様式2

# 事　業　費　集　計　表

事業名:森林環境整備事業（森林整備）　　京都府（南丹市）

施工箇所:　南丹市地区　　(単位:千円)

| 年度 | 事業費 | 割引率 | 現在価値額 | 年度 | 事業費 | 割引率 | 現在価値額 |
|---|---|---|---|---|---|---|---|
| H14 | | ×1.5395 | | H39 | 46,000 | ×0.5775 | 26,565 |
| H15 | 380,865 | ×1.4802 | 563,756 | H40 | | ×0.5553 | |
| H16 | 356,227 | ×1.4233 | 507,018 | H41 | | ×0.5339 | |
| H17 | 319,828 | ×1.3686 | 437,717 | H42 | | ×0.5134 | |
| H18 | 297,838 | ×1.3159 | 391,925 | H43 | | ×0.4936 | |
| H19 | 138,004 | ×1.2653 | 174,616 | H44 | | ×0.4746 | |
| H20 | | ×1.2167 | | H45 | 48,000 | ×0.4564 | 21,907 |
| H21 | | ×1.1699 | | H46 | 40,000 | ×0.4388 | 17,552 |
| H22 | | ×1.1249 | | H47 | 34,000 | ×0.4220 | 14,348 |
| H23 | | ×1.0816 | | H48 | 34,000 | ×0.4057 | 13,794 |
| H24 | | ×1.0400 | | H49 | 32,000 | ×0.3901 | 12,483 |
| H25 | 220,000 | ×1.0000 | 220,000 | H50 | | ×0.3751 | |
| H26 | 221,000 | ×0.9615 | 212,492 | H51 | | ×0.3607 | |
| H27 | 221,000 | ×0.9246 | 204,337 | H52 | | ×0.3468 | |
| H28 | 192,000 | ×0.8890 | 170,688 | H53 | | ×0.3335 | |
| H29 | 66,000 | ×0.8548 | 56,417 | H54 | | ×0.3207 | |
| H30 | | ×0.8219 | | H55 | | ×0.3083 | |
| H31 | | ×0.7903 | | H56 | | ×0.2965 | |
| H32 | | ×0.7599 | | H57 | | ×0.2851 | |
| H33 | | ×0.7307 | | H58 | | ×0.2741 | |
| H34 | | ×0.7026 | | H59 | | ×0.2636 | |
| H35 | 28,000 | ×0.6756 | 18,917 | H60 | | ×0.2534 | |
| H36 | 68,000 | ×0.6496 | 44,173 | H61 | | ×0.2437 | |
| H37 | 40,000 | ×0.6246 | 24,984 | | | | |
| H38 | 45,000 | ×0.6006 | 27,027 | 合計 | | | 3,160,716 |

事業実施計画期間事業費:　1,492,762 千円

総　事　業　費　:　1,492,762 千円

千円

C=　3,160,716

水源涵養便益
洪水防止便益
事業効果区域

3,200,506

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(f1-f2) \times \alpha \times A \times U}{360}$$

| | | |
|---|---|---|
| U: | 治水ダムの単位雨量流出量当たりの年間減価償却費（円／㎥／sec）<br>出典:「ダム年鑑2011」 | 3,520,000 |
| f1: | 事業実施前の流出係数<br>出典:「治山設計」（山口伊佐夫著,1979） | 0.65 |
| f2: | 事業実施後、T年経過後の流出係数<br>出典:「治山設計」（山口伊佐夫著,1979） | 0.55 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| α: | 100年確率時雨量（mm/h） | 113 |
| A: | 事業対象区域面積（ha） | 33～2,505 |
| 360: | 単位合わせのための調整値 | |
| Y: | 評価期間 | 44 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 587 | 587 | 4,323 | 6,398 |
| 2004 | ×1.4233 | 1,183 | 1,183 | 17,429 | 24,749 |
| 2005 | ×1.3686 | 1,771 | 1,771 | 39,138 | 53,619 |
| 2006 | ×1.3159 | 2,301 | 2,301 | 67,803 | 89,500 |
| 2007 | ×1.2653 | 2,505 | 2,505 | 92,245 | 117,151 |
| 2008 | ×1.2167 | 2,505 | 2,505 | 110,694 | 135,047 |
| 2009 | ×1.1699 | 2,505 | 2,505 | 129,143 | 151,097 |
| 2010 | ×1.1249 | 2,505 | 2,505 | 147,592 | 165,303 |
| 2011 | ×1.0816 | 2,505 | 2,505 | 166,041 | 179,324 |
| 2012 | ×1.0400 | 2,217 | 2,217 | 163,302 | 169,834 |
| 2013 | ×1.0000 | 1,942 | 1,942 | 157,329 | 157,329 |
| 2014 | ×0.9615 | 1,649 | 1,649 | 145,779 | 139,948 |
| 2015 | ×0.9246 | 1,385 | 1,385 | 132,620 | 122,010 |
| 2016 | ×0.8890 | 1,301 | 1,301 | 134,195 | 119,434 |
| 2017 | ×0.8548 | 1,301 | 1,301 | 143,781 | 122,214 |
| 2018 | ×0.8219 | 1,301 | 1,301 | 153,366 | 125,760 |
| 2019 | ×0.7903 | 1,301 | 1,301 | 162,952 | 128,732 |
| 2020 | ×0.7599 | 1,301 | 1,301 | 172,537 | 131,128 |
| 2021 | ×0.7307 | 1,301 | 1,301 | 182,123 | 132,950 |
| 2022 | ×0.7026 | 1,084 | 1,084 | 159,740 | 111,818 |
| 2023 | ×0.6756 | 877 | 877 | 135,605 | 92,211 |
| 2024 | ×0.6496 | 656 | 656 | 106,308 | 69,100 |
| 2025 | ×0.6246 | 470 | 470 | 79,698 | 49,413 |
| 2026 | ×0.6006 | 427 | 427 | 75,448 | 45,269 |
| 2027 | ×0.5775 | 427 | 427 | 78,592 | 45,583 |
| 2028 | ×0.5553 | 427 | 427 | 81,736 | 45,772 |
| 2029 | ×0.5339 | 427 | 427 | 84,879 | 44,986 |
| 2030 | ×0.5134 | 427 | 427 | 88,023 | 44,892 |
| 2031 | ×0.4936 | 427 | 427 | 91,167 | 44,672 |
| 2032 | ×0.4746 | 413 | 413 | 91,338 | 42,929 |
| 2033 | ×0.4564 | 351 | 351 | 80,253 | 36,916 |
| 2034 | ×0.4388 | 319 | 319 | 75,210 | 33,092 |
| 2035 | ×0.4220 | 281 | 281 | 68,323 | 28,696 |
| 2036 | ×0.4057 | 241 | 241 | 60,444 | 24,782 |
| 2037 | ×0.3901 | 241 | 241 | 62,221 | 24,266 |
| 2038 | ×0.3751 | 241 | 241 | 63,999 | 24,320 |
| 2039 | ×0.3607 | 241 | 241 | 65,777 | 23,680 |
| 2040 | ×0.3468 | 241 | 241 | 67,555 | 23,644 |
| 2041 | ×0.3335 | 241 | 241 | 69,332 | 22,880 |
| 2042 | ×0.3207 | 188 | 188 | 55,329 | 17,705 |
| 2043 | ×0.3083 | 143 | 143 | 43,304 | 13,424 |
| 2044 | ×0.2965 | 106 | 106 | 32,765 | 9,830 |
| 2045 | ×0.2851 | 68 | 68 | 21,518 | 6,240 |
| 2046 | ×0.2741 | 33 | 33 | 10,585 | 2,858 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 3,200,506 |

