--|----------|----------|----------------|--------------|---------------|-----------------------------|----------------------|----------|
| In | НА | į t | oy Akang HA | up to 1983 HA | Balance HA | НА | (Age | a v | НА | (A) | ge) /ha | v | HA n | (Age) n ³ /ha | v | HА | (Age) m³/ha | ٧ | на | (Age m ³ /) | e) na | V I | IA m | Age) 3/ha | v | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | v | на | (Age) _{R(} 3/ha | v | на | (Age) m³/ha | v | HA | (Age) m ³ /ha | V | HA |
| 1971 | • ••••• | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | <u> </u> | <u> </u> |
| 72 | . | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | : | | | | | | | | |
| 73 2 | 2,12 | 6.19 | 660.00 | 836.30 | 629.89 | _ | | | | | | | | | | | | | | | | | | | | | 52 (52 | | | | | | | | | | | | | | | | | - |
| 74 2 | 2,25 | 3. <u>5</u> d1 | ,919. <u>00</u> | 205.10 | 129.40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 1 | 1,650 | 0.59 | 872.00 | 307. <u>73</u> | 470.86 | | | | | | | | | | | l | | | | | | | | | | 148 | (9) 54 | 8 | | | | | | | | | | | : | | - | <u> </u> | | : |
| 76 1 | 1,590 | 0.25 | 526.00 | 846.28 | 217. <u>9</u> 7 | | | | | | | | | | | | | | | | | | | | | 218 | (8) 73 | 16 | | | | | | | | | | 3.4 | | | | | - | <u> </u> |
| 77 1 | 1,03 | 5.50 | 741.00 | _ | 294.50 | | | | | | | | | | | | | | | | | | | | | 295 | (7) 102 | 30 | | (3) | | | | | | | | | | | | | | |
| 78 3 | 3,119 | 9, <u>91</u> 2 | ,499.00 | - | 620. <u>91</u> | | | | | | | | | | | | | | | | | | | | | | · | | 621 | (7) 114 | | | (7) | | | | | | | | | | | |
| 79 1 | 1,03 | 1.98 | - | _ | 1,031. <u>98</u> | | | | | | | | | | | | | | | | | | _ | | | | | | | | | 1,032 | (7) 95 | | | (7) | | | | | | | <u> </u> | |
| 80 | 41. | 1.71 | | - | 411 . <u>71</u> | | | | | | | | | | | | | | | | | | | | | | | | | · · · | | | | | 412 | (7) 87 | 36 | | (7) | | | (8) |) . | |
| 81 1 | 1,39 | 5.71 | | _ | 1,395. <u>71</u> | | | | | | | | | | | | | <u> </u> | | | | | | | | | | | | | | | | | | | | 636 | 170 | 108 | 760 1,447 | 200 |) 152) 246 | |
| 82 4 | 4,17 | 1.00 | | - | 4,171.00 | | <u> </u> | | | | | | | | | | | - | | | | | _ | | | | | | | | <u> </u> | | · . | | | <u> </u> | | | | | 1,44/ | 170 | 246 | 1,87 |
| 83 1 | 1,97 | 7.00 | | - | 1,977.00 | | | | <u> </u> | | | | | | | | <u> </u> | | | - | | | | | | | | | | | | | | | | | | | | | | | | T. |
| 84 1 | | | | - | 1,302.00 | | <u> </u> | | <u> </u> | | | 1 | | | | | <u> </u> | - | | | _ | | | | | | | | | | | - | | | | | | <u> </u> | | | | | | 1,30 |
| 85 <u>1</u> | 1,01 | 8.00 | | | 1,018.00 | 1 | | | | | | · | | | | ļ | | | | - | | | | | | | - | | | | | | | | | · <u>· </u> | | | | | | | | - |
| 86 1 | | | · - | - | 1,158.00 | | - | | | | _ | | | - | | | | | - | | _ | | | | | | | | | | | | | | | | | | | | | | | + |
| 87) | | | <u>.</u> | - | 1,480.00 | 1 | | | | | | | | | | | <u> </u> | | - | | _ | | | | | | - | | | | _ | | <u>:</u> | | | | | : . | | \dotplus | | | | + |
| 88 | 47. | 3. <u>00</u> | | <u>-</u> | 473. <u>00</u> | <u> </u> | | | _ | | | - | | | | | <u> </u> | _ | - | | | | _ | · <u> </u> | | | • | | | | | | | | | · · · · · · · · · · · · · · · · · · · | | | | + | | | | - |
| 89 | | | | | | - | <u> </u> | | - | - | | | | | | ļ | | | - | <u> </u> | _ | | | | | | | | | | | | | | | | <u> </u> | | | +- | 1 | | | - |
| 90 | <u> </u> | | <u> </u> | | | | | | | _ | | | | | -00 | | 7.5 | 1.0 | 7 5 6 | | | | 201 | 76 | 720 | | | 5.4 | 693 | 33.4 | 71 | 1.032 | 95 | 98 | 412 | 87 | 36 | 636 | 170 | 108 | 2,207 | 180 | 398 | 1,8 |
| otal 20 | 6,19 | 14.347 | 7,217.00 | 2,195.41 | 16,781. <u>9</u> | | <u> </u> | -i- | 0 69 | | 79 | | 3,907 | 74 | | 2,601 | 76 | | | -: | | . | 735 | 70 | 739 | | 82 | 54 | 621 | 114 | - | - | | - | - | | - | - | | - | - | | | 1,30 |
| ing | | | | | | - | <u> </u> | | \ | | | - | | | - | | | - | ļ <u>.</u> | | | - | | | | - | | - | | | <u> </u> | | | | | | 1.0 | 165 | 30 | +- | 100 | 144 | | - |
| rom ixed | | | · . | | 1 1 | | | | | | | - | - | | - | - | <u> </u> | | | - | | - ; | - | | - | - | | - | 247 | 61 | 15 | 262 | | | 302 | | | 165 | | 1- | - | <u> </u> | | 1 |
| rand otal | | | | | | 49 | 3 81 | . 4 | 0 69: | 2 | 79 | 55 3 | 907 | 74 | 289 | 2,601 | 76 | 19 | 7 2,04 | 12 7 | 7] | 158 9, | 735 | 76 | 739 | 661 | 82 | 54 | 868 | 99 | 86 | 1,294 | 89 | 115 | 714 | 77 | 55 | 801 | 14 | 1 113 | 2,395 | 177 | 425 | 3,18 |
| | | -+ | | <u> </u> | | | - | 十 | +- | + | | $\neg \uparrow$ | | | | | | | \top | | | | | | | | | - | | | | | | | | | | | | | 1.2 | | | |



V: 1000 m³, T: Thinning

| | | | 1983 | | | 198 | | | | o-tot | | | 198 | | | 198 | | | | 987 | | | 1988 | | : | 1989 | | | 1990 | | | 1991 | | | 1992 | : | | 1993 | | | 1994 | | s | ub-to | tal | | | <u> </u> |
|-----------|-----------|------|---------------------------------------|------------|-------|---------------------------|--------------|-----|------|--------------|----------------|-----|-------------------------|------|--|----------|----------|-------|-----|------------|----------|------|----------------|-------------|-----|-----------|--|-------|-------------------------|----------|----------|----------------|----------|--------------|----------------|--------------|--------------|-----------------------------|-----|--|-----------------------------|----------|------------|-----------|-----------|----|----------|----------|
| V | | на 1 | (Age) 1 ³ /ha | v | на | (Age m ³ /h | v | I | IA m | Age) 3/ha | v | на | (Age | ia V | на | (Age | ia V | , н | A m | ge) /ha | v | на 1 | (Age) n3/ha | v | на | | v | на | (Age) m³/ha | v | HA | (Age) m3/ha | V | на | (Age) m³/ha | v | на | (Age) m ³ /ha | ٧ | на | (Age) m ³ /ha |) a V | на | m³/h | a V | на | | |
| | | | | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | . 7. | | | | | | 1.: | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | 1 | | | | | _ | | | | | | | | | | | | | | ٠. | | | | | | | | | | | | | |
| | | | | | | | | | 1 | | | | | 1 | | | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <u></u> - | | | | - | | | | T | | | | 148 | | 8 | | | | | | | | - - | | | | | | | | | : | | | | | | | | | | | | 148 | 54 | E | 3 | | |
| | \dagger | | | | 1 | | | 1 | | *: | | 218 | (8) | 16 | 1 | | | _ | | | _ | | | | | | | ļ — | | - | | i | | | | | 1 | | | | | | 218 | 73 | 16 | 5 | | |
| · | + | | · · · · · · · · · · · · · · · · · · · | | | | | | | | <u> </u> | 295 | (8) 73 (7) 102 | 30 | | | <u> </u> | _ | | | | | | | | | - | | <u> </u> | | | | | | | | | | | | | | 295 | 102 | 30 | , | | |
| - | + | | | | | | | - | | | | | 102 | | 621 | (7 | 7) 73 | 1 | | | _ | | | | | | | | | | | | | | | | | | | | | | 621 | 114 | 71 | L | | |
| | 1 | | | | | | | 1 | | | | | | _ | | 1 | | 1,0 | 32 | (7) 95 | 98 | 7 | | | | | | | | | | | | | | | | | | | | | 1,032 | 95 | 98 | 3 | | |
| | + | | | | | | | | + | | | | | - | - | | | | | 1 | - | 412 | (7) 87 | 36 | | | | | | | | | <u> </u> | | | | | | | | | | 412 | 87 | 36 | , | | |
| | T | | | | | | | - | - | | | | | | | - | | 1 | _ | | | | 0,1 | | 636 | (7 170 | 108 | 760 | (8 | 152 | | | 1 | | | | | * V | | | | | 1,396 | 186 | 260 | , | | |
| · | - | | | | | | | - | - | | - | | - | _ | \top | | _ | + | - | | | | | | | 170 | | 1,447 | 200 200 (7 170 | 246 | 1,879 | (8 | 376 | 845 | (9) 242 | 204 | | | | | | - | 4,171 | 198 | 82€ | , | | |
| | 1 | | | | | | | | | | | | | | | | | | | | \dashv | | | | | | | | 170 | | | 200 | | 407 | (8) | 81 | 1,570 | (9 242 | 380 | <u> </u> | | | 1,977 | | | 11 | | |
| | \dagger | | | | | | - | 1 | | | <u> </u> | | _ | | † | | | | _ | _ | | | | | | | | | | - | T. | (6 46 |) 60 | | | | 61 | (8 200 | 12 | 241 | (9) | 300 | 1,302 | 240 46 | 312 60 | ; | <u> </u> | - |
| | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | T. 1,018 | (6) 46 | 47 | | | | | | | T 1,018 | 46 | 47 | / | | |
| | 1 | | | | | | | 1 | | | - | | | | † | | | 1 | | | 1 | | | | | | | | | | | | | | | | T. 1,158 | (6) 46 | 53 | | | | T 1,158 | 46 | 53 | 3 | | |
| | T | | | | | | | | | | <u> </u> | | | | \top | <u> </u> | | | | | | | | | | | | | | | | | | | | | | | | T. | (6) 46 | 68 | T 1,480 | 46 | 68 | 3 | | |
| | | | | | | | | T | | | | | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | : | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | | | | | |
| | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | | | | |
| 289 | 9 2, | 601 | 76 | 197 | 2,042 | 77 | 158 | 9,7 | 35 | 76. | 739 | 661 | 82 | 54 | 621 | 114 | 71 | 1,0 | 32 | 95 | 98 | 412 | 87 | 36 | 636 | 170 | 108 | 2,207 | 7 180 | 398 | 1,879 | 200 | 376 | 1,252 | 228 | 285 | 1,631 | 240 | 392 | 1,241 | 242 | 300 | 11,572 | 183 | 2,11 | .8 | | |
| - | | - | | _ | - | | - | - | | : | - | - | | - | _ | | _ | | - | | - | - | | _ | _ | | - | - | | - | 1,302 | 46 | 60 | 1,018 | 46 | 47 | 1,158 | 46 | 53 | 480 | 46 | 68 | 4,958 | 46 | 22 | 28 | | |
| | \dagger | _ | | _ | - | <u>:</u> | | 1. | | | - | _ | | | 247 | 61 | 15 | 5 2 | 262 | 65 | 17 | 302 | 63 | 19 | 165 | 30 | 5 | 188 | 144 | 27 | 8 | 207 | 2 | 608 | 207 | 126 | | | - | _ | | _ | 1,780 | 119 | 21 | .1 | | • |
| | | 601 | 75 | ļ <u> </u> | h 041 | 77 | | | 725 | | ļ | ļ | | | | | | _ | _∔_ | 89 1 | ļ_ | | | | | | - | | <u> </u> | <u> </u> | _ | 137 | <u> </u> | | | ! | } | 360 | 445 | 2 721 | 135 | 369 | 18,310 | 140 | 2.55 | 7 | + | |
| 289 | 3 2, | 001 | 76 | 197 | ,042 | 77 | 158 | 7,1 | /35 | 76 | 739 | 661 | 82 | 54 | 868 | 99 | 86 | · μ,2 | 94 | 1 69 | 15 | /14 | | 35 | 801 | 14 | 1113 | 2,395 | 177 | 425 | 2,189 | 13/ | 418 | 2,8/8 | 129 | 458 | 2, 109 | 100 | 443 | 6,721 | 137 | 300 | 1 | | | + | | |
| į | | | | | | | | | | | • | | | | - | | | - [| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Appendix B-3 Planting & Harvesting Plan of I.T.P. for Red Chips (Bagras)