水源涵養便益
流域貯水便益
事業効果区域

724,121

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(D2-D1) \times A \times P \times U \times 10}{365 \times 86400}$$

| | | |
|---|---|---|
| A: | 事業対象区域面積(ha) | 33～2,505 |
| P: | 年間平均降雨量(mm／年)<br>京都地方気象台データ | 1,519 |
| D1: | 事業実施前の貯留率<br>出典:「森林の間伐と水収支」(近嵐ら、1987) | 0.51 |
| D2: | 事業実施後、T年経過後の貯留率<br>出典:「森林の間伐と水収支」(近嵐ら、1987) | 0.56 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| U: | 開発流量当りの利水ダム年間減価償却費(円／m3／S)<br>出典:「ダム年鑑2011」 | 1,038,000,000 |
| Y: | 評価期間 | 44 |
| 10: | 単位合わせのための調整値 | |
| 365: | 1年間の日数 | |
| 86400: | 1日の秒数 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 587 | 587 | 978 | 1,447 |
| 2004 | ×1.4233 | 1,183 | 1,183 | 3,943 | 5,599 |
| 2005 | ×1.3686 | 1,771 | 1,771 | 8,855 | 12,131 |
| 2006 | ×1.3159 | 2,301 | 2,301 | 15,340 | 20,249 |
| 2007 | ×1.2653 | 2,505 | 2,505 | 20,871 | 26,506 |
| 2008 | ×1.2167 | 2,505 | 2,505 | 25,045 | 30,555 |
| 2009 | ×1.1699 | 2,505 | 2,505 | 29,219 | 34,186 |
| 2010 | ×1.1249 | 2,505 | 2,505 | 33,393 | 37,400 |
| 2011 | ×1.0816 | 2,505 | 2,505 | 37,567 | 40,572 |
| 2012 | ×1.0400 | 2,217 | 2,217 | 36,948 | 38,426 |
| 2013 | ×1.0000 | 1,942 | 1,942 | 35,596 | 35,596 |
| 2014 | ×0.9615 | 1,649 | 1,649 | 32,983 | 31,664 |
| 2015 | ×0.9246 | 1,385 | 1,385 | 30,006 | 27,606 |
| 2016 | ×0.8890 | 1,301 | 1,301 | 30,362 | 27,022 |
| 2017 | ×0.8548 | 1,301 | 1,301 | 32,531 | 27,651 |
| 2018 | ×0.8219 | 1,301 | 1,301 | 34,700 | 28,454 |
| 2019 | ×0.7903 | 1,301 | 1,301 | 36,868 | 29,126 |
| 2020 | ×0.7599 | 1,301 | 1,301 | 39,037 | 29,668 |
| 2021 | ×0.7307 | 1,301 | 1,301 | 41,206 | 30,080 |
| 2022 | ×0.7026 | 1,084 | 1,084 | 36,142 | 25,299 |
| 2023 | ×0.6756 | 877 | 877 | 30,681 | 20,863 |
| 2024 | ×0.6496 | 656 | 656 | 24,052 | 15,634 |
| 2025 | ×0.6246 | 470 | 470 | 18,032 | 11,180 |
| 2026 | ×0.6006 | 427 | 427 | 17,070 | 10,242 |
| 2027 | ×0.5775 | 427 | 427 | 17,782 | 10,314 |
| 2028 | ×0.5553 | 427 | 427 | 18,493 | 10,356 |
| 2029 | ×0.5339 | 427 | 427 | 19,204 | 10,178 |
| 2030 | ×0.5134 | 427 | 427 | 19,915 | 10,157 |
| 2031 | ×0.4936 | 427 | 427 | 20,627 | 10,107 |
| 2032 | ×0.4746 | 413 | 413 | 20,665 | 9,713 |
| 2033 | ×0.4564 | 351 | 351 | 18,157 | 8,352 |
| 2034 | ×0.4388 | 319 | 319 | 17,016 | 7,487 |
| 2035 | ×0.4220 | 281 | 281 | 15,458 | 6,492 |
| 2036 | ×0.4057 | 241 | 241 | 13,675 | 5,607 |
| 2037 | ×0.3901 | 241 | 241 | 14,078 | 5,490 |
| 2038 | ×0.3751 | 241 | 241 | 14,480 | 5,502 |
| 2039 | ×0.3607 | 241 | 241 | 14,882 | 5,358 |
| 2040 | ×0.3468 | 241 | 241 | 15,284 | 5,349 |
| 2041 | ×0.3335 | 241 | 241 | 15,686 | 5,176 |
| 2042 | ×0.3207 | 188 | 188 | 12,518 | 4,006 |
| 2043 | ×0.3083 | 143 | 143 | 9,797 | 3,037 |
| 2044 | ×0.2965 | 106 | 106 | 7,413 | 2,224 |
| 2045 | ×0.2851 | 68 | 68 | 4,868 | 1,412 |
| 2046 | ×0.2741 | 33 | 33 | 2,394 | 646 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 724,121 |

水源涵養便益
水質浄化便益
事業効果区域

1,907,027

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times (D2-D1) \times A \times P \times u \times 10$$

$$u = \frac{Ux \times Qx + Uy \times Qy}{Qx + Qy}$$

| | | |
|---|---|---|
| Qx: | 全貯留量のうち生活用水使用相当量<br>出典：平成24年度版「日本の水資源」 | 6.80 億 |
| Qy: | 全貯留量－Qx | 16.29 億 |
| A: | 事業対象区域面積（ha） | 33～2,505 |
| P: | 年間平均降雨量（mm／年）<br>京都地方気象台データ | 1,519 |
| T: | 事業実施後、貯留率が安定するのに必要な年数 | 15 |
| D1: | 事業実施前の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.51 |
| D2: | 事業実施後、T年経過後の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.56 |
| Ux: | 単位当たりの上水道給水原価（円／m3）<br>出典：「日本の水資源」 | 130.00 |
| Uy: | 単位当たりの雨水浄化費（円／m3）<br>出典：「地球環境・人間生活にかかる農業及び森林の多面的な機能の評価に関する調査研究報告書」（三菱総合研究所,H13.11）「雨水利用ハンドブック」 | 68.60 |
| u: | 単位当たりの水質浄化費（U x とU y を用いてQ x とQ yで比例按分して算出） | 86.68 |
| Y: | 評価期間 | 44 |
| 10: | 単位合わせのための調整値 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 587 | 587 | 2,576 | 3,812 |
| 2004 | ×1.4233 | 1,183 | 1,183 | 10,385 | 14,747 |
| 2005 | ×1.3686 | 1,771 | 1,771 | 23,320 | 31,948 |
| 2006 | ×1.3159 | 2,301 | 2,301 | 40,400 | 53,328 |
| 2007 | ×1.2653 | 2,505 | 2,505 | 54,964 | 69,804 |
| 2008 | ×1.2167 | 2,505 | 2,505 | 65,957 | 80,468 |
| 2009 | ×1.1699 | 2,505 | 2,505 | 76,950 | 90,032 |
| 2010 | ×1.1249 | 2,505 | 2,505 | 87,943 | 98,496 |
| 2011 | ×1.0816 | 2,505 | 2,505 | 98,936 | 106,851 |
| 2012 | ×1.0400 | 2,217 | 2,217 | 97,304 | 101,196 |
| 2013 | ×1.0000 | 1,942 | 1,942 | 93,745 | 93,745 |
| 2014 | ×0.9615 | 1,649 | 1,649 | 86,863 | 83,388 |
| 2015 | ×0.9246 | 1,385 | 1,385 | 79,022 | 72,700 |
| 2016 | ×0.8890 | 1,301 | 1,301 | 79,961 | 71,165 |
| 2017 | ×0.8548 | 1,301 | 1,301 | 85,672 | 72,821 |
| 2018 | ×0.8219 | 1,301 | 1,301 | 91,384 | 74,935 |
| 2019 | ×0.7903 | 1,301 | 1,301 | 97,095 | 76,705 |
| 2020 | ×0.7599 | 1,301 | 1,301 | 102,807 | 78,133 |
| 2021 | ×0.7307 | 1,301 | 1,301 | 108,518 | 79,218 |
| 2022 | ×0.7026 | 1,084 | 1,084 | 95,181 | 66,627 |
| 2023 | ×0.6756 | 877 | 877 | 80,801 | 54,945 |
| 2024 | ×0.6496 | 656 | 656 | 63,344 | 41,174 |
| 2025 | ×0.6246 | 470 | 470 | 47,488 | 29,443 |
| 2026 | ×0.6006 | 427 | 427 | 44,956 | 26,974 |
| 2027 | ×0.5775 | 427 | 427 | 46,829 | 27,161 |
| 2028 | ×0.5553 | 427 | 427 | 48,702 | 27,273 |
| 2029 | ×0.5339 | 427 | 427 | 50,576 | 26,805 |
| 2030 | ×0.5134 | 427 | 427 | 52,449 | 26,749 |
| 2031 | ×0.4936 | 427 | 427 | 54,322 | 26,618 |
| 2032 | ×0.4746 | 413 | 413 | 54,424 | 25,579 |
| 2033 | ×0.4564 | 351 | 351 | 47,819 | 21,997 |
| 2034 | ×0.4388 | 319 | 319 | 44,814 | 19,718 |
| 2035 | ×0.4220 | 281 | 281 | 40,710 | 17,098 |
| 2036 | ×0.4057 | 241 | 241 | 36,015 | 14,766 |
| 2037 | ×0.3901 | 241 | 241 | 37,075 | 14,459 |
| 2038 | ×0.3751 | 241 | 241 | 38,134 | 14,491 |
| 2039 | ×0.3607 | 241 | 241 | 39,193 | 14,109 |
| 2040 | ×0.3468 | 241 | 241 | 40,252 | 14,088 |
| 2041 | ×0.3335 | 241 | 241 | 41,312 | 13,633 |
| 2042 | ×0.3207 | 188 | 188 | 32,968 | 10,550 |
| 2043 | ×0.3083 | 143 | 143 | 25,802 | 7,999 |
| 2044 | ×0.2965 | 106 | 106 | 19,523 | 5,857 |
| 2045 | ×0.2851 | 68 | 68 | 12,822 | 3,718 |
| 2046 | ×0.2741 | 33 | 33 | 6,307 | 1,703 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 1,907,027 |

山地保全便益
土砂流出防止便益
事業効果区域

3,033,400

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(V1-V2) \times A \times U}{1.0}$$

| | | |
|---|---|---|
| U: | 1m3の土砂を保全するために要する単位当たりの砂防ダム建設コスト(円／m3)<br>出典:「砂防便覧」平成20年版 | 5,600 |
| V1: | 事業実施前における1ha当りの年間浸食土砂量(m3)<br>出典:「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 20.00 |
| V2: | 事業実施後における1ha当りの年間浸食土砂量(m3)<br>出典:「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 1.30 |
| A: | 事業対象区域面積(ha) | 33～2,505 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| Y: | 評価期間 | 44 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 587 | 587 | 4,097 | 6,064 |
| 2004 | ×1.4233 | 1,183 | 1,183 | 16,519 | 23,457 |
| 2005 | ×1.3686 | 1,771 | 1,771 | 37,094 | 50,819 |
| 2006 | ×1.3159 | 2,301 | 2,301 | 64,263 | 84,827 |
| 2007 | ×1.2653 | 2,505 | 2,505 | 87,428 | 111,034 |
| 2008 | ×1.2167 | 2,505 | 2,505 | 104,914 | 127,995 |
| 2009 | ×1.1699 | 2,505 | 2,505 | 122,400 | 143,208 |
| 2010 | ×1.1249 | 2,505 | 2,505 | 139,886 | 156,672 |
| 2011 | ×1.0816 | 2,505 | 2,505 | 157,372 | 169,962 |
| 2012 | ×1.0400 | 2,217 | 2,217 | 154,776 | 160,967 |
| 2013 | ×1.0000 | 1,942 | 1,942 | 149,114 | 149,114 |
| 2014 | ×0.9615 | 1,649 | 1,649 | 138,168 | 132,641 |
| 2015 | ×0.9246 | 1,385 | 1,385 | 125,696 | 115,640 |
| 2016 | ×0.8890 | 1,301 | 1,301 | 127,189 | 113,198 |
| 2017 | ×0.8548 | 1,301 | 1,301 | 136,274 | 115,833 |
| 2018 | ×0.8219 | 1,301 | 1,301 | 145,359 | 119,194 |
| 2019 | ×0.7903 | 1,301 | 1,301 | 154,444 | 122,011 |
| 2020 | ×0.7599 | 1,301 | 1,301 | 163,529 | 124,282 |
| 2021 | ×0.7307 | 1,301 | 1,301 | 172,614 | 126,008 |
| 2022 | ×0.7026 | 1,084 | 1,084 | 151,399 | 105,979 |
| 2023 | ×0.6756 | 877 | 877 | 128,525 | 87,397 |
| 2024 | ×0.6496 | 656 | 656 | 100,757 | 65,492 |
| 2025 | ×0.6246 | 470 | 470 | 75,537 | 46,833 |
| 2026 | ×0.6006 | 427 | 427 | 71,509 | 42,905 |
| 2027 | ×0.5775 | 427 | 427 | 74,489 | 43,204 |
| 2028 | ×0.5553 | 427 | 427 | 77,468 | 43,382 |
| 2029 | ×0.5339 | 427 | 427 | 80,448 | 42,637 |
| 2030 | ×0.5134 | 427 | 427 | 83,427 | 42,548 |
| 2031 | ×0.4936 | 427 | 427 | 86,407 | 42,339 |
| 2032 | ×0.4746 | 413 | 413 | 86,569 | 40,687 |
| 2033 | ×0.4564 | 351 | 351 | 76,063 | 34,989 |
| 2034 | ×0.4388 | 319 | 319 | 71,283 | 31,365 |
| 2035 | ×0.4220 | 281 | 281 | 64,756 | 27,198 |
| 2036 | ×0.4057 | 241 | 241 | 57,288 | 23,488 |
| 2037 | ×0.3901 | 241 | 241 | 58,973 | 22,999 |
| 2038 | ×0.3751 | 241 | 241 | 60,658 | 23,050 |
| 2039 | ×0.3607 | 241 | 241 | 62,342 | 22,443 |
| 2040 | ×0.3468 | 241 | 241 | 64,027 | 22,409 |
| 2041 | ×0.3335 | 241 | 241 | 65,712 | 21,685 |
| 2042 | ×0.3207 | 188 | 188 | 52,440 | 16,781 |
| 2043 | ×0.3083 | 143 | 143 | 41,043 | 12,723 |
| 2044 | ×0.2965 | 106 | 106 | 31,054 | 9,316 |
| 2045 | ×0.2851 | 68 | 68 | 20,395 | 5,915 |
| 2046 | ×0.2741 | 33 | 33 | 10,032 | 2,709 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 3,033,400 |

山地保全便益
土砂崩壊防止便益
事業効果区域

58,927

$$B = \sum_{t=11}^{Y} \frac{V \times U}{(1+i)^{t}}$$

$$V = 0.01 \times A \times R \times N \times H \times 10{,}000$$

| | | |
|---|---|---|
| U: | 1m3の土砂を保全するために要する単位当たりの砂防ダム建設コスト(円／m3)<br>出典:「砂防便覧」平成20年版 | 5,600 |
| V: | 崩壊見込み量(m3/年) | 19～1,460 |
| A: | 事業対象区域面積(ha) | 33～2,505 |
| R: | 流域内崩壊率<br>出典:「治山全体調査」S42からS46 | 112 淀川 0.0033 |
| N: | 雨量比＝50年確率日雨量／既往最大日雨量<br>雨量強度表及び京都地方気象台データ | 0.3534 |
| H: | 平均崩壊深(m)<br>出典:「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 5.0 |
| Y: | 評価期間 | 44 |
| 10,000: | 単位合わせのための調整値 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 崩壊見込み量 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 587 | 342 | 0 | 0 |
| 2004 | ×1.4233 | 1,183 | 690 | 0 | 0 |
| 2005 | ×1.3686 | 1,771 | 1,033 | 0 | 0 |
| 2006 | ×1.3159 | 2,301 | 1,342 | 0 | 0 |
| 2007 | ×1.2653 | 2,505 | 1,460 | 0 | 0 |
| 2008 | ×1.2167 | 2,505 | 1,460 | 0 | 0 |
| 2009 | ×1.1699 | 2,505 | 1,460 | 0 | 0 |
| 2010 | ×1.1249 | 2,505 | 1,460 | 0 | 0 |
| 2011 | ×1.0816 | 2,505 | 1,460 | 0 | 0 |
| 2012 | ×1.0400 | 2,217 | 1,293 | 0 | 0 |
| 2013 | ×1.0000 | 1,942 | 1,132 | 7,205 | 7,205 |
| 2014 | ×0.9615 | 1,649 | 962 | 6,120 | 5,875 |
| 2015 | ×0.9246 | 1,385 | 808 | 5,139 | 4,728 |
| 2016 | ×0.8890 | 1,301 | 759 | 4,829 | 4,298 |
| 2017 | ×0.8548 | 1,301 | 759 | 4,829 | 4,105 |
| 2018 | ×0.8219 | 1,301 | 759 | 4,829 | 3,960 |
| 2019 | ×0.7903 | 1,301 | 759 | 4,829 | 3,815 |
| 2020 | ×0.7599 | 1,301 | 759 | 4,829 | 3,670 |
| 2021 | ×0.7307 | 1,301 | 759 | 4,829 | 3,525 |
| 2022 | ×0.7026 | 1,084 | 632 | 4,023 | 2,816 |
| 2023 | ×0.6756 | 877 | 511 | 3,253 | 2,212 |
| 2024 | ×0.6496 | 656 | 383 | 2,434 | 1,582 |
| 2025 | ×0.6246 | 470 | 274 | 1,745 | 1,082 |
| 2026 | ×0.6006 | 427 | 249 | 1,583 | 950 |
| 2027 | ×0.5775 | 427 | 249 | 1,583 | 918 |
| 2028 | ×0.5553 | 427 | 249 | 1,583 | 886 |
| 2029 | ×0.5339 | 427 | 249 | 1,583 | 839 |
| 2030 | ×0.5134 | 427 | 249 | 1,583 | 807 |
| 2031 | ×0.4936 | 427 | 249 | 1,583 | 776 |
| 2032 | ×0.4746 | 413 | 241 | 1,533 | 721 |
| 2033 | ×0.4564 | 351 | 205 | 1,304 | 600 |
| 2034 | ×0.4388 | 319 | 186 | 1,184 | 521 |
| 2035 | ×0.4220 | 281 | 164 | 1,043 | 438 |
| 2036 | ×0.4057 | 241 | 141 | 895 | 367 |
| 2037 | ×0.3901 | 241 | 141 | 895 | 349 |
| 2038 | ×0.3751 | 241 | 141 | 895 | 340 |
| 2039 | ×0.3607 | 241 | 141 | 895 | 322 |
| 2040 | ×0.3468 | 241 | 141 | 895 | 313 |
| 2041 | ×0.3335 | 241 | 141 | 895 | 295 |
| 2042 | ×0.3207 | 188 | 110 | 696 | 223 |
| 2043 | ×0.3083 | 143 | 84 | 532 | 165 |
| 2044 | ×0.2965 | 106 | 62 | 393 | 118 |
| 2045 | ×0.2851 | 68 | 40 | 252 | 73 |
| 2046 | ×0.2741 | 33 | 19 | 121 | 33 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 崩壊見込み量 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 58,927 |