V: 1,000 m

| Planted Damaged Harvested | Balance . | 198 | | | 1981 | | | 1982 | | | 1983 | | | 1984 | | | b-tota | | | 1985 | | | 1986 | | | 1987 | | - | 1988 | | | 1989 | | 1 | 1990 | | |
|--------------------------------|------------------|----------------------|------------|-----|----------------|----|------|-----------------------------|----|----------------|-----------------------------|----|------|----------------|---|-------|-----------------------------|----|---------|------|---|------|-----------------------------|--------------|------|-----------------------------|-----|-------|-----------------------------|----|-------|-----------------------------|----|----------|----------------|------|-----|
| by Akang up to 1983 | НА | HA m ³ /1 | e) na V | на | (Age) m³/ha | V | на т | (Age) m ³ /ha | v | т АН | (Age) n ³ /ha | v | RA T | (Age) n3/ha | V | HA. | (Age) m ³ /ha | .v | на г | Age) | V | на , | (Age) m ³ /ha | V | HA 7 | (Age) n ³ /ha | V | r AR | (Age) n ³ /ha | V | на | (Age) m ³ /ha | V | на | (Age) m³/ha | V | 112 |
| 971 | | | | | | | | | | | | | | | | | | | | | | | - | 1 | | | | | | | | | | | | | |
| 72 385.53 325.00 54.81 | 5.72 | | | | | | | | | | | | | | | - | | | | | | | | | | | | 6 | (15) 60 | | | | | | | | |
| 73 428.64 344.00 66.41 | 18.23 | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 | (14) 40 | | | | | | | | |
| 74 302.00 302.00 - | - | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | | | | | | | |
| 75 466.93 461.00 - | 5.93 | | | | | | | | | | | | | | | | | | • | | | | | | | | | 6 | (12) 44 | | | | | | | | |
| 76 162.51 55.00 - | 107.51 | | | | - | | | | | | | | Ť | | | | | | | | | | | | | | : . | 108 | (11) 25 | 3 | | | | | | | _ |
| 77 1,503.30 36.36 - | 1,466.94 | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | ,206 | (10) 41 | 50 | 261 | (11) 41 | 11 | | - | | |
| 78 2,565.781,211.00 - | 1,354.78 | | | | | | | - | | | | | | | | | | | | | | | | | | | | | | | 1,355 | (10) 30 | 40 | | <u> </u> | | L |
| 79 1,446.12 603.00 - | 843. <u>12</u> | | | | | | | | | | <u>.</u> | | | | | | | | | | | | | | | | | | | | | | | 843 | 3Z ; | | |
| 80 1,106.991,027.00 - | 79. <u>9</u> 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 80 | - 28 · | 5 | L |
| 81 929.62 635.00 - | 294. <u>62</u> | | | | | | | | | | | | | | | | | ·. | | | | | | | | | | | | | ì | | | 295 | (8) 85 | 25 | L |
| B2 102. <u>00</u> | 102.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | . i | | 1 |
| 83 1,228.00 | 1,228.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| 34 2,032.00 | 2,032.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 |
| E5 3,366. <u>00</u> | 3,366.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ļ |
| 86 3,380.00 | 3,380. <u>00</u> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ļ | | | 1 |
| 87 3,380. <u>00</u> – – | 3,380.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | <u></u> | | L |
| 98 3,380.00 | 3,380.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - |
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| and | | | | 121 | 83 | 10 | 616 | 20 | 12 | 1,054 | 19 | 20 | 34 | 19 | 1 | 1,825 | 24 | 43 | - | | - | 164 | 61 | 10 | 175 | 40 | 7 | L,545 | 39 | 61 | 1,726 | 32 | 56 | 1,343 | 46 | . 62 | T |
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Appendix B-4 Planting & Harvesting Plan of I.T.P. (Mixed)

V: 1,000 m³

| Plant | - od | Damaged | Harvested | | | 1980 | | | 1981 | | | 1982 | 2 | | 198 | 3 | <u> </u> | 19 | 84 | | Sı | ub-tota | al | | 1989 | | | 1980 | | | 1987 | | | 1988 | | | 1989 | | | 1990 | | |
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| | HA | by Akang HA | Harvested up to 1983 HA | HA HA | на | (Age) m ³ /ha | v | НА | (Age) m³/ha | | АН | (Age) m ³ /ha |) a V | НА | (Age m ³ /h |) a V | H) | (Ag | | v | на | (Age) m ³ /ha | V | HA | (Age) m ³ /ha | V | НА | (Age) m ³ /ha | v. | нл | (Age) m ³ /ha | v | HA | (Age) m ³ /ha | ν | НA | (Age) m³/ha | v | на | (Age) m³/ha | v | на |
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| 73 | | | | | | | | | · · · | <u> </u> | | | | \ | | - | | | | | _ | | <u> </u> | | | <u> </u> | - | - | † | | | | | | | | | | | | | |
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| 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | - | | | | | | | | | 1 | | | Activities |
| 76 | 57.13 | - | _ | 57.13 | | | | | | | | | _ | - | | | | | | | _ | | | | - | - | 57 | (9) 79 | 5 | | | | | | | - | | | | | | - 4 |
| | 354.37 | | - | 354.37 | | | | | | | | | - | | | | - | | | | | | - | | | | 354 | | 20 | | | | | · | | | | | | · · | | - September - Sept |
| | 436.91 | | | 436.91 | [| | | | | | | | | | | | - | | | | | | | | | | - | 30 | | 437 | (8) 55 | 24 | | | | | | | | 4 | | A COMMONS |
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| | 274.61 | | <u>:</u> | 274.61 | ļ | | | | | | - | <u> </u> | + | | | - | | _ | | | | | | | | - | <u>-</u> | | - | 1 | | | | - 33 | - | 275 | (8) 36 | 10 | | | | |
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| 82 | 14.17 | | <u>: </u> | 14.17 | | | | | - | | 1. | <u> </u> | | | - | | +- | | | | | | | | | | | | - | | | | | | | | | | | | | 14 |
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| Grand total | | | | | | | | | | <u> </u> | | <u> </u> | | | | | | | | | | | | ļ. | | | | | | | | | | | | | | | | | | |
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Appendix B-5 Planting & Harvesting Plan of I.T.P. for Fuelwood (Ipil-ipil)

V: 1,000 m³

| Pla | nted | D | Damaged | Harvested | Dalanas | | 19 | 80 | | | 198 | l | | 198 | 32 | | | 1983 | | | 1984 | i . | | Sub∽t | | | - | 1985 | | | 1986 | | | 1987 | | | 1988 | 3 | | 1989 | | | 1990 | | 1.5 |
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| In | IIA | b | y Akang HA | Harvested up to 1983 HA | HA | НА | (Ag | e) ha | v | IIA | (Age) m³/ha | | Н | (Age | a) | V I | IA m | Age) ³ /ha | V | НА | (Age) m3/ha | V | Н | (Ag m ³ / | e) ha | V I | ia (| Age) ³ /ha | ν | НА | (Age) m³/ha | V. | НА | (Age) m³/ha | V | HA | (Age) m ³ /h | a V | HA | (Age) m³/ha | V | НА | (Age) m ³ /ha | v | HA |
| 1971 | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1, 1 | | | | | | | . j z t " | | | | |
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| 79 | | | | | | | | | ĺ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 80 | | | · · · · | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 81 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 82 | 12 | 20 | _ | - | 120 | | | | | | • | | | | | | | | | | | | | | | | | | | | | | 120 | (4) 60 | 7 | | | | | | | | | | 120 |
| 83 | 1,02 | 20 | _ | | 1,020 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1,020 | (4) 60 | 61 | | | | | | | |
| . 84 | 1,00 | 00 | - | - | 1,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1,000 | (3) 50 | 50 | | | <u> </u> | | | | |
| ε5 | 3,89 | 90 | - | - | 3,890 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3,890 | (3) 50 | 195 | | | | |
| 86 | 3,85 | 58 | - | _ | 3,858 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | | | | | | 3,858 | (3) 50 | 193 | |
| 87 | 3,85 | 54 | - | _ | 3,854 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3,854 |
| 88 | 4,43 | 38 | - | _ | 4,438 | | | | | | _ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 89 | | | | | - | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | | | | | | | | | | | | | | | |
| 90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | - | | | | | | | | | ٠. | | | 12. | | | |
| Tota1 | 18,18 | 30 | - | _ | 18,180 | - | | | - | - | | - | - | | | - . | - | | - | - | | - | | | | | - | | | - | | - | 120 | 60 | 7 | 2,020 | 55 | 111 | 3,890 | 50 | 195 | 3,858 | 50 | 193 | 3,974 |
| Buntan | 1,82 | 20 | | | | | | | - | - | | - | - | | | - | - | | - | - | | - | - | | | - | - | | - | - | | - | - | | - | - | | - | - | | - | 365 | 60 | 22 | 457 |
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| Grand total | 20,00 | 00 | | | | | | | \dashv | | | | - | - | | | | | _ | - | | | | | | | | | | | | | 120 | 60 | 7 | 2,02 | 55 | 111 | 3,890 | 50 | 195 | 4,223 | 51 | 215 | 4,431 |
| | | | | | | <u> </u> | | i | | | | | | | | | | | | | - | | | | | | | | | | | | | | | | | | | | | | | -7 | |

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| 82 | | 4.1 | 1983 | 1.1.2 | | 19 | 84 | | | Sub-t | otal | | | 198 | 35 | | | 1986 | | | 198 | 7 | | | 1988 | 1 | | 19 | 39 | | , | 1990 | | | 1991 | l | | 199 | 2 | | 199 | 3 | 1 11 | 199 | 4 | | Sub-t | otal | | 1,411 | |
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Appendix B-6 Planting & Harvesting Plan of I.T.P. for Fuelwood (Buntan)