環境保全便益
炭素固定便益
樹木固定分

607,252

$$B = \sum_{t=1}^{Y} \frac{V2 - V1}{Y \times (1+i)^{t}} \times D \times BEF \times (1 + R) \times 0.5 \times \frac{44}{12} \times U$$

| | | | |
|---|---|---|---|
| U: | 二酸化炭素に関する原単位(円/CO2-ton)<br>出典:「二酸化炭素地中貯留技術研究開発成果報告書」(財)地球環境産業技術研究機構(平成18年3月) | | 6,046 |
| V1: | 事業を実施しない場合の評価最終年の当該森林の見込蓄積量(m3)<br>算出表 | | 下表のとおり |
| V2: | 事業を実施する場合の評価最終年の当該森林の見込蓄積量(m3)<br>算出表 | | 下表のとおり |
| Y: | 評価期間 | | 44 |
| D : | 容積密度( t /m 3)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | スギ<br>ヒノキ | 0.314<br>0.407 |
| BEF: | バイオマス拡大係数(地上部バイオマス量／幹バイオマス量)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | | 1.23～1.29 |
| R : | 地上部に対する地下部の比率( 地下部バイオマス量／ 地上部バイオマス量)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | | 0.25 |

0.5: 植物中の炭素含有率

44/12: 炭素から二酸化炭素への換算係数

| | | スギ・ヒノキ | | | | | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | | | | | | |
| 2003 | ×1.4802 | 49,416 | 6,916 | | | | | | | | | 6,916 | 10,236 |
| 2004 | ×1.4233 | 103,786 | 14,641 | | | | | | | | | 14,641 | 20,790 |
| 2005 | ×1.3686 | 153,803 | 21,697 | | | | | | | | | 21,697 | 29,725 |
| 2006 | ×1.3159 | 199,911 | 28,202 | | | | | | | | | 28,202 | 37,227 |
| 2007 | ×1.2653 | 222,467 | 31,384 | | | | | | | | | 31,384 | 39,858 |
| 2008 | ×1.2167 | 222,467 | 31,384 | | | | | | | | | 31,384 | 38,288 |
| 2009 | ×1.1699 | 222,467 | 31,384 | | | | | | | | | 31,384 | 36,719 |
| 2010 | ×1.1249 | 222,467 | 31,384 | | | | | | | | | 31,384 | 35,150 |
| 2011 | ×1.0816 | 222,467 | 31,384 | | | | | | | | | 31,384 | 33,895 |
| 2012 | ×1.0400 | 209,522 | 29,788 | | | | | | | | | 29,788 | 30,980 |
| 2013 | ×1.0000 | 197,135 | 27,593 | | | | | | | | | 27,593 | 27,593 |
| 2014 | ×0.9615 | 183,974 | 25,751 | | | | | | | | | 25,751 | 24,721 |
| 2015 | ×0.9246 | 172,044 | 24,270 | | | | | | | | | 24,270 | 22,328 |
| 2016 | ×0.8890 | 168,229 | 23,732 | | | | | | | | | 23,732 | 21,121 |
| 2017 | ×0.8548 | 168,229 | 23,732 | | | | | | | | | 23,732 | 20,172 |
| 2018 | ×0.8219 | 168,229 | 23,732 | | | | | | | | | 23,732 | 19,460 |
| 2019 | ×0.7903 | 168,229 | 23,732 | | | | | | | | | 23,732 | 18,748 |
| 2020 | ×0.7599 | 168,229 | 23,732 | | | | | | | | | 23,732 | 18,036 |
| 2021 | ×0.7307 | 168,229 | 23,732 | | | | | | | | | 23,732 | 17,324 |
| 2022 | ×0.7026 | 145,010 | 20,616 | | | | | | | | | 20,616 | 14,431 |
| 2023 | ×0.6756 | 122,790 | 16,645 | | | | | | | | | 16,645 | 11,319 |
| 2024 | ×0.6496 | 99,181 | 13,445 | | | | | | | | | 13,445 | 8,739 |
| 2025 | ×0.6246 | 79,323 | 10,753 | | | | | | | | | 10,753 | 6,667 |
| 2026 | ×0.6006 | 74,654 | 10,120 | | | | | | | | | 10,120 | 6,072 |
| 2027 | ×0.5775 | 74,654 | 10,120 | | | | | | | | | 10,120 | 5,870 |
| 2028 | ×0.5553 | 74,654 | 10,120 | | | | | | | | | 10,120 | 5,667 |
| 2029 | ×0.5339 | 74,654 | 10,120 | | | | | | | | | 10,120 | 5,364 |
| 2030 | ×0.5134 | 74,654 | 10,120 | | | | | | | | | 10,120 | 5,161 |
| 2031 | ×0.4936 | 74,654 | 10,120 | | | | | | | | | 10,120 | 4,959 |
| 2032 | ×0.4746 | 72,327 | 9,804 | | | | | | | | | 9,804 | 4,608 |
| 2033 | ×0.4564 | 61,622 | 8,353 | | | | | | | | | 8,353 | 3,842 |
| 2034 | ×0.4388 | 56,020 | 7,594 | | | | | | | | | 7,594 | 3,341 |
| 2035 | ×0.4220 | 49,446 | 6,703 | | | | | | | | | 6,703 | 2,815 |
| 2036 | ×0.4057 | 42,573 | 5,771 | | | | | | | | | 5,771 | 2,366 |
| 2037 | ×0.3901 | 42,573 | 5,771 | | | | | | | | | 5,771 | 2,251 |
| 2038 | ×0.3751 | 42,573 | 5,771 | | | | | | | | | 5,771 | 2,193 |
| 2039 | ×0.3607 | 42,573 | 5,771 | | | | | | | | | 5,771 | 2,078 |
| 2040 | ×0.3468 | 42,573 | 5,771 | | | | | | | | | 5,771 | 2,020 |
| 2041 | ×0.3335 | 42,573 | 5,771 | | | | | | | | | 5,771 | 1,904 |
| 2042 | ×0.3207 | 31,647 | 4,290 | | | | | | | | | 4,290 | 1,373 |
| 2043 | ×0.3083 | 22,589 | 3,062 | | | | | | | | | 3,062 | 949 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2044 | ×0.2965 | 14,943 | 2,025 | | | | | | | | | 2,025 | 608 |
| 2045 | ×0.2851 | 7,197 | 975 | | | | | | | | | 975 | 283 |
| 2046 | ×0.2741 | 0 | 0 | | | | | | | | | 0 | 0 |
| 合計 | | | | | | | | | | | | | 607,252 |

環境保全便益 3,273

炭素固定便益

森林土壌蓄積分〈土壌流出防止効果からみた算定方式〉

$$B=\left[\sum_{t=1}^{T-1}\frac{t}{T\times(1+i)^{t}}+\sum_{t=T}^{Y}\frac{1}{(1+i)^{t}}\right]\times(C1-C2)\times A\times 0.3\times\frac{44}{12}\times U$$

$$C1=\frac{s\times e1}{30}$$

$$C2=\frac{s\times e2}{30}$$

| | | |
|---|---|---|
| U: | 二酸化炭素に関する原単位(円/t－CO2)<br>出典:「二酸化炭素地中貯留技術研究開発成果報告書」(財)地球環境産業技術研究機構(平成18年3月) | 6,046 |
| C1: | 事業を実施しない場合の年間流出土砂量に含まれる炭素量(t－C／ha)　①事業対象区域 | 0.5687 |
| C2: | 事業を実施した場合の年間流出土砂量に含まれる炭素量(t－C／ha)　①事業対象区域 | 0.0370 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| Y: | ①侵食深が30cmに達するまでの年数(To)　又は　①事業対象区域<br>②評価期間内に侵食深が30cmに達しない場合は評価期間 | 44.00 |
| A: | ①事業対象区域面積(ha)　又は<br>②保全効果区域面積(ha) | 下表より |
| s : | 単位面積当たりの土壌平均炭素蓄積量(t－C／ha)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | 85.31 |
| 44/12: | 炭素から二酸化炭素への換算係数 | |
| e1:: | 事業を実施しない場合の侵食深(cm／年)<br>出典:「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 0.200 |
| e2:: | 事業を実施した場合の侵食深(cm／年)<br>出典:「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 0.013 |
| 30: | 土壌炭素の測定深度(cm) | |
| 0．3: | 流出土砂排出炭素係数 | |

| | | 事業対象区域 | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | 事業対象区域面積 | 効果対象面積 | 効果額 | 現在価値化 | 効果対象面積 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | |
| 2003 | ×1.4802 | 587 | 587 | 47 | 70 | | | |
| 2004 | ×1.4233 | 1,183 | 1,183 | 95 | 135 | | | |
| 2005 | ×1.3686 | 1,771 | 1,771 | 142 | 195 | | | |
| 2006 | ×1.3159 | 2,301 | 2,301 | 184 | 243 | | | |
| 2007 | ×1.2653 | 2,505 | 2,505 | 201 | 255 | | | |
| 2008 | ×1.2167 | 2,505 | 2,505 | 201 | 245 | | | |
| 2009 | ×1.1699 | 2,505 | 2,505 | 201 | 235 | | | |
| 2010 | ×1.1249 | 2,505 | 2,505 | 201 | 225 | | | |
| 2011 | ×1.0816 | 2,505 | 2,505 | 201 | 217 | | | |
| 2012 | ×1.0400 | 2,217 | 2,217 | 178 | 185 | | | |
| 2013 | ×1.0000 | 1,942 | 1,942 | 156 | 156 | | | |
| 2014 | ×0.9615 | 1,649 | 1,649 | 132 | 127 | | | |
| 2015 | ×0.9246 | 1,385 | 1,385 | 111 | 102 | | | |
| 2016 | ×0.8890 | 1,301 | 1,301 | 104 | 93 | | | |
| 2017 | ×0.8548 | 1,301 | 1,301 | 104 | 88 | | | |
| 2018 | ×0.8219 | 1,301 | 1,301 | 104 | 85 | | | |
| 2019 | ×0.7903 | 1,301 | 1,301 | 104 | 82 | | | |
| 2020 | ×0.7599 | 1,301 | 1,301 | 104 | 79 | | | |
| 2021 | ×0.7307 | 1,301 | 1,301 | 104 | 76 | | | |
| 2022 | ×0.7026 | 1,084 | 1,084 | 87 | 61 | | | |
| 2023 | ×0.6756 | 877 | 877 | 70 | 48 | | | |
| 2024 | ×0.6496 | 656 | 656 | 52 | 34 | | | |
| 2025 | ×0.6246 | 470 | 470 | 37 | 23 | | | |
| 2026 | ×0.6006 | 427 | 427 | 34 | 20 | | | |
| 2027 | ×0.5775 | 427 | 427 | 34 | 20 | | | |
| 2028 | ×0.5553 | 427 | 427 | 34 | 19 | | | |
| 2029 | ×0.5339 | 427 | 427 | 34 | 18 | | | |
| 2030 | ×0.5134 | 427 | 427 | 34 | 17 | | | |
| 2031 | ×0.4936 | 427 | 427 | 34 | 17 | | | |
| 2032 | ×0.4746 | 413 | 413 | 33 | 16 | | | |
| 2033 | ×0.4564 | 351 | 351 | 28 | 13 | | | |
| 2034 | ×0.4388 | 319 | 319 | 25 | 11 | | | |
| 2035 | ×0.4220 | 281 | 281 | 22 | 9 | | | |
| 2036 | ×0.4057 | 241 | 241 | 19 | 8 | | | |
| 2037 | ×0.3901 | 241 | 241 | 19 | 7 | | | |
| 2038 | ×0.3751 | 241 | 241 | 19 | 7 | | | |
| 2039 | ×0.3607 | 241 | 241 | 19 | 7 | | | |
| 2040 | ×0.3468 | 241 | 241 | 19 | 7 | | | |
| 2041 | ×0.3335 | 241 | 241 | 19 | 6 | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2042 | ×0.3207 | 188 | 188 | 15 | 5 | | | |
| 2043 | ×0.3083 | 143 | 143 | 11 | 3 | | | |
| 2044 | ×0.2965 | 106 | 106 | 8 | 2 | | | |
| 2045 | ×0.2851 | 68 | 68 | 5 | 1 | | | |
| 2046 | ×0.2741 | 33 | 33 | 2 | 1 | | | |
| 合計 | | | | | 3,273 | | | |