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| TOTAL STATES | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ٠ . | | | | | | | | | | | | | <u>.</u> | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | 365 | 60 | | 22 45 | 57 | 60 | 27 | 366 | 60 | 22 | 632 | 60 | 38 | 365 | 60 | 22 | 2,185 | 60 | 131 | . | | |
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Appendix B-7 Harvesting Plan of Agro-Forestry (Falcata) for White Chips

| Fr. 1 - | | Damaged | Harvested | | <u> </u> | 1980 | | | 1981 | | 19 | 982 | | 1 | 983 | <u> </u> | | 1984 | | | Sub-tot | al | <u> </u> | 1985 | | | 1986 | 5 | | 1987 | | | 1988 | T | | 1989 | | | 1990 | <u></u> | |
|----------------|--------------|----------|-------------------------------|---------------|----------|-----------------------------|------------|------|-------|-------|------------|------------|-------|-------|-------------|---------------|------|--------------|------------|---------|-----------------------------|----------|----------|---------------------------------------|--------------|----------|-----------------------------|-----------------|--------------|-----------------------------|-----|---------------|----------------|-----------------|-------|-----------------------------|--------------|------------|-----------------------------|----------|--------------|
| In | nted HA | by Akang | Harvested up to 1983 HA | Balance HA | на | (Age) m ³ /ha | v | на п | (Age) | V. | (Aq m3/ | ge) /ha | v I | HA m3 | | v | HA m | Age) 3/ha | V | | (Age) m ³ /ha | | на | (Age) m ³ /ha | v | на | (Age) m ³ /ha | | НА | (Age) m ³ /ha | ٧ | на | (Age) m3/ha | v | HA 1 | (Age) m ³ /ha | ν | HA D | (Age) n ³ /ha | v | на |
| 1971 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ! |
| 72 | | | | | | | | | | | | | | | | | | - | | | | | | | | | | | | | | | | | | | | | | | · : |
| 73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | · | | | | | | | | |
| 74 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | | | | | | | | | | | · |
| 75 | | | | | | | | | | | | | | | | | | | | | ļ | | | · · · · · · · · · · · · · · · · · · · | | <u> </u> | | | | | | | | | | | | | | | |
| 76 | | | | 157 | | | | | | | | | | | | | | | | | | | 157 | 272 | 38 | | | | | <u> </u> | | | | | | | | | | ļ! | ļ |
| 77 | | | | 178 | | | | | | | | | | | | | | | | | | | 178 | 200 (8) | 36 | | 10 | | - | | | | | | | | | | | | ļ |
| 78 | | | | 711 | | | | | | | | | | | | | | | | | | <u> </u> | 500 | (7) 170 (6) 130 | 85 | 211 | (8 200 | 42 | ļ | | | | | | | | | | | | i |
| 79 | | | | 1,594 | | | | | | | | | | | | | | | | | | <u> </u> | 713 | 130 | 93 | 440 | 170 | ⁾ 75 | 44] | : | 88 | i | | | | | | | | | |
| 80 | | | | 1,394 | | | | | | | | | - - | | | | | | | | | <u> </u> | | | <u> </u> | 573 | 130 | 74 | 411 | 170 | 70 | 410 | 200 | 82 | | (8) | | | | | |
| 81 | | | | 1,950 | | | | | | | | | - | | | | | | | • | | <u> </u> | | | | | <u> </u> | | 177 | (6) 130 | 22 | 1,306 | 170 | 222) 140 | 472 | (8) 200 (7) 170 | 94 | | | | |
| 82 | | | | 1,654 | | | | | | | | | | | | | | | | | <u>.</u> | ļ | | | | | <u> </u> | | ļ | - | | 1,080 | 130 | 140 | 574 | 170 | 98 | | | | - |
| .: 83 | | | | 2,118 | | | - | | | | | | | | | | | | | | | <u> </u> | | | | | | | ļ | <u> </u> | | ļļ | | | .587 | (6) 130 | 206 | 531 731 | : | 90 | 676 |
| 84 | | | | 1,407 | | | | | | | | | | | | | _ | | | | <u> </u> | <u> </u> | | <u> </u> | | <u> </u> | <u> </u> | | <u> </u> | <u> </u> | | - | | | | | | 731 | 130 | 95 | 500 |
| ε5 | · . | | | 500 | | | | | | | | | | | | | | | | | <u> </u> | | | | ļ | | <u> </u> | - | - | - | | - | | | | | | | | - | 300 |
| 86 | · | | | 1,054 | | | | | | | | | | | | | _ | | | | | - | | | - | _ | | - | - | | | - | | | | | | <u> </u> | | | |
| 87 | | | | 1,027 | | | | | | | | _ | | | | | | · · · | | | <u> </u> | | | | - | | - | | | <u> </u> | | ļ | | | | | <u> </u> | | | | |
| 88 | | | | 1,013 | | | | _ | | | | _ | | | | $-\downarrow$ | _ | | | | <u> </u> | | | | | | | _ | - | - | | | | <u> </u> | | | | | | - | |
| 89 | | | | 1,054 | - | | | | | - | | - | | | | | - | | | - | | | | | - | - | - | | - | <u> </u> | | - | | - | | | | | | <u> </u> | |
| 90 | | | | | | | | | | - 100 | | | | | | | | | 070 | | <u> </u> | | | | | | | | | 4 176 | 100 | 7.706 | 350 | 444 | 2 633 | 151 | 308 | 1 262 | 145 | 185 | 1.176 |
| Total Thin- | Pulp- | | | 15,811 | | | 182 175 | | | 199 | | | 244 | | | 346 | _ | | 270 270 | | <u> </u> | 1 | 1 | 163 | : | 1 | 156 | • | 1 | 1/6 | 180 | | 159 | 444 | .,033 | 1-/1 | 398 | 2,202 | | 185 | 1 |
| Thin- ning | | <u> </u> | | | | | 1/5 | | | 178 | | | 244 | | | 346 | _ | | 270 | | <u> </u> | 1,21 | 3 | | 252 | <u> </u> | - | 191 | <u> </u> | | 180 | 4 | ļ | 444 | | | - | | | <u> </u> | - |
| From mixed | Fuel wood | | | | | | 7 | | | 21 | | | - | | | - | | | - | | | 28 | 3 | | - | | | | | | - | <u> </u> | | | | | - | | | - | |
| Grand total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | 198 | 3 | | 19 | 84 | | St | ib-to | tal . | | | 985 | | | 198 | 6 | | | 1987 | | T | 19 | 88 | | | 1989 | | | 199 | 0 | | | 1991 | | | 199 | | | | 993 | | | 199 | | | Sub | o-tota | 1 | | | |
|----------|------------|---------------------------|-------------|----------------|--------------|----------|----|------|-----------------------------|--------------|--|------------------|------------|-----|----------|------------------------|----------|--------|----------|-----------------------------|-------------|----------------|--------------|-------------|----------|------|--|----------|--|-------------------|-------------|---------|------|--------------|---------------------------------------|--|---------------------------|----------|-----|------------------------|------------|-------------|-------|--------------|----------|--------|--------------|--------|-------|-------------|--------------|---|
| v | на | (Age m ³ /h | a v | Н | (Ag | e) na | v | нл | (Age) m ³ /ha | v | н | A m ³ | ge) /ha | ٧ | на | (Age |) a V | , | на , | (Age) n ³ /ha | v | UB | (Ag | | v | HA n | (Age) m³/ha | v | АН | (Age |) a v | , 1 | HA m | Age) 3/ha | v | на | (Age m ³ /h | a V | н | (A A m ³ | ge) /ha | v | нл | (Age m³/h |) a V | ш | A m | 3/ha | v | HA | + 5 | |
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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | 500 | (6) 170 | 85 | | | | | | | | | | | 5 | 500 | 170 | 85 | İ | | |
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| 244 | ļ <u> </u> | | 346 | 1 | | 2 | 70 | | | 1,24 | 11,5 | 18 1 | 63 | 252 | 1,224 | 156 | 19 | 1 1.0 | 024 | 176 | 180 | 2,79 | 6 1 | 59 4 | 144 2 | 633 | 151 | 398 | 1,26 | 2 14 | 5 18 | 35 1,1 | 176 | 170 | 200 | 1,054 | 170 | 179 | 0,1 | 27] | L70 | 17 5 | 1,013 | 170 | 17 | 2. 4,7 | 757 | 161 | 2,376 | | | _ |
| 244 | | | 346 | | | 2 | 70 | | | 1,21 | 7 | | : | 252 | | | 19 | | | | 180 | 7- | | | 444 | | | 398 | | | 18 | | | | 200 | 1 | 1 | 179 | | | | 175 | | | 17 | | | | 2,376 | | | |
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Appendix B-8 Harvesting Plan of Agro-Forestry (Ipil-ipil)

| Dl a | nted | Damage | d Harvested | | T | 198 | 0 | 19 | 81 | | 1982 | | | 1983 | | | 1984 | I | T | Sub-tot | al | | 1985 | | | 1986 | | | 1987 | T | 198 | 38 | Ţ | 1989 |) | T | 1990 | | |
|---------------|----------------|---------------|-----------------------------------|---------------|--------------|--------------|-------------|-------------------|------------|---|----------------|--------------|--|----------------|--|--|----------------|-------------|----|-----------------------------|--------------|----|-----------------------------|----------|----|-----------------------------|--------------|---|-----------------------------|--|---------|----------|----------------|----------------|----|----------|------------------|--------------|-------------|
| In | HA | by Akar HA | d Harvested g up to 1983 HA | Balance HA | АН | (Age | a v | HA m ³ | e) ha V | н | (Age) m³/ha | v | на | (Age) m³/ha | v | на | (Age) m³/ha | v | на | (Age) m ³ /ha | v | НА | (Age) m ³ /ha | V | нл | (Age) m ³ /ha | v | | (Age) m ³ /ha | v | HA m3/h | | на | (Age) m³/ha | v | на | (Age) m³/ha | V | на |
| 1971 | | | | | | | | | | | | | 1 | | | - | | | | | | | | | | | | | | ` | 100 7 | | | | 1 | | | | |
| 72 | | | | | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | MPS.ZZZBA |
| 73 | | | | | | - | | | _ | | _ | - | | | - | | | | | | | | | | | | | 1 | | | | | | | | | i | | - Carrier |
| 74 | | | | | | | | | | | | | ļ | | | | | | | | | | | | | · · · · · | | | | | | _ | | | | | ! | | |
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| 77 | | | | | | | | | + | | | | | | | | | | | - | | | | | | | | | | | | | | | | | | | |
| 78 | | - | | | | | | | _ | - | | | | | <u> </u> | | | | | | | | | | | | | | | | | | . | | | | | | |
| 79 | | | | <u> </u> | | | | | | _ | | <u> </u> | | | | - | | | | | | | | | | | | | | | | | | | | | | | No. |
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| 82 | | | | | | <u> </u> | | | <u> </u> | _ | + | 1 | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | | |
| 83 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | Child Comme |
| 84 | : | | | | | | | | | | | | † | | İ | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | | | | 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 500 | (4) 60 | 30 | | | | 1 |
| 86 | | | | 1,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1,000 | (4) 60 | 60 | |
| 87 | | | | 1,500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1,500 |
| 88 | | | | 2,025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> |
| 89 | | | | 2,025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | ļ . | <u> </u> | | |
| 90 | | | | 2,025 | | | | | | | | | | | | | 1 | | | | | | | | | | | | | | * | | | | | | | | |
| Total | | | | 9,075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | 500 | 60 | 30 | 1,000 | 60 | 60 | 1,500 |
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| 1982 (Age) m ³ /ha | v | на | 1983 (Age) m ³ /ha | v | HA m | Age) 3/ha | v | на | (Age) m ³ /ha | v | HA | (A m ³ | /ha | v, | . HA | 198 (Age m ³ /h | e) na ' | v | НА | (Age) m ³ /ha | , v | H | A) E _m A | ge) /ha | v | HA | (Age) m³/ha | V | HA | (Ac m ³ / | ie) 'ha | v | на | (Age) m³/ha | v. | НА | (Age | a V | нA | (Age m ³ /l | ha ha | v | на | (Age) m ³ /ha | v | HA | m ³ /ha | a V | на | | | v |
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Appendix B-9 Actual Cost of Logs from Natural Forest (Clearcut and Selective)

| | 1981 | 1982 | 1983 | Jan,May 1984 | In U.S. Dollars |
|--------------------------|---------|---------|-----------|-----------------|--------------------|
| Volume in m ³ | 855,158 | 797,430 | 1,028,140 | 339,273 | 339,273 |
| Operating Costs | P/m³ | P/m³ | P/m³ | P/m³ | \$/m³ |
| Felling & Bucking | 5.30 | 2.93 | 3,44 | 4.83 | 0.35 |
| Yarding & Skylining | 59.23 | 39.30 | 34.98 | 45.80 | 3.27 |
| Loading & Hauling | 105.79 | 78.79 | 64.92 | 66.18 | 4.73 |
| Sub-Total | 170.32 | 121.02 | 103.34 | 116.81 | 8,35 |
| Other Costs | | | | | |
| Road Cost | 40.19 | 22.74 | 19.56 | 17.97 | 1.28 |
| Overhead | 75.34 | 34.88 | 29.34 | 57.01 | 4.07 |
| Silvicultural Fees | . – | - | 0.80 | 1.76 | 0.13 |
| Forest Charges | 15.95 | 13.13 | 1.53 | _ | _ |
| Sub-Total | 131.48 | 70.75 | 51.23 | 76.74 | 5.48 |
| Total | 301.80 | 191.77 | 154.57 | 193.55 | 13.83 |