木材生産等便益
生産確保・増進便益
森林整備による増進分

1,705,838

$$B = \sum_{t=1}^{Y} \frac{V_t \times @}{(1+i)^t}$$

Y: 評価期間 44

Vt主: 人工林　主伐量　t 年後における伐採材積(m3) 下表のとおり

@: 人工林　主伐材　木材市場価格(円／m3) 10,000
出典:「京都府内木材市場価格の平均」

| | | スギ・ヒノキ | | | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | 事業効果材積 | 効果額 | 事業効果材積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果材積 | 効果額 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | | | | |
| 2003 | ×1.4802 | | | | | | | | | | |
| 2004 | ×1.4233 | | | | | | | | | | |
| 2005 | ×1.3686 | | | | | | | | | | |
| 2006 | ×1.3159 | | | | | | | | | | |
| 2007 | ×1.2653 | | | | | | | | | | |
| 2008 | ×1.2167 | | | | | | | | | | |
| 2009 | ×1.1699 | | | | | | | | | | |
| 2010 | ×1.1249 | | | | | | | | | | |
| 2011 | ×1.0816 | | | | | | | | | | |
| 2012 | ×1.0400 | 15,706 | 157,056 | | | | | | | | 163,338 |
| 2013 | ×1.0000 | 15,030 | 150,297 | | | | | | | | 150,297 |
| 2014 | ×0.9615 | 15,969 | 159,688 | | | | | | | | 153,300 |
| 2015 | ×0.9246 | 14,474 | 144,741 | | | | | | | | 133,162 |
| 2016 | ×0.8890 | 4,629 | 46,292 | | | | | | | | 41,200 |
| 2017 | ×0.8548 | | | | | | | | | | |
| 2018 | ×0.8219 | | | | | | | | | | |
| 2019 | ×0.7903 | | | | | | | | | | |
| 2020 | ×0.7599 | | | | | | | | | | |
| 2021 | ×0.7307 | | | | | | | | | | |
| 2022 | ×0.7026 | 27,863 | 278,628 | | | | | | | | 195,040 |
| 2023 | ×0.6756 | 26,664 | 266,635 | | | | | | | | 181,312 |
| 2024 | ×0.6496 | 28,330 | 283,301 | | | | | | | | 184,146 |
| 2025 | ×0.6246 | 23,830 | 238,297 | | | | | | | | 147,744 |
| 2026 | ×0.6006 | 5,603 | 56,033 | | | | | | | | 33,620 |
| 2027 | ×0.5775 | | | | | | | | | | |
| 2028 | ×0.5553 | | | | | | | | | | |
| 2029 | ×0.5339 | | | | | | | | | | |
| 2030 | ×0.5134 | | | | | | | | | | |
| 2031 | ×0.4936 | | | | | | | | | | |
| 2032 | ×0.4746 | 2,800 | 28,002 | | | | | | | | 13,161 |
| 2033 | ×0.4564 | 12,883 | 128,834 | | | | | | | | 59,264 |
| 2034 | ×0.4388 | 6,742 | 67,415 | | | | | | | | 29,663 |
| 2035 | ×0.4220 | 7,912 | 79,116 | | | | | | | | 33,229 |
| 2036 | ×0.4057 | 8,272 | 82,717 | | | | | | | | 33,914 |
| 2037 | ×0.3901 | | | | | | | | | | |
| 2038 | ×0.3751 | | | | | | | | | | |
| 2039 | ×0.3607 | | | | | | | | | | |
| 2040 | ×0.3468 | | | | | | | | | | |
| 2041 | ×0.3335 | | | | | | | | | | |
| 2042 | ×0.3207 | 13,111 | 131,114 | | | | | | | | 41,956 |
| 2043 | ×0.3083 | 10,869 | 108,691 | | | | | | | | 33,694 |
| 2044 | ×0.2965 | 9,175 | 91,751 | | | | | | | | 27,525 |
| 2045 | ×0.2851 | 9,295 | 92,950 | | | | | | | | 26,956 |
| 2046 | ×0.2741 | 8,637 | 86,365 | | | | | | | | 23,319 |
| 合計 | | | 2,677,923 | | | | | | | | 1,705,838 |

整理番号 7

# 便　益　集　計　表

（路網分）

事業名：森林環境保全整備事業　　都道府県名：京都府

地域(地区)名：南丹市（なんたんし）　　（単位：千円）

| 大　区　分 | 中　区　分 | 評価額 | 備　　考 |
|---|---|---|---|
| 木材生産便益 | 木材生産等経費縮減便益 | 15,304 | 代表路線 |
| | 木材利用増進便益 | 1,527 | 〃 |
| | 木材生産確保・増進便益 | 129,950 | 〃 |
| 森林整備経費等縮減便益 | 森林管理等経費縮減便益 | 19,029 | 〃 |
| | 森林整備促進便益 | 949,404 | 〃 |
| その他の便益 | ボランティア誘発便益 | 1,858 | |
| 総　便　益　(B) | | 1,117,072 | |
| 総　費　用　(C) | | 1,066,007 | |

（注）便益額算定方法は、代表路線を表示しています。

様式2

# 事　業　費　集　計　表

事業名:森林環境保全整備事業（路網整備）　　京都府（①奥山向山線）

施工箇所:　南丹市地区　　（単位:千円）

| 年度 | 事業費 | 割引率 | 現在価値額 | 年度 | 事業費 | 割引率 | 現在価値額 |
|---|---|---|---|---|---|---|---|
| H2 | | ×2.4647 | | H36 | 100 | ×0.6496 | 65 |
| H3 | | ×2.3699 | | H37 | 100 | ×0.6246 | 62 |
| H4 | | ×2.2788 | | H38 | 100 | ×0.6006 | 60 |
| H5 | | ×2.1911 | | H39 | 100 | ×0.5775 | 58 |
| H6 | | ×2.1068 | | H40 | 100 | ×0.5553 | 56 |
| H7 | | ×2.0258 | | H41 | 100 | ×0.5339 | 53 |
| H8 | | ×1.9479 | | H42 | 100 | ×0.5134 | 51 |
| H9 | | ×1.8730 | | H43 | 100 | ×0.4936 | 49 |
| H10 | | ×1.8009 | | H44 | 100 | ×0.4746 | 47 |
| H11 | | ×1.7317 | | H45 | 100 | ×0.4564 | 46 |
| H12 | | ×1.6651 | | H46 | 100 | ×0.4388 | 44 |
| H13 | | ×1.6010 | | H47 | 100 | ×0.4220 | 42 |
| H14 | | ×1.5395 | | H48 | 100 | ×0.4057 | 41 |
| H15 | 30,000 | ×1.4802 | 44,406 | H49 | 100 | ×0.3901 | 39 |
| H16 | 33,000 | ×1.4233 | 46,969 | H50 | 100 | ×0.3751 | 38 |
| H17 | 37,000 | ×1.3686 | 50,638 | H51 | 100 | ×0.3607 | 36 |
| H18 | 72,800 | ×1.3159 | 95,798 | H52 | 100 | ×0.3468 | 35 |
| H19 | 97,200 | ×1.2653 | 122,987 | H53 | 100 | ×0.3335 | 33 |
| H20 | 100,100 | ×1.2167 | 121,792 | H54 | 100 | ×0.3207 | 32 |
| H21 | 65,100 | ×1.1699 | 76,160 | H55 | 100 | ×0.3083 | 31 |
| H22 | 100 | ×1.1249 | 112 | H56 | 100 | ×0.2965 | 30 |
| H23 | 100 | ×1.0816 | 108 | H57 | 100 | ×0.2851 | 29 |
| H24 | 100 | ×1.0400 | 104 | H58 | 100 | ×0.2741 | 27 |
| H25 | 100 | ×1.0000 | 100 | H59 | 100 | ×0.2636 | 26 |
| H26 | 100 | ×0.9615 | 96 | H60 | 100 | ×0.2534 | 25 |
| H27 | 100 | ×0.9246 | 92 | H61 | 100 | ×0.2437 | 24 |
| H28 | 100 | ×0.8890 | 89 | | | | |
| H29 | 100 | ×0.8548 | 85 | | | | |
| H30 | 100 | ×0.8219 | 82 | | | | |
| H31 | 100 | ×0.7903 | 79 | | | | |
| H32 | 100 | ×0.7599 | 76 | | | | |
| H33 | 100 | ×0.7307 | 73 | | | | |
| H34 | 100 | ×0.7026 | 70 | | | | |
| H35 | 100 | ×0.6756 | 68 | 合計 | 439,200 | | 561,063 |

事業実施計画期間事業費:　270,000 千円　総費用(C)＝270000÷435200×561063

事業実施計画期間維持管理費:　　内維持管理費＝270000÷435200×2313

総　事　業　費　:　270,000 千円

全体計画総事業費:　435,200 千円　　千円

様式2

# 事　業　費　集　計　表

事業名:森林環境保全整備事業（路網整備）　　京都府（②原深見線）

施工箇所:　南丹市地区　　（単位:千円）

| 年度 | 事業費 | 割引率 | 現在価値額 | 年度 | 事業費 | 割引率 | 現在価値額 |
|---|---|---|---|---|---|---|---|
| H2 | | ×2.4647 | | H36 | 1,183 | ×0.6496 | 768 |
| H3 | 30,000 | ×2.3699 | 71,097 | H37 | 1,183 | ×0.6246 | 739 |
| H4 | 41,018 | ×2.2788 | 93,472 | H38 | 1,183 | ×0.6006 | 711 |
| H5 | 150,052 | ×2.1911 | 328,779 | H39 | 1,183 | ×0.5775 | 683 |
| H6 | 116,381 | ×2.1068 | 245,191 | H40 | 1,183 | ×0.5553 | 657 |
| H7 | 106,962 | ×2.0258 | 216,684 | H41 | 1,183 | ×0.5339 | 632 |
| H8 | 108,311 | ×1.9479 | 210,979 | H42 | 1,183 | ×0.5134 | 607 |
| H9 | 242,564 | ×1.8730 | 454,322 | H43 | 1,183 | ×0.4936 | 584 |
| H10 | 242,385 | ×1.8009 | 436,511 | H44 | 1,183 | ×0.4746 | 561 |
| H11 | 171,454 | ×1.7317 | 296,907 | H45 | 1,183 | ×0.4564 | 540 |
| H12 | 213,572 | ×1.6651 | 355,619 | H46 | 1,183 | ×0.4388 | 519 |
| H13 | 211,422 | ×1.6010 | 338,487 | H47 | 1,183 | ×0.4220 | 499 |
| H14 | 194,145 | ×1.5395 | 298,886 | H48 | 1,183 | ×0.4057 | 480 |
| H15 | 116,660 | ×1.4802 | 172,680 | H49 | 1,183 | ×0.3901 | 461 |
| H16 | 165,278 | ×1.4233 | 235,240 | H50 | 1,183 | ×0.3751 | 444 |
| H17 | 125,162 | ×1.3686 | 171,297 | H51 | 1,183 | ×0.3607 | 427 |
| H18 | 1,494 | ×1.3159 | 1,966 | H52 | 1,183 | ×0.3468 | 410 |
| H19 | 1,351 | ×1.2653 | 1,709 | H53 | 1,183 | ×0.3335 | 395 |
| H20 | 1,183 | ×1.2167 | 1,439 | H54 | 1,183 | ×0.3207 | 379 |
| H21 | 1,183 | ×1.1699 | 1,384 | H55 | 1,183 | ×0.3083 | 365 |
| H22 | 1,183 | ×1.1249 | 1,331 | H56 | 1,183 | ×0.2965 | 351 |
| H23 | 1,183 | ×1.0816 | 1,280 | H57 | 1,183 | ×0.2851 | 337 |
| H24 | 1,183 | ×1.0400 | 1,230 | H58 | | ×0.2741 | |
| H25 | 1,183 | ×1.0000 | 1,183 | H59 | | ×0.2636 | |
| H26 | 1,183 | ×0.9615 | 1,137 | H60 | | ×0.2534 | |
| H27 | 1,183 | ×0.9246 | 1,094 | H61 | | ×0.2437 | |
| H28 | 1,183 | ×0.8890 | 1,052 | | | | |
| H29 | 1,183 | ×0.8548 | 1,011 | | | | |
| H30 | 1,183 | ×0.8219 | 972 | | | | |
| H31 | 1,183 | ×0.7903 | 935 | | | | |
| H32 | 1,183 | ×0.7599 | 899 | | | | |
| H33 | 1,183 | ×0.7307 | 864 | | | | |
| H34 | 1,183 | ×0.7026 | 831 | | | | |
| H35 | 1,183 | ×0.6756 | 799 | 合計 | 2,271,288 | | 3,958,816 |

事業実施計画期間事業費:　409,945 千円　総費用(C)＝403460÷2224790×3958816

事業実施計画期間維持管理費:　6,485 千円　内維持管理費＝403460÷2224790×49884

総　事　業　費　:　403,460 千円

全体計画総事業費:　2,224,790 千円

千円

C=　717,921

様式3

# 効果額集計表

| 事　業　名 | 森林環境保全整備事業 | 都道府県名 | 京都府 | 地区名 | 南丹市 |
|---|---|---|---|---|---|
| | | | | | |
| 路　線　名　等 | 奥山向山線 | | | 計画期間 | H15　～　H19 |

| 区　分 | 項　　目 | | 効果額(事業全体)<br>現在価格<br>(千円) | 効果額(計画期間)<br>現在価格<br>(千円) | 備　考 |
|---|---|---|---|---|---|
| 水源かん養便益 | 洪水防止便益 | | | | |
| | 流域貯水便益 | | | | |
| | 水質浄化便益 | | | | |
| | 小　計 | | | | |
| 山地保全便益 | 土砂流出防止便益 | | | | |
| | 土砂崩壊防止便益 | | | | |
| | 小　計 | | | | |
| 環境保全便益 | 炭素固定便益 | | | | |
| | 気候緩和便益 | | | | |
| | 騒音軽減便益 | | | | |
| | 飛砂軽減便益 | | | | |
| | 風害軽減便益 | | | | |
| | 大気浄化便益 | | | | |
| | 霧害軽減便益 | | | | |
| | 火災防備便益 | | | | |
| | 漁場保全便益 | | | | |
| | 生物多様性の保全便益 | | | | |
| | 保健休養便益 | | | | |
| | 小　計 | | | | |
| 木材生産等便益 | 木材生産経費縮減便益 | | 15,304 | 15,304 | |
| | 木材利用増進便益 | | 1,527 | 434 | |
| | 木材生産確保・増進便益 | | 129,950 | 56,557 | |
| | | 森林整備分 | | | |
| | | 路網整備分 | 129,950 | 56,557 | |
| | 小　計 | | 146,781 | 72,295 | |
| 森林整備経費縮減等便益 | 造林作業経費縮減便益 | | | | |
| | | 歩行時間等経費縮減便益 | | | |
| | | 作業道作設経費縮減便益 | | | |
| | 治山経費縮減便益 | | | | |
| | 森林管理等経費縮減便益 | | 19,029 | 8,596 | |
| | 森林整備促進便益 | | 949,404 | 284,608 | |
| | 小　計 | | 968,433 | 293,204 | |
| 一般交通便益 | 走行時間短縮便益 | | | | |
| | 走行経費減少便益 | | | | |
| | 小　計 | | | | |
| 森林の総合利用便益 | アクセス時間短縮等便益 | | | | |
| | | アクセス時間短縮便益 | | | |
| | | アクセス経費減少便益 | | | |
| | ふれあい機会創出便益 | | | | |
| | フォレストアメニティ施設利用便益 | | | | |
| | | 利用確保便益 | | | |
| | | 施設滞在便益 | | | |
| | 副産物増大便益 | | | | |
| | 小　計 | | | | |
| 災害等軽減便益 | 災害時迂回路等確保便益 | | | | |
| | 防火帯便益 | | | | |
| | 災害復旧経費縮減便益 | | | | |
| | 小　計 | | | | |
| 維持管理費縮減便益 | | | | | |
| 山村環境整備便益 | 生活用水確保便益 | | | | |
| | 生活排水浄化便益 | | | | |
| | | し尿処理経費等縮減便益 | | | |
| | | 浄化槽設置経費縮減便益 | | | |
| | | 集落内臭気防止便益 | | | |
| | 集落内除雪便益 | | | | |
| | 土地創出便益 | | | | |
| | 生活安定確保便益 | | | | |
| | 小　計 | | | | |
| その他の便益 | 通行安全確保便益 | | | | |
| | 環境保全確保便益 | | | | |
| | 森林内施設管理経費縮減便益 | | | | |
| | ボランティア誘発便益 | | 1,858 | | |
| | 小　計 | | 1,858 | | |
| 合　計 | | | 1,117,072 | 365,499 | 総便益(B) |

木材生産等便益
　木材生産等経費縮減便益

15,304

$$B = \sum_{t=1}^{T} \frac{t \times (Co - CT) \times Vt}{T \times (1+i)^t} + \sum_{t=T+1}^{Y} \frac{(Co - CT) \times Vt}{(1+i)^t}$$

| | | | |
|---|---|---|---|
| T: | 整備期間（年） | | 7 |
| Y: | 評価期間 | | 47 |
| Co: | 整備前の伐採・搬出等経費（円／m3）<br>近畿地区用対連損失補償標準書 | スギ<br>ヒノキ | 16,500<br>16,500 |
| CT: | 整備後の伐採・搬出等経費（円／m3）<br>近畿地区用対連損失補償標準書 | スギ<br>ヒノキ | 11,300<br>11,300 |
| Vt: | 路網整備前からの利用区域の t 年後における伐採材積（m3）<br>算出表 | スギ<br>ヒノキ | 0.00～648.80<br>0.00～646.50 |