Exchange rate in May, 1984: 1 US\$ = 14 Peso

Appendix B-10 Actual Cost of Logs from Natural Forest (Selective Logging)

| | 1981 | 1982 | 1983 | Jan.—May 1984 | In U.S. Dollars |
|--------------------------|----------------|---------|---------|------------------|--------------------|
| Volume in m ³ | 528,279 | 340,006 | 421,219 | 139,242 | 139,242 |
| Operating Costs | P/m³ | P/m³ | P/m³ | P/m³ | \$/m ³ |
| Felling & Bucking | 4.77 | 2.69 | 3.14 | 4.42 | 0.32 |
| Yarding & Skylining | 5 7 .83 | 42.07 | 32.06 | 41.81 | 2.99 |
| Loading & Hauling | 138.00 | 119.46 | 92.89 | 87.30 | 6.24 |
| Sub-Total | 200.60 | 164.22 | 128.09 | 133.53 | 9.55 |
| Other Costs | | | | | |
| Road Cost | 32.15 | 30.20 | 31.28 | 26.88 | 1.92 |
| Overhead | 75.19 | 34.22 | 29.09 | 56.54 | 4.04 |
| Silvicultural Fees | | | 1.81 | 4.31 | 0.31 |
| Forest Charges | 15.66 | 14.39 | 1.79 | - | |
| Sub-Total | 123.00 | 78.81 | 63.97 | 87 .7 3 | 6.27 |
| Total | 323,60 | 243.03 | 192.06 | 221.26 | 15.82 |

Exchange rate in May, 1984: 1 US\$ = 14 Peso

Appendix B-11 Actual Cost of Logs from Natural Forest (Clearcutting)

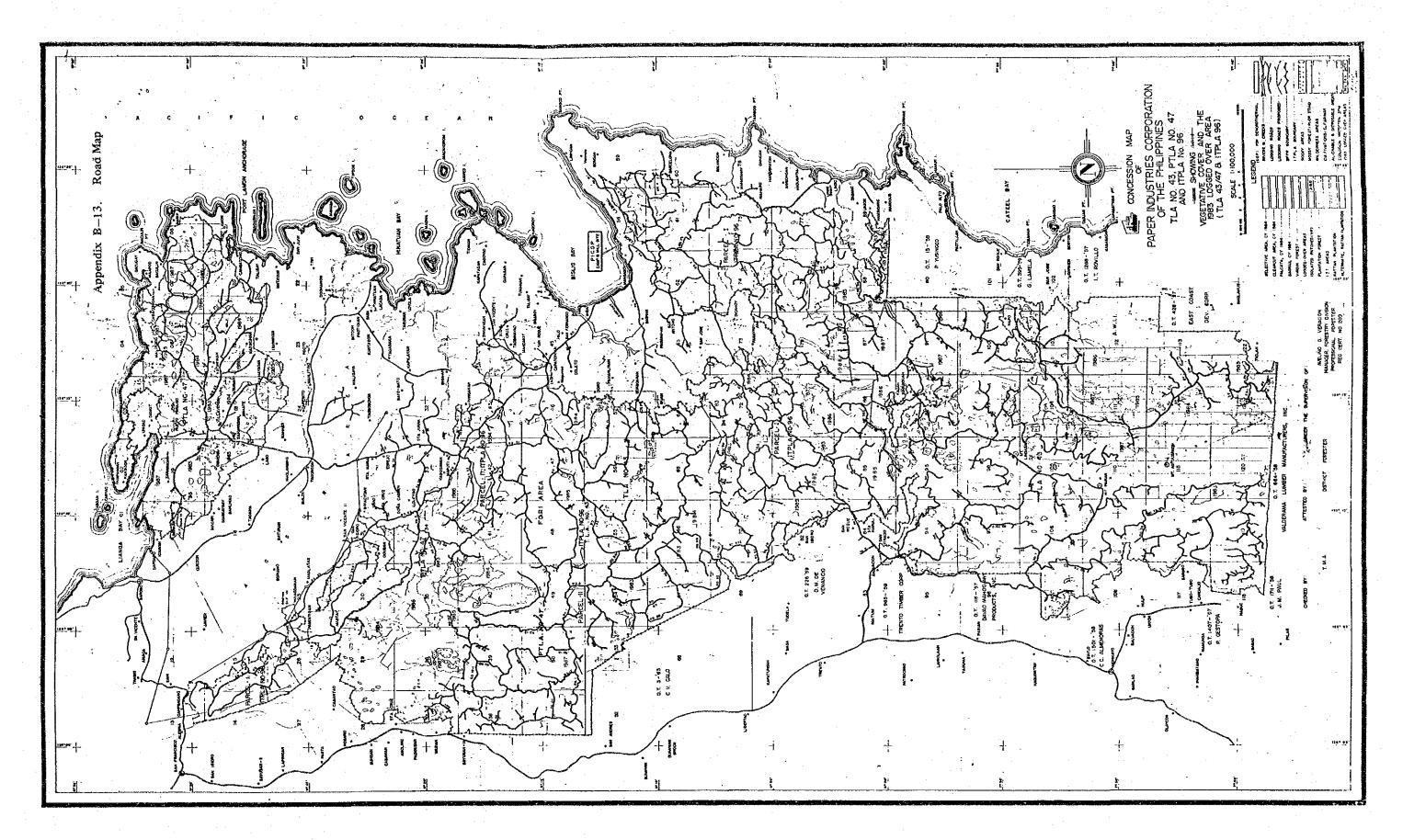
| | 1981 | 1872 | 1983 | Jan.—May 1984 | In U.S. Dollars |
|---------------------|--------|---------|---------|------------------|--------------------|
| Volume in m³ | 36,881 | 457,424 | 607,421 | 200,031 | 200,031 |
| But Aller Silver | P/m³ | P/m³ | P/m³ | P/m³ | \$/m ³ |
| Operating Costs | | | | | |
| Felling & Bucking | 6.16 | 3,11 | 3.65 | 5.08 | 0.36 |
| Yarding & Skylining | 61.49 | 37.25 | 37.01 | 45.44 | 3.25 |
| Loading & Hauling | 53.74 | 48.57 | 45.51 | 52.24 | 3,73 |
| Sub-Total | 121.39 | 88.93 | 86.17 | 102.76 | 7.34 |
| Other Costs | | | | | |
| Road Cost | 53.18 | 17.20 | 11,43 | 11,77 | 0.84 |
| Overhead | 75.80 | 31.85 | 29.50 | 58.88 | 4.21 |
| Silvicultural Fees | _ | ٠ ـــ | 0.10 | _ | |
| Forest Charges | 15.68 | 12.20 | 1,35 | _ | |
| Sub-Total | 144.66 | 61.25 | 42.38 | 70.65 | 5.05 |
| Total | 266.05 | 150.18 | 128,55 | 173,41 | 12.39 |

Exchange rate in May, 1984: 1 US\$ = 14 Peso

Appendix B-12 Actual Cost of Logs from I.T.P.

| | 1981 | 1982 | 1983 | Jan,—May 1984 | In U.S. Dollars |
|----------------------------|--------|---------|---------|------------------|--------------------|
| Volume in m ³ | 65,113 | 292,091 | 232,408 | 65,238 | 65,238 |
| | P/m³ | P/m³ | P/m³ | P/m³ | .\$/m³ |
| Operating Costs | | | · | , | |
| Felling, Bucking & Yarding | 43.24 | 43.93 | 40.38 | 65.30 | 4.66 |
| Loading & Hauling | 50,76 | 35,59 | 44.50 | 68.61 | 4.90 |
| Sub-Total | 94.00 | 79.52 | 84.88 | 133.91 | 9.56 |
| Other Costs | | | | | |
| Road Cost | 15,57 | 15.64 | 4.19 | 16.38 | 1.17 |
| Overhead | 75.41 | 39.02 | 33.42 | 53.58 | 3.83 |
| Stumpage cost | _ | 13.12 | 15.11 | 26.19 | 1.87 |
| Sub-Total | 90.98 | 67.78 | 52.72 | 96.15 | 6.87 |
| Total | 184.98 | 147.30 | 137.60 | 230.06 | 16.43 |

Exchange rate in May, 1984: 1 US\$ = 14 Peso



Appendix B-14 Estimated Logging Cost of Natural Forest (1984)

lUS\$=18Peso=240Yen

| | | | | Working | days/year | Cr | ew | Produci | tivity | | achines & | Deprec | iation/ | machine | Maint. | rep. · · etc. | | Fuel | & lub. | | Tot | al | Wa | ages | |
|-----|-----------------------|-----------------------------|------------------------------|-------------|---------------------|--------|-------------------|---------|-------------------|--------------|-----------|--------------------|----------------|-------------|---------|------------------|-------|------------------|---------------|-----------------|-------------------------|-------------|----------|-------------|-------------|
| No. | Item | wolume m ³ /y | Condition | Shift /D | days/year | No. of | No. of workers | m³/d | m ³ /y | | workers/d | Delivered price | Useful life | Dep. cost | %/y | /machine Cost | НР | Consump- tion | Unit price | Cost | Per machine per year | Total cost | Ave./man | Total cost | Grand to |
| | | (1) | | | days | | · | | | | | US\$1,000 | Years | US\$1,000/y | | US\$1,000/y | | l/Day | US\$/L | us\$1,000 /y | US\$1,000 | US\$1,000/Y | US\$/d | us\$1,000/y | . us\$1,00e |
| 1 | Felling by C.S. | 324,000 | | 1 | 300 | 1 | 2 | 55.0 | 16,500 | 19.64 | 39,27 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 66.2 | 3.3 | 38.9 | 105 |
| 2 | relling by C.S. | 538,000 | | 1 | 300 | 1 | 2 | 50.0 | 15,000 | 35.87 | 71.73 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 120.9 | 3.3 | 71.0 | 191 |
| 3 | Tractor Skidding | 269,000 | Max.Distance 250 m *1 | 1 | 240 * 200 240 | 1 | . 2 | 65.0 | 13,000 | 20.69 | 41.38 | 80.0 | 5.0 | 16.00 | 0.30 | 24.0 | 140.0 | 80.0 | 0.3 | 5.3 | 45.30 | 937.2 | 3.3 | 32.8 | 970 |
| | Yarding & Stacking | 324,000 | 250 m | 1 | * 220 240 | 1 | 8 | 65.0 | 14,300 | 22.66 | 181,26 | 130.0 | 8.0 | 16.25 | 0.12 | 15.6 | 500.0 | 90.0 | 0.3 | 5.9 | 37.75 | 855.4 | 3.3 | 143.6 | 999 |
| 5 | Yarding & Stacking | 269,000 | 250 m | 1 | * 220 | i | 8 | 60.0 | 13,200 | 20.38 | 163.03 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 300.0 | 70.0 | 0.3 | 4.6 | 29.93 | 610.0 | 3.3 | 129.1 | 739 |
| 6 | Buck. by C.S. | 269,000 | | 1 | 270 | 1 | 2 | 65.0 | 17,550 | 15.33 | 30,66 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 1.9 | 3.07 | 47.1 | 3.3 | 27.3 | 74 |
| 7 | Buck. by C.S. | 269,000 | | 1 | 270 | 1 | 2 | 60.0 | 16,200 | 16.60 | 33.21 | 1.0 | 1.5 | 0.67 | 0,50 | 0.5 | 10.0 | 12.0 | 0.6 | 1.9 | 3.07 | 51.0 | 3,3 | 29.6 | 80 |
| 8 | Stack. by crane | 269,000 | | 1 | 270 | 1 | 2 | 200.0 | 54,000 | 4.98 | 9.96 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 100.0 | 30.0 | 0.3 | 2.4 | 27.73 | 138.1 | 3.3 | 8.9 | 147 |
| 9 | Loading by crane | 324,000 | | 1 | 300 | 1 | 4 | 1,100.0 | 330,000 | 0.98 | 3.93 | 140.0 | 3.0 | 46.67 | 0.35 | 49.0 | 175.0 | 140.0 | 0.3 | 12.6 | 108,27 | 106.1 | 3.3 | 3.9 | 110 |
| 10 | Loading by crane | 538,000 | | 2 | 300 | 1 | 4 | 550.0 | 165,000 | 3.26 | 13.04 | 80.0 | 3.0 | 26.67 | 0.35 | 28.0 | 100.0 | 0.08 | 0.3 | 7.2 | 61.87 | 201.7 | 3.3 | 12.9 | 214 |
| 11 | Hauling by truck | 324,000 | Average Distance 46 Km | 2 | 300 | 1 | 4 | 96.0 | 28,800 | 11.25 | 45,00 | 80.0 | 2.3 | 34.78 | 0.75 | 60.0 | 335.0 | 265.0 | 0.3 | 23.9 | 118.68 | 1,335.2 | 3.3 | 44.6 | 1,379 |
| 12 | Hauling by truck | 538,000 | 42 Km | 2 | 300 | ı | 4 | 90.0 | 27,000 | 19.93 | 79.70 | 80.0 | 2.5 | 32.00 | 0.65 | 52.0 | 335.0 | 230.0 | 0.3 | 20.7 | 104.70 | 2,086.7 | 3.3 | 78.9 | 2,165 |
| 13 | (Road cost) | | · | | | | | _ | | | | | | | | | | | | | | | | | |
| 14 | (Overhead) | | | | | | | | | | | | | | | | | | | | | | | | |
| | Grand total | (2) 862,000 | | | | | | | | | 712.17 | | | | | | | | | | | 6,555.6 | | 621.51 | 7,177 |
| | | | | | | | | | , <u></u> | | | | | | <u></u> | <u></u> | | | <u> </u> | | | | <u></u> | | |

^{*1} include spur road construction

1US\$=18Peso≈240Yen

| - | | | | Produc | | NO OF | Machines & | Deprec: | iation/ | machine | Maint: | rep etc. | | Fuel | & lub. | | Tot | al | TQ: | ages | 1 | | 1 | |
|---------------------|------|-------|---------|-------------------|-------------------|----------|------------|-----------|---------|--------------------------|--------|---------------------|-------|---------------|-----------------|-----------|-------------|-------------|--------------|--|-------------|-------------------------------|-------------------------------|--|
| g days/ye | No. | | No. of | m ³ /d | m ³ /y | wor | kers | Delivered | Useful | | · | /machine | HP | Consump- | Unit | Cost | Per machine | | | (| Grand total | G.T./(1) \$/m ³ | G.T./(2) \$/m ³ | Remarks |
| day3774 | mach | hines | workers | , | , | Machines | Workers/d | | | Dep. cost US\$1,000/y | %/Y | Cost US\$1,000/y | | tion L/Day | price US\$/L | us\$1,000 | per year | US\$1,000/y | | | us\$1,000/y | | | |
| 300 | | 1 | 2 | 55.0 | 16,500 | 19.64 | 39,27 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 66.2 | 3,3 | 38.9 | 105.1 | 0.32 | 0.12 | |
| 300 | | 1 | 2 | 50.0 | 15,000 | 35.87 | 71,73 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3,37 | 120.9 | 3.3 | 71.0 | 191.9 | 0.36 | 0.22 | |
| 240 * 200 | | 1 | 2 | 65.0 | 13,000 | 20.69 | 41.38 | 80.0 | 5.0 | 16.00 | 0.30 | 24.0 | 140.0 | 80.0 | 0.3 | 5.3 | 45.30 | 937.2 | 3.3 | 32.8 | 970.0 | 3.61 | 1.13 | * Net yarding days/y. |
| 240 * 220 240 | | 1 | 8 | 65.0 | 14,300 | 22.66 | 181.26 | 130.0 | 8.0 | 16.25 | 0.12 | 15.6 | 500.0 | 90.0 | 0.3 | 5.9 | 37.75 | 855.4 | 3.3 | 143.6 | 999.0 | 3,08 | 1.16 | The no. of days for calculation of fuel consumption is 220 days. |
| * 220 | | 1 | 8 | 60.0 | 13,200 | 20.38 | 163.03 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 300.0 | 70.0 | 0.3 | 4,6 | 29.93 | 610.0 | 3.3 | 129.1 | 739.1 | 2,75 | 0.86 | |
| 270 | | 1 | 2 | 65.0 | 17,550 | 15.33 | 30.66 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 1.9 | 3,07 | 47.1 | 3.3 | 27.3 | 74.4 | 0.28 | 0.09 | PICOP \$/m ³ Jan-May |
| 270 | | 1 | 2 | 60.0 | 16,200 | 16.60 | 33,21 | 1.0 | 1.5 | 0.67 | 0,50 | 0.5 | 10.0 | 12.0 | 0.6 | 1.9 | 3.07 | 51.0 | 3.3 | 29.6 | 8,08 | 0.30 | 0.09 | Sub total 3.67 3.62 |
| 270 | | 1 | 2 | 200.0 | 54,000 | 4.98 | 9.96 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 100.0 | 30.0 | 0.3 | 2.4 | 27.73 | 138.1 | 3.3 | 8.9 | 147,0 | 0.55 | 0.17 | |
| 300 | | 1 | 4 | 1,100.0 | 330,000 | 0.98 | 3,93 | 140.0 | 3.0 | 46.67 | 0.35 | 49.0 | 175.0 | 140.0 | 0.3 | 12,6 | 108.27 | 106.1 | 3.3 | 3.9 | 110.0 | 0.34 | 0.13 | |
| 300 | | 1 | 4 | 550.0 | 165,000 | 3.26 | 13.04 | 80.0 | 3,0 | 26.67 | 0.35 | 28.0 | 100.0 | 80.0 | 0.3 | 7.2 | 61.87 | 201.7 | 3.3 | 12.9 | 214.6 | 0.40 | 0.25 | |
| 300 | | | 4 | 96.0 | 28,800 | 11.25 | 45.00 | 0,08 | 2.3 | 34.78 | 0.75 | 60.0 | 335.0 | 265.0 | 0.3 | 23.9 | 118.68 | 1,335.2 | 3.3 | 44.6 | 1,379.8 | 4,26 | 1.60 | PICOP |
| 300 | | 1 | 4 | | 27,000 | | 79.70 | 80,0 | 2,5 | 32,00 | 0.65 | 52.0 | 335.0 | 230.0 | 0.3 | 20.7 | 104.70 | 2,086.7 | 3.3 | 78.9 | 2,165,6 | 4.03 | 2.51 | \$/m ³ Jan-May Sub total 4.66 4.73 |
| | | | | _ | | | | | | | | | | | | | | | | | | | (1.28) | |
| | | |] | | | | | | | |] | | | | | | | | | | | | (4.07) | |
| | | | | | | | 712.17 | | | | | | | | | | | 6,555.6 | | 621.51 | 7,177.1 | | 8.33 | Total 8.33 8.35 Exclusive of () |

oad construction

Appendix B-15 Estimated Logging Cost of Industrial Tree Plantation (1984)

lUS\$=18Peso=240Yen

| | Volume Consission | | Volume Working days/year Crew | | | | Productivity No. of machines & workers | | | Depreciation/machine | | | Maint. | Maint. rep etc. /machine | | T | & lub | | Tot | | | ges | | | |
|-----|-------------------------|-------------------|-------------------------------|-------------|--------------|--------------------|--|-------------------|-------------------|----------------------|-----------|--------------------|----------------|--------------------------|------|-------------|-------|------------------|---------------|-----------------|-------------------------|-------------|----------|-------------|--------------------|
| ио. | Item | m ³ /y | Condition | Shift /D | days/year | No. of machines | No. of workers | m ³ /d | m ³ /y | | Workers/d | Delivered price | Useful life | Dep. cost | %/Y | Cost | HP | Consump- tion | Unit price | Cost | Per machine per year | Total cost | Ave./man | Total cost | Grand to |
| | | (1) | | | | | : | | | | | US\$1,000 | Years | US\$1,000/Y | | US\$1,000/¥ | | l/Day | US\$/l | VY US\$1,000 | US\$1,000 | us\$1,000/y | us\$/d | US\$1,000/Y | us\$1,0 0 0 |
| 1 | Felling by C.S. | 95,000 | include Debarking | 1 | 300 | 1 | 6 | 25.0 | 7,500 | 12.67 | 76.00 | 0.8 | 1.5 | 0.5 | 0.50 | 0.4 | 5. | 6.0 | 0.6 | 1.10 | 2.00 | 25.34 | 3.0 | 68.4 | 93. |
| 2 | Fell. & Buck. by man | 64,000 | include Debarking | 1. | 300 | | 4 | 5.5 | 1,650 | 0.00 | 155.15 | | | | | | | | | | : | | 2.9 | 134.9 | 134.9 |
| 3 | Tractor skidding | 19,000 | Max. distance 250 m *l | 1 | 240 * 200 | 1 | 2 | 25.0 | 5,000 | 3.80 | 7.60 | 30.0 | 4.0 | 7.5 | 0.30 | 9.0 | 63 | 40.0 | 0.3 | 2.60 | 19.10 | 72.58 | 3.3 | 6.0 | 78.6 |
| 4 | Yarding & Stacking | 76,000 | 600 m | 1 . | * 190 | 1 | 6 | 30.0 | 5 ,700 | 13.33 | 80.00 | 25.0 | 5,0 | 5.0 | 0.20 | 5.0 | 67 | 30.0 | 0.3 | 2.00 | 12,00 | 159.96 | 3.3 | 63.3 | 223 |
| 5 | Cow Skidding | 64,000 | include pre- yarding | | * 240 | cow (2) | 2 | 4.0 | 960 | 133,33 | 133.33 | | | | · | | | | | | | | 6.0 | 192.0 | 19280 |
| 6 | Buck, at land, by C.S. | 95,000 | | 1 | 270 | 1 | 2 | 70.0 | 18,900 | 5.03 | 10.05 | 0.8 | 1.5 | 0.5 | 0.50 | 0.4 | 5 | 7.0 | 0.6 | 1.10 | 2.00 | 10.06 | 3.3 | 8.9 | 19.0 |
| 7 | Stacking by crane | 19,000 | | 1. | 270 | 1 | 2 | 100.0 | 27,000 | 0.70 | 1.41. | 48.0 | 6.0 | 8.0 | 0.15 | 7.2 | 61 | 15.0 | 0.3 | 1.20 | 16.40 | 11.48 | 3.3 | 1.2 | 12 7 |
| 8 | Stacking by man | 64,000 | No platform for loading | 1 | 270 | | 2 | 15,0 | 4,050 | 0.00 | 31.60 | | | | | | | | | | | | 2.9 | 24.7 | 24/7 |
| 9 | Loading by crane | 95,000 | with grapple | 2 | 300 | 1. | 4 | 360.0 | 108,000 | 0.88 | 3.52 | 48.0 | 2.5 | 19.2 | 0.40 | 19.2 | 61 | 55.0 | 0.3 | 4.95 | 43.35 | 38.15 | 3.3 | 3.4 | 41.5 |
| 10 | Loading by crane | 64,000 | with grapple | 2 | 300 | 1 | 4 | 300.0 | 90,000 | 0.71 | 2.84 | 48.0 | 3.0 | 16.0 | 0.35 | 16.8 | 61 | 50.0 | 0.3 | 4.50 | 37.30 | 26.48 | 3.3 | 2.8 | 29.2 |
| 11 | Hauling by truck | 95,000 | Average Distance 30 Km | . 2 | 300 | 1 | 4 | 96.0 | 28,800 | 3.30 | 13.19 | 80,0 | 2.5 | 32.0 | 0.60 | 48.0 | 335 | 180.0 | 0.3 | 16.20 | 96.20 | 317.46 | 3.3 | 13.0 | 330.5 |
| 12 | Hauling by truck | 64,000 | Average Distance 30 Km | 2 | 300 | 1 | 4 | 28.0 | 8,400 | 7.62 | 30,48 | 23.0 | 2.3 | 10.0 | 0,70 | 16.1 | 130 | 100.0 | 0.3 | 9.00 | 35.10 | 267.46 | 3.3 | 30.1 | 297.6 |
| 13 | (Road cost) | | | | | | | | | | | | | | | | | | | | | | | : | |
| 14 | (Overhead) | | | | | | | | | | | | | | | | | | | | | | | | |
| | Grand total | (2) 159,000 | | | | | | | | | 545.17 | | | | | | | | | | | 928.97 | | 549.24 | 1,478.2 |

^{*1} include spur road construction

Cost of Industrial Tree Plantation (1984)

1US\$=18Peso=240Yen

| | orking | days/year | Cr | ew | Product | ivity | No. of n | achines & | Deprec | iation/ | machine | Maint. | rep. · · etc. | | Fuel | & lub | | Tot | al | Wa | iges | <u> </u> | ľ | T | | | |
|--|-------------|---------------------|---------|-------------------|-------------------|-------------------|--------------|-------------------|--------------------|---------|-------------|--------|------------------|-----|------------------|---------------|-----------------|-------------------------|-------------|----------|-------------|-------------|-------------------------------|-------------------------------|-----------------------|-------------------|--------------------------|
| Manuschalle. | Shift /D | days/year | No. of | No. of workers | m ³ /d | m ³ /Y | | kers Workers/d | Delivered price | | Dep. cost | %/у | /machine Cost | HP | Consump- tion | Unit price | Cost | Per machine per year | Total cost | Ave./man | Total cost | | G.T./(1) \$/m ³ | G.T./(2) \$/m ³ | R | lemarks | |
| | | | | | | | | | US\$1,000 | Years | US\$1,000/y | | us\$1,000/y | · | k/Day | บร\$/ใ | us\$1,000 /Y | US\$1,000 | US\$1,000/Y | us\$/d | US\$1,000/j | US\$1,000/y | | | | | |
| | 1 | 300 | 1 | 6 | 25.0 | 7,500 | 12.67 | 76.00 | 0.8 | 1.5 | 0.5 | 0,50 | 0.4 | 5 | 6.0 | 0.6 | 1.10 | 2.00 | 25.34 | 3.0 | 68,4 | 93.74 | 0.987 | 0.59 | | | |
| | 1 | 300 | | 4 | 5.5 | 1,650 | 0.00 | 155.15 | | | | | | | | · | ! | | | 2.9 | 134.9 | 134.98 | 2,109 | 0.85 | | | |
| e | 1 | 240 * 200 240 | 1 | 2 | 25.0 | 5,000 | 3.80 | 7.60 | 30.0 | 4.0 | 7,5 | 0.30 | 9.0 | 63 | 40.0 | 0.3 | 2.60 | 19.10 | 72.58 | 3,3 | 6.0 | 78.60 | 4.137 | 0.49 | * Net yardin | | |
| | 1 | * 190 | 1 | 6. | 30.0 | 5 ,700 | 13.33 | 80.00 | 25.0 | 5.0 | 5.0 | 0,20 | 5.0 | 67 | 30.0 | 0.3 | 2.00 | 12.00 | 159.96 | 3.3 | 63.3 | 223.32 | 2.938 | 1.40 | of fuel cons | umption . | is 220 days. |
| | | * 240 | cow (2) | 2 | 4.0 | 960 | 133.33 | 133.33 | | | | | | | | | | | | 6,0 | 192.0 | 192.00 | 3.000 | 1.21 | | | |
| Wilder Toylor Comments | 1 | 270 | 1 | 2 | 70.0 | 18,900 | 5.03 | 10.05 | 0.8 | 1.5 | 0.5 | 0.50 | 0.4 | 5 | 7.0 | 0,6 | 1.10 | 2.00 | 10.06 | 3.3 | 8.9 | 19.01 | 0.200 | 0.12 | Sub total | \$/m³ 4.66 | PICOP Jan-May 4.66 |
| A CONTRACTOR OF THE PARTY OF TH | 1 | 270 | 1 | 2 | 100.0 | 27,000 | 0.70 | 1.41 | 48.0 | 6.0 | 8.0 | 0.15 | 7.2 | 61 | 15.0 | 0.3 | 1.20 | 16.40 | 11.48 | 3.3 | 1.2 | 12.74 | 0.671 | 0.08 | | | |
| | 1 | 270 | | 2 | 15.0 | 4,050 | 0.00 | 31.60 | | | | | | | | | | | | 2.9 | 24.7 | 24.74 | 0.387 | 0.16 | | | |
| | 2 | 300 | 1 | 4 | 360.0 | 108,000 | 0.88 | 3.52 | 48.0 | 2.5 | 19.2 | 0.40 | 19.2 | 61 | 55.0 | 0.3 | 4.95 | 43.35 | 38.15 | 3,3 | 3.4 | 41.63 | 0.438 | 0.26 | | | |
| | 2 | 300 | 1 | 4 | 300.0 | 90,000 | 0.71 | 2,84 | 48.0 | 3.0 | 16.0 | 0.35 | 16.8 | 61 | 50.0 | 0.3 | 4.50 | 37.30 | 26.48 | 3.3 | 2.8 | 29.29 | 0.458 | 0.18 | | | |
| Km | 2 | 300 | . 1 | 4 | 96.0 | 28,800 | | 13.19 | 80.0 | 2.5 | 32.0 | 0.60 | 48.0 | 335 | 180.0 | 0.3 | 16.20 | 96.20 | 317.46 | 3.3 | 13.0 | 330.52 | 3.479 | 2.08 | | \$/m ³ | PICOP Jan-May |
| Km | 2 | 300 | 1 | 4 | 28.0 | 8,400 | 7.62 | 30,48 | 23.0 | 2.3 | 10.0 | 0.70 | 16.1 | 130 | 100.0 | 0.3 | 9.00 | 35.10 | 267.46 | 3.3 | 30.1 | 297.64 | 4.651 | 1.87 | Sub total | 4.63 | 4.90 |
| NEWSCHOOL STATES | | | | | | | | | | | | | | | | | | | | | | | | (1.17) | | | |
| A THE STATE OF THE | | | | | | | | 545,17 | | | | | | | | | | | 928.97 | : | 549.24 | 1,478.21 | | 9.29 | Total Exclusive of | 9,29 | 9.56 |

^{*1} include spur road construction

Appendix B-16 Discounted Value of Planted Falcata (Peso/ha.)

| Age (n) | Site Pre- paration | Seelings including Nursery Cost | Planting, Replanting | Weeding, Brushing & Over-head | Materials | Incentive to Contractor | Total | Expecting Yield Volume | Coefficient of Discounted Value | Discounted Value | Discounted Yield Volume |
|------------|-----------------------|--|-------------------------|-------------------------------------|-----------|-------------------------------|---------|------------------------------|--|---------------------|-------------------------------|
| 1 | 610 | 280 | 615 | | 330 | 410 | 2.245 | | 0.9091 | 2,041 | |
| 2 | | 30 | 90 | 1,970 | 290 | 1,575 | 3,955 | | 0.8264 | 3,268 | |
| 3 | | | | 340 | | | 340 | | 0.7513 | 255 | |
| 4 | | | | 340 | | | . 340 | | 0.6830 | 232 | • |
| 5 | | | | 340 | | | 340 | | 0.6209 | 211 | |
| 6 | | | | 340 | | | 340 | | 0.5645 | 192 | |
| 7 | | | | 340 | | · | 340 | | 0.5132 | 174 | ٠. |
| 8 | | · | | 340 | | | 340 | | 0.4665 | 159 | 4 |
| (9) | 520 | 30 | 260 | | 330 | 410 | 1,550 | 242 | 0.4241 | 657 | 103 |
| 10 | | | | 1,970 | 290 | 1,570 | 3,8 3 0 | | 0.3855 | 1,476 | |
| 11 | | į | | 340 | · i | | 340 | | 0.3505 | 119 | |
| 12 | ٠. | | | 340 | | | 340 | | 0.3186 | 108 | |
| - 13 | | | | 340 | | | 340 | | 0.2897 | 98 | |
| 14 | | | | 340 | | | 340 | | 02633 | 90 | |
| 15 | | | | 340 | | | 340 | | 0.2394 | 81 | |
| 16 | | | | 340 | | | 340 | | 0.2176 | 74 | |
| (17) | 5 2 0 | 30 | 260 | | 330 | 410 | 1,550 | 242 | 0.1978 | 307 | 48 |
| 18 | | | | 1,970 | 290 | 1,570 | 3.8 3 0 | | 0.1799 | 689 | |
| 19 | | | | 340 | _ 5 5 | , | 340 | | 0.1635 | 56 | |
| 20 | | | - | 340 | | | 340 | | 0.1486 | 51 | |
| 21 | | · · | | 340 | · | | 340 | | 0.1351 | 46 | |
| 22 | | | | 340 | | | 340 | | 0.1228 | 42 | |
| 23 | | | | 340 | | : : | 340 | | 0.1220 | 38 | |
| 24 | | ٠. | | 340 | | | 340 | | 0.1111 | 35 | |
| (25) | | | | 340 | | | J#U | 242 | 0.0923 | "" | 22 |
| (25) | 1650 | 026 | 100- | 10020 | .1000 | 2045 | 02000 | | 0.0343 | 10,499 | |
| | 1,650 | 370 | 1,225 | 12,030 | 1,860 | 5,945 | 23,080 | 726 | | 10,499 | 173 |

The number of planted trees: 1,110 trees per ha.
Cutting age: 8 years old, no thinning.
Final yield: 242 m³/ha.
The number of regenerations by sprout: 2
Percentage of regeneration by sprout: 100%
Stumpage cost: 10,499 P/173 m³ = 60.69 P/m³ = 3.37 \$/m³

Appendix B-17 Discounted Value of Planted Bagras (Peso/ha.)

| Age (n) | Site Prepar- ation | Seedlings including Nursery Cost | Planting, Replanting | Weeding, Brushing & Over-head | Materials | Incentive to Contractor | Total | Expecting Yield Volume | Coefficient of Discounted Value | Discounted Value | Discounted Yield Volume |
|------------|--------------------------|---|-------------------------|-------------------------------------|-----------|-------------------------------|---------|------------------------------|--|---------------------|-------------------------------|
| 1 | 610 | 350 | 720 | | 330 | 440 | 2,4 5 0 | | 0.9091 | 2.227 | |
| 2 | | 35 | 100 | 2,410 | 80 | 920 | 3,5 4 5 | | 0.8264 | 2,930 | |
| 3 | | ٠ | r Frank | 340 | | | 340 | | 0.7513 | 255 | |
| 4 | | | · | 340 | | . , | 340 | | 0.6830 | 232 | |
| 5 | | | | 340 | | | 340 | | 0.6209 | 211 | |
| 6 | | , ; | | 340 | | | 340 | | 0.5 64 5 | 192 | l . |
| 7 | · | | | 340 | | | 340 | | 0.5132 | 174 | |
| δ | - | : | | 340 | | | 340 | | 0.4665 | 159 | |
| (9) | 5 20 | 210 | 430 | | 330 | 440 | 1,930 | 150 | 0.4241 | 819 | 64 |
| 10 | · | | | 2,410 | 80 | 920 | 3410 | | 0.3855 | 1,315 | |
| 11 | | | | 340 | | | 340 | | 0.3505 | 119 | |
| 12 | | | , | 340 | | | 340 | | 0.3186 | 108 | |
| 13 | | | | 340 | | | 340 | | 0.2897 | 98 | |
| 14 | | | | 340 | | | 340 | · | 0.2633 | 90 | |
| 15 | | : | | 340 | | | 340 | | 0.2394 | 81 | . : |
| 16 | | | | 340 | | | 340 | | 0.2176 | 74 | |
| (17) | 520 | 210 | 430 | | 330 | 440 | 1,920 | 150 | 0.1978 | 382 | 30 |
| 18 | | : | | 2,410 | . 80 | 920 | 3,410 | | 0.1799 | 613 | |
| 19 | | | | 340 | | | 340 | | 0.1 63 5 | 56 | |
| 20 | | | : . | 340 | | | 340 | | 0.1486 | 51 | |
| 21 | | | | 340 | | | 340 | | 0.1351 | 46 | |
| 22 | | | | 340 | · | | 340 | | 0.1 228 | 42 | |
| 23 | | | | 340 | | | 340 | | 0.1117 | 38 | |
| 24 | | | | 340 | | | 340 | | 0.1015 | . 35 | |
| (25) | | : | | | | . | | 150 | 0.0923 | | 1.4 |
| | 1,650 | 805 | 1,680 | 1 3,3 5 0 | 1,230 | 4,080 | 22,795 | 450 | : | 10,347 | 108 |

The number of planted trees: 1,110 trees per ha.
Cutting age: 8 years old, no thinning.
Final yield: 150 m³/ha.
The number of regenerations by sprout: 2
Percentage of regeneration by sprout: 50%
Stumpage cost: 10,347 P/108 m³ = 95.81 P/m³ = 5.32 \$/m³

| | | <u> </u> | T | | Working | days/year | Cr | ew | Produc | tivity | No. of m | achines & | Deprec | iation/ | machine | Maint. | rep. etc. | | Fuel | & lub | | Tot | al | W. | iges | |
|----|-----|-----------------------|-----------------------------|---------------------------|-------------|---------------------|--------------------|----|-------------------|-------------------|-------------|-----------|--------------------|---------|-------------|--------|------------------|-------|------------------|---------------|-----------------|-------------------------|--|----------|-------------|--|
| Ио | ۰۰ | Item | Volume m ³ /y | Condition | Shift /D | days/year | No. of machines | | m ³ /d | m ³ /y | | workers/d | Delivered price | | Dep. cost | ₹/y | /machine Cost | НР | Consump- tion | Unit price | Cost | Per machine per year | Total cost | Ave./man | Total cost | Grand |
| | | | (1) | | | days | | | | | | | US\$1,000 | Years | us\$1,000/y | | US\$1,000/Y | | l/Day | บร\$/ใ | US\$1,000 /a | US\$1,000 | us\$1,000/y | US\$/d | US\$1,000/y | y US\$ |
| 1 | | Felling by C.S. | 207,000 | | 1. | 300 | 1 | 2 | 50.0 | 15,000 | 13.80 | 27.60 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 46.5 | 3.3 | 27.3 | |
| 2 | ! | Felling by C.S. | 50,000 | | 1 | 300 | 1 | 2 | 45.0 | 13,500 | 3,70 | 7.41 | 1.0 | 1.5 | 0.67 | 0,50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 12.5 | 3.3 | 7.3 | |
| 3 | , 1 | Yarding & Stacking | 207,000 | Max. Distance 250 m | 1 | 240 * 220 240 | 1 | 8 | 58.0 | 12,760 | 16.22 | 129.78 | 130.0 | 8.0 | 16.25 | 0.12 | 15.6 | 500.0 | 90.0 | 0,3 | 5.9 | 37.75 | 612.3 | 3.3 | 102.8 | 71 |
| 4 | ١. | Yarding & Stacking | 50,000 | 250 m | 1. | * 220 | 1 | 8 | 50.0 | 11,000 | 4.55 | 36.36 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 300.0 | 70.0 | 0.3 | 4.6 | 29.93 | 136.2 | 3.3 | 28.8 | 16 |
| 5 | , | Buck, by C.S. | 50,000 | | 1 | 270 | ı | 2 | 50.0 | 13,500 | 3,70 | 7.41 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 11.0 | 0.6 | 1.8 | 2.97 | 11.0 | 3.3 | 6.6 | 15.2 |
| 6 | | Loading by crane | 207,000 | | 1 | 300 | 1 | 4 | 960.0 | 288,000 | 0.72 | 2.88 | 140.0 | 3.0 | 46.67 | 0.35 | 49.0 | 175.0 | 140.0 | 0.3 | 12.6 | 108.27 | 78.0 | 3.3 | 2.9 | 84. |
| 7 | | Loading by crane | 50,000 | | 2 | 300 | 1 | 4 | 460.0 | 138,000 | 0.36 | 1.45 | 80.0 | 3.0 | 26.67 | 0.35 | 28.0 | 100.0 | 80.0 | 0.3 | 7.2 | 61.87 | 22.3 | 3,3 | 1.4 | |
| 8 | | Hauling by truck | 207,000 | Average Distance 42 Km | 2 | 300 | 1 | 4 | 100.0 | 30,000 | 6.90 | 27.60 | 80.0 | 2.3 | 34.78 | 0.75 | 60.0 | 335.0 | 260.0 | 0.3 | 23.4 | 118.18 | 815.4 | 3,3 | 27.3 | 84 |
| 9 | | Hauling by truck | 50,000 | 42 Km | 2 | 300 | Ţ | 4 | 82.0 | 24,600 | 2.03 | 8.13 | 0.08 | 2.5 | 32,00 | 0.65 | 52.0 | 335.0 | 225.0 | 0,3 | 20.3 | 104.30 | 211.7 | 3,3 | 8.0 | 21 |
| 10 | | (Road cost) | | | | - | | | | | | | | | | | | | | | | | | | | AND THE PROPERTY OF THE PROPER |
| 11 | | (Overhead) | | | | | | | | | | | | | | | | | | | | | | | | |
| | _ | | | | | | | | | | | | | | <u></u> | | | | | | | | | | | |
| | | Grand total | (2) 257,000 | | | | | | | | | 248.62 | | | | | | | | | | | 1,945.9 | | 212.4 | 2,15 |
| | | | | | | | | | | | | | | | | | | | | | | | <u> </u> | | | |

tural Forest (1992)

lUS\$=18Peso=240Yen

| | - | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-------------------|-------------------|-------------------|----------|-------------------|--------------------|---------|-------------|--------|------------------|-------|------------------|---------------|-----------------|-------------------------|-------------|-----|-------------|---------------------------------------|-------------------------------|-------------------------------|---|
| days/yea | | rew | Produc | tivity | No. of n | achines & | Deprec | iation/ | machine | Maint. | rep. etc. | | Fuel | & lub | | Tot | al | Wa | ıqes | · · · · · · · · · · · · · · · · · · · | | Т | |
| days/yea | No. of machines | No. of workers | m ³ /d | m ³ /Y | | kers Workers/d | Delivered price | | Dep. cost | %/y | /machine Cost | HP | Consump- tion | Unit price | Cost | Per machine per year | | | * | Grand total | G.T./(1) \$/m ³ | G.T./(2) \$/m ³ | Remarks |
| days | | | | | | | US\$1,000 | Years | US\$1,000/y | | US\$1,000/Y | | l/Day | บร\$/ใ | us\$1,000 /a | | US\$1,000/y | | US\$1,000/y | US\$1,000/Y | | | |
| 300 | 1 | 2 | 50.0 | 15,000 | 13.80 | 27.60 | 1.0 | 1.5 | 0.67 | 0,50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 46.5 | 3.3 | 27.3 | 73.8 | 0.36 | 0.29 | |
| 300 | 1 | 2 | 45.0 | 13,500 | 3.70 | 7.41 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 12.0 | 0.6 | 2.2 | 3.37 | 12,5 | 3.3 | 7.3 | 19.8 | 0.40 | 0.08 | |
| 240 * 220 240 | 1 | 8 | 58.0 | 12,760 | 16,22 | 129.78 | 130.0 | 8.0 | 16.25 | 0.12 | 15.6 | 500.0 | 0.00 | 0.3 | 5.9 | 37.75 | 612.3 | 3.3 | 102.8 | 715.1 | 3.45 | 2.78 | The No. of days for calculation |
| * 220 | 1 | 8 | 50.0 | 11,000 | 4.55 | 36.36 | 80.0 | 6.0 | 13.33 | 0.15 | 12.0 | 300.0 | 70.0 | 0.3 | 4.6 | 29.93 | 136.2 | 3.3 | 28.8 | 165.0 | 3.30 | 0.64 | of fuel consumption is 220 day Sub total \$3.86/m ³ |
| 270 | 1 | .2 | 50.0 | 13,500 | 3.70 | 7.41 | 1.0 | 1.5 | 0.67 | 0.50 | 0.5 | 10.0 | 11.0 | 0.6 | 1.8 | 2.97 | 11.0 | 3.3 | 6.6 | 17.6 | 0.35 | 0.07 | |
| 300 | 1 | 4 | 960.0 | 288,000 | 0.72 | 2.88 | 140.0 | 3.0 | 46.67 | 0.35 | 49.0 | 175.0 | 140.0 | 0.3 | 12.6 | 108.27 | 78.0 | 3.3 | 2.9 | 80.9 | 0.39 | 0.31 | |
| 300 | . 1 | 4 | 460.0 | 138,000 | 0.36 | 1.45 | 80.0 | 3.0 | 26.67 | 0.35 | 28.0 | 100.0 | 80.0 | 0.3 | 7.2 | 61.87 | 22.3 | 3.3 | 1.4 | 23.7 | 0.47 | 0.09 | |
| 300 | 1 | 4 | 100.0 | 30,000 | 6.90 | 27.60 | 0.08 | 2.3 | 34.78 | 0.75 | 60.0 | 335.0 | 260.0 | 0.3 | 23.4 | 118.18 | 815.4 | 3.3 | 27.3 | 842.7 | 4.07 | 3.28 | |
| 300 | 1 | 4 | 82.0 | 24,600 | 2.03 | 8,13 | 80.0 | 2.5 | 32.00 | 0.65 | 52.0 | 335.0 | 225.0 | 0.3 | 20.3 | 104.30 | 211.7 | 3.3 | 8.0 | 219.7 | 4.39 | 0.85 | Sub total \$4.53/m ³ |
| | | | | | | | | | | | | | | | | | | | E | | | | |
| | | | | · | | | | | | | | | | | | | | | | | | | |
| MAC CLIFF (Special Control of Con | | | | | | 248.62 | | | | | | | | | | | 1,945.9 | | 212.4 | 2,158.3 | | 8.39 | Total \$8.39/m ³ |
| | | | | | | | | | | | | | | | | | | | | | | | |

Appendix C-1

ORGANIZATION OF THE STUDY TEAM

The Study Team consisted of twelve (12) members: ten (10) from Oji Paper Co., Ltd. and two (2) from Honshu Paper Co., Ltd., whose names and functions are listed in the following.

- Members of Field Survey Team: nine (9) members

| Name | <u>Function</u> | <u>Title</u> |
|-----------------|--|---|
| Tetsuro Kondo | Leader of the Team | General Manager Engineering Dep't. Oji Paper Co., Ltd. |
| Yoshi Amamiya | Market, Finance, Economy | Senior Counselor Engineering Dep't. |
| | | Oji Paper Co., Ltd. |
| Juei Morokuma | Forest | General Manager Forest Dep't. Oji Paper Co., Ltd. |
| Hideya Shono | Paperboard Machine Maintenance | Project Manager Engineering Dep't. Oji Paper Co., Ltd. |
| Susumu Morimoto | Paperboard Machine Operaton, Paperboard Market | Counselor Honshu Paper Co., Ltd. |
| Fukuichi Minami | Wood Preparation, Forest | Counselor Forest Dep't. Oji Paper Co., Ltd. |
| Toshio Miyajima | Pulp, Quality | Project Engineer Engineering Dep't. Oji Paper Co., Ltd. |

| Ryuichi Yamada | Power Plant, Utility, Environment | Project Engineer Engineering Dep't. |
|--|--|-------------------------------------|
| en en en en en en en en en en en en en e | n in an all the state of the st | Oji Paper Co., Ltd. |
| Gen Saito | Newsprint Machine, | Project Engineer |
| | Newsprint Market | Engineering Dep't. |
| | | Oji Paper Co., Ltd. |

- Members of Domestic Working Group: three (3) members

| <u>Name</u> | <u>Function</u> | Title |
|-----------------|---------------------|------------------------|
| Tsutomu Onodera | Machinery and | General Manager |
| | Equipment, | Engineering Dep't. |
| | Production Control | Oji Paper Co., Ltd. |
| | | |
| Nobuyuki Ishii | Finance and Economy | Manager |
| 4 | | Financial Engineering |
| | | Dep't. |
| • | • | Oji Paper Co., Ltd. |
| | | |
| Keiichi Tamai | Paperboard Planning | General Manager |
| | | Engineering Dep't. |
| | | Honshu Paper Co., Ltd. |

Appendix C-2

SCHEDULE OF THE FIELD SURVEY TEAM

Itinerary of the Field Survey Team is as follows:

| 1) | Departure (Tokyo) | All (9) members | Sept. 10, 1984 |
|----|--|---|---|
| 2) | Diagnosis of Mills | | |
| | Iligan Mill | Morimoto, Amamiya, Shono | Sept. 13-15 |
| | Bislig Mill | | |
| | Pulp and Paper | Kondo, Miyajima, Yamada Saito Morimoto, Amamiya | Sept. 13-22 Sept. 13-20 Sept. 15-20 |
| | | Shono | Sept. 15-22 |
| | - Wood Resources | Morokuma Minami | Sept. 13-22 Sept. 13-20 |
| 3) | Market Study (at Manila) | Amamiya Morimoto, Minami, Saito | Sept. 21-25 Sept. 21-24 |
| 4) | Progress Report | | |
| | Submission and discussion with BOI | Kondo, Amamiya, Miyajima | Sept. 25 |
| 5) | Signature of Minutes | Kondo, Amamiya, Miyajima | Sept. 27 |
| 6) | Arrival (Tokyo) | | |
| | First Group(6 members) | Morokuma, Shono, Morimoto, Minami, Yamada, Saito | Sept. 25 (Stay for 16 days) |
| | Second Group(3 members) | Kondo, Amamiya, Miyajima | Sept. 28 (Stay for 19 days) |

The Schedule of the Field Survey Team

| | Group | | Group A. Bislig Mill and Forest | Group B. Iligan Mill and Board | Group C. Harket Study |
|-----------------|-----------------------------|--------------|---|--|--|
| Nemt Stud | Member of the Study Team | | Mr. T. Kondo Mr. T. Hiyajima Hr. J. Morokuma Hr. G. Salto Mr. P. Minami Mr. R. Yamada | Mr. Y. Amamiya Mr. S. Morimoto Mr. B. Shono | Mr. Y. Amemiya Hr. S. Horimoto Hr. G. Saito Hr. F. Minemi |
| φ α | September'84 10 11 | | Leave Tokyo at | , Arrive Hanila at 13:15 | Heeting with JICA |
| c) ≤ | e e e e | Thu. | Leave Manila, | Leave Manila, arrive Cebu Leave Cebu, arrive Iligan | |
| . ww | 14 15 | Sari | (BSG) Meeting With PCIOP (BSG) Study (BSG) - do - | (ILG) Meeting and general observation (ILG) Study Lv. Iligan, Ar. Bislig. | |
| د ه | 16 | Sun Mon | (BSG) - do - (BSG) - do - (BSG) | (chartered flight). (BSG) study (BSG) - do - | a spisk ojski |
| 6 01 | 19 | Fue. | (BSG) - GO - GO - GO - GO - GO - GO - GO - | | |
| 크 | 20 | Thu. | (BSG) - do - Hesrs, Minami, & Saito | Mr. Shono | wakisa meliji a |
| 22 | 27. | Pri Sat. | (BSG) - do - Lv. Bislig, Ar. Manila | (BSG) Lv. Biglig, ar wantla | (MNL) Market Study (MNL) - do - |
| 72 | 223 | Sun. Mon. | (MNL) Interna (MNL) Msgrs | in with PICOP on Forestry concern. | (MNL) - do - (MNL) |
| 97 . | 25. | Tue. | (MNL) Msers, Kondo, Miyajima, Snono, Ia (MNL) Msers, Kondo, Miyajima preparatio Msers, Morokuma, Minami, Shono, Y | Kondo, Miyajima, Snono, Tamada, Preparing progress report. Kondo, Miyajima preparation of progress report. Morokuma, Minami, Shono, Yamada, Leave Manila, Arrive Tokyo | Masra, Morimoto, Salto, |
| 7 | 26 | Wed | (MNL) Remaining Kondo, Amamiya, Miyajima, | Meeting with BOI & PICOP Presentation of progress report | 4 |
| 8 G | 28 | Thu. Fri. | (MNL) Exchange of Minutes Report to Japanese Embassy & JICA Leave Manila, Arrive Tokyo | | |
| - | | | | | |

Note; Jaban Air Line BSG: Bislig PR: Philippine Airlines HKL: Manila ILG: Iligen TYO: Tokyo

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Appendix C-3

COUNTERPARTS AND MAIN INTERVIEWEES OF THE PHILIPPINES

1. Philippine sides

A) Board of Investments (BOI)

Min. Edgardo Tordesillas

Mr. Hermenigildo Zayco

Mrs. Ramona P. Miguel

Mrs. Angela M. Fernando

Mr. Jaime R. Navarro

Vice-Chairman, Board of Investments

Supervising Governor, Agro-Industrial Dept.

Director, Agro-Industrial Department

Chief, Pulp and Paper Division

Asst. Chief, Pulp and Paper Division

B) National Economic and Development Authority (NEDA)

Mr. E. G. Corpuz Assistant Director General
Mr. Alfred Feliciano External Assistance Staff

C) Paper Industries Corporation of the Philippines (PICOP)

- Head Office

Mr. R. D. Stratton
Mr. R. C. Salazar
Mr. E. M. Narvaez, Jr.
Mr. R. G. Lavadia
Mr. R. C. Palpal-latoc
President
Vice President-Finance
Asst. Vice President, Government Relations
Director, Financial & Marketing Planning

Marketing

Mr. P. M. Picornell President, PICOP Trading Corporation (PTC)
Mr. P. M. Aragon Vice President, Marketing
Mr. L. Y. Marty Asst. Vice President, Marketing, PTC
Mr. W. A. Balabat Manager, Newsprint Sales, PTC
Mr. H. A. Beltran Manager, Containerboard Sales, PTC
Mr. E. R. Abesamis Manager, Market Research and Development

- Bislig Mill

* Pulp and Paper Manufacturing Group

| Vice President, Manufacturing |
|---|
| Director, Technical Planning, Corplan |
| Senior Member, Corplan |
| Division Manager, PPMD |
| Department Manager, Pulp Mill |
| Department Manager, Chemical Plants |
| Department Manager, Paper Mill |
| Division Manager, Energy Division |
| Department Manager, Steam and Power |
| Division Manager, Maintenance and |
| Engineering |
| Department Manager, Consolidated Shops |
| Director, Research & Technical Services |
| |

* Resource Management Group

| Mr. R. G. Santiago | Vice President, Resource Management |
|----------------------|---|
| Mr. R. A. Dormendo | Division Manager, Forestry Division |
| Mr. C. L. de la Cruz | Division Manager, Wood Supply |
| Mr. F. A. Cruz | Division Manager, Wood Procurement |
| Mr. M. L. Garcia | Deaprtment Manager, Industrial Tree Planta- |
| | tion Division |
| Mr. VJ. A. Ramos | Department Manager, Forest Research |
| | Department |

* Administration

Mr. C. B. Andres Department Manager, Public Relations

D) Steniel Manufacturing Corporation

Mr. Henry Co See Cho President

E) Atlas Lithographic Service, Inc.

Mr. Moises C. Chua General Manager

F) Rex Printing Company, Inc.

Mr. J. F. Fontelera

Proprietor

G) Bulletin Publishing Corporation

Mr. E.S. Vicente

Plant Superintendent

H) San Miguel Corp. Carton Plant, Falola Compound

Mr. Virgil Send

Production Engineer

I) Pulp and Paper Manufacturers Association, Inc.

Mr. Francisco P. Monge

President

- 2. Japanese sides
 - A) The Embassy of Japan

Mr. N. Terasaka

First Secretary

B) JICA Manila Office

Mr. A. Mitarai

Resident Representative

Mr. T. Sakata

Deputy Resident Representative

Mr. Y. Okazaki

Staff

Appendix D

Profitability of Plan A Renovation on Alternative Raising Plan of Funds (Requested by the Minutes of Meeting on the Draft Final Report)

1. Total Capital Requirement

| | | and the second of the second | | effective and |
|---|-----------------|------------------------------|-----------------------|---------------|
| Sources of Funds | Raising 1987 | | Funds (1,000 Total | US\$) |
| PICOP's own funds | 1,724 | 9,521 | 11,245 | (24.7%) |
| Long term local loan Investment related Interest during construction | 1,134 | 6,266 | 7,400 | |
| | 9 | 487 | 496 | |
| Sub total | 1,143 | 6,753 | 7,896 | (17.4%) |
| Long term foreign loan | 1,247 | 25,089 | 26,336 | (57.9%) |
| Total capical requiremen | t 4,114 | 41,363 | 45,477 | (100.0%) |

Note: 1) In the above estimation, interest during construction on long term local loan is raised by the additional borrowing of long term local loan.

- 2) Financing conditions of long term loans;
 - Long term local loan

Loan period 10 years including 2 years grace period
Repayment Semi-annual equal installment (17 times)
Interest rate 24% per annum
Interest during construction
Not graced

- Long term foreign Loan

Loan period 10 years including 2 years grace period Repayment Semi-annual equal installment (16 times)

Interest rate 10.5% per annum

The payment of interest during the grace period is postponed until commencement of principals repayment.

2. Profitability Indicator

| | Before Income Tax | After Income Tax |
|---|-------------------|------------------|
| IRR (%) | 26.4 | 21.3 |
| ROI (%) | 25.1 | 18.5 |
| Cumulative net profit after income tax (US\$ million) | <u>-</u> | 51 |