| | | | スギ | | ヒノキ | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | t/T | 事業効果材積 | 効果額 | 事業効果材積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果材積 | 効果額 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | | | | | |
| 2003 | ×1.4802 | 0.1429 | | | | | | | | | | |
| 2004 | ×1.4233 | 0.2857 | | | | | | | | | | |
| 2005 | ×1.3686 | 0.4286 | | | | | | | | | | |
| 2006 | ×1.3159 | 0.5714 | | | | | | | | | | |
| 2007 | ×1.2653 | 0.7143 | | | | | | | | | | |
| 2008 | ×1.2167 | 0.8571 | | | | | | | | | | |
| 2009 | ×1.1699 | 1.0000 | | | | | | | | | | |
| 2010 | ×1.1249 | 1.0000 | | | | | | | | | | |
| 2011 | ×1.0816 | 1.0000 | | | | | | | | | | |
| 2012 | ×1.0400 | 1.0000 | | | | | | | | | | |
| 2013 | ×1.0000 | 1.0000 | | | | | | | | | | |
| 2014 | ×0.9615 | 1.0000 | 359.90 | 1,871 | 352.80 | 1,835 | | | | | 3,706 | 3,563 |
| 2015 | ×0.9246 | 1.0000 | 648.80 | 3,374 | 646.50 | 3,362 | | | | | 6,736 | 6,228 |
| 2016 | ×0.8890 | 1.0000 | 246.30 | 1,281 | 238.00 | 1,238 | | | | | 2,519 | 2,239 |
| 2017 | ×0.8548 | 1.0000 | 573.80 | 2,984 | 561.90 | 2,922 | | | | | 5,906 | 5,048 |
| 2018 | ×0.8219 | 1.0000 | 172.70 | 898 | 164.40 | 855 | | | | | 1,753 | 1,441 |
| 2019 | ×0.7903 | 1.0000 | 79.70 | 414 | 76.70 | 399 | | | | | 813 | 643 |
| 2020 | ×0.7599 | 1.0000 | 79.70 | 414 | 76.70 | 399 | | | | | 813 | 618 |
| 2021 | ×0.7307 | 1.0000 | 79.70 | 414 | 76.70 | 399 | | | | | 813 | 594 |
| 2022 | ×0.7026 | 1.0000 | 79.70 | 414 | 76.70 | 399 | | | | | 813 | 571 |
| 2023 | ×0.6756 | 1.0000 | 79.70 | 414 | 76.70 | 399 | | | | | 813 | 549 |
| 2024 | ×0.6496 | 1.0000 | 31.00 | 161 | 29.80 | 155 | | | | | 316 | 205 |
| 2025 | ×0.6246 | 1.0000 | 31.00 | 161 | 29.80 | 155 | | | | | 316 | 197 |
| 2026 | ×0.6006 | 1.0000 | 31.00 | 161 | 29.80 | 155 | | | | | 316 | 190 |
| 2027 | ×0.5775 | 1.0000 | 31.00 | 161 | 29.80 | 155 | | | | | 316 | 182 |
| 2028 | ×0.5553 | 1.0000 | 31.00 | 161 | 29.80 | 155 | | | | | 316 | 175 |
| 2029 | ×0.5339 | 1.0000 | 44.30 | 230 | 42.30 | 220 | | | | | 450 | 240 |
| 2030 | ×0.5134 | 1.0000 | 44.30 | 230 | 42.30 | 220 | | | | | 450 | 231 |
| 2031 | ×0.4936 | 1.0000 | 44.30 | 230 | 42.30 | 220 | | | | | 450 | 222 |
| 2032 | ×0.4746 | 1.0000 | 44.30 | 230 | 42.30 | 220 | | | | | 450 | 214 |
| 2033 | ×0.4564 | 1.0000 | 44.30 | 230 | 42.30 | 220 | | | | | 450 | 205 |
| 2034 | ×0.4388 | 1.0000 | 48.70 | 253 | 45.40 | 236 | | | | | 489 | 215 |
| 2035 | ×0.4220 | 1.0000 | 48.70 | 253 | 45.40 | 236 | | | | | 489 | 206 |
| 2036 | ×0.4057 | 1.0000 | 48.70 | 253 | 45.40 | 236 | | | | | 489 | 198 |
| 2037 | ×0.3901 | 1.0000 | 48.70 | 253 | 45.40 | 236 | | | | | 489 | 191 |
| 2038 | ×0.3751 | 1.0000 | 48.70 | 253 | 45.40 | 236 | | | | | 489 | 183 |
| 2039 | ×0.3607 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| 2040 | ×0.3468 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| 2041 | ×0.3335 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| 2042 | ×0.3207 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| 2043 | ×0.3083 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| 2044 | ×0.2965 | 1.0000 | 8.90 | 46 | 7.80 | 41 | | | | | 87 | 26 |
| 2045 | ×0.2851 | 1.0000 | 8.90 | 46 | 7.80 | 41 | | | | | 87 | 25 |
| 2046 | ×0.2741 | 1.0000 | 8.90 | 46 | 7.80 | 41 | | | | | 87 | 24 |
| 2047 | ×0.2636 | 1.0000 | 8.90 | 46 | 7.80 | 41 | | | | | 87 | 23 |
| 2048 | ×0.2534 | 1.0000 | 8.90 | 46 | 7.80 | 41 | | | | | 87 | 22 |
| 2049 | ×0.2437 | 1.0000 | 0.00 | 0 | 0.00 | 0 | | | | | 0 | 0 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 合計 | | | | | | | | | | | | 24,668 |
| | | | | | | 24,668 | ÷ | 561,063 | × | 348,086 | ＝ | **15,304** |

木材生産等便益
木材利用増進便益

434

$$B = \sum_{t=1}^{Y} \frac{(RT - Ro) / 100 \times Vt \times @}{(1 + i)^t}$$

| | | | |
|---|---|---|---|
| T: | 整備期間（年） | | 7 |
| Y: | 評価期間 | | 47 |
| Ro: | 整備前の利用間伐の割合（%） | | 5% |
| RT: | 整備後の利用間伐の割合（%） | | 50% |
| Vt: | 林道整備前からの利用区域の t 年後における間伐伐採材積（m3）<br>算出表 | スギ<br>ヒノキ | 0.00～7.70<br>0.00～6.50 |
| @: | 間伐材の木材市場価格（円／m3）<br>京都府内木材市場価格の平均 | スギ<br>ヒノキ | 12,025<br>25,925 |

| | | スギ | | ヒノキ | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | 事業効果材積 | 効果額 | 事業効果材積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果材積 | 効果額 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | | | | |
| 2003 | ×1.4802 | | | | | | | | | | |
| 2004 | ×1.4233 | | | | | | | | | | |
| 2005 | ×1.3686 | | | | | | | | | | |
| 2006 | ×1.3159 | | | | | | | | | | |
| 2007 | ×1.2653 | | | | | | | | | | |
| 2008 | ×1.2167 | | | | | | | | | | |
| 2009 | ×1.1699 | | | | | | | | | | |
| 2010 | ×1.1249 | | | | | | | | | | |
| 2011 | ×1.0816 | | | | | | | | | | |
| 2012 | ×1.0400 | | | | | | | | | | |
| 2013 | ×1.0000 | | | | | | | | | | |
| 2014 | ×0.9615 | 2.90 | 16 | 2.40 | 28 | | | | | 44 | 42 |
| 2015 | ×0.9246 | 2.90 | 16 | 2.40 | 28 | | | | | 44 | 41 |
| 2016 | ×0.8890 | 2.90 | 16 | 2.40 | 28 | | | | | 44 | 39 |
| 2017 | ×0.8548 | 2.90 | 16 | 2.40 | 28 | | | | | 44 | 38 |
| 2018 | ×0.8219 | 2.90 | 16 | 2.40 | 28 | | | | | 44 | 36 |
| 2019 | ×0.7903 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 13 |
| 2020 | ×0.7599 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 12 |
| 2021 | ×0.7307 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 12 |
| 2022 | ×0.7026 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 11 |
| 2023 | ×0.6756 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 11 |
| 2024 | ×0.6496 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 25 |
| 2025 | ×0.6246 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 24 |
| 2026 | ×0.6006 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 23 |
| 2027 | ×0.5775 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 22 |
| 2028 | ×0.5553 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 21 |
| 2029 | ×0.5339 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 9 |
| 2030 | ×0.5134 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 8 |
| 2031 | ×0.4936 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 8 |
| 2032 | ×0.4746 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 8 |
| 2033 | ×0.4564 | 1.10 | 6 | 0.90 | 10 | | | | | 16 | 7 |
| 2034 | ×0.4388 | 2.40 | 13 | 2.00 | 23 | | | | | 36 | 16 |
| 2035 | ×0.4220 | 5.40 | 29 | 4.50 | 52 | | | | | 81 | 34 |
| 2036 | ×0.4057 | 7.70 | 42 | 6.50 | 76 | | | | | 118 | 48 |
| 2037 | ×0.3901 | 4.50 | 24 | 3.80 | 44 | | | | | 68 | 27 |
| 2038 | ×0.3751 | 7.20 | 39 | 6.10 | 71 | | | | | 110 | 41 |
| 2039 | ×0.3607 | 2.50 | 14 | 2.10 | 24 | | | | | 38 | 14 |
| 2040 | ×0.3468 | 1.80 | 10 | 1.50 | 17 | | | | | 27 | 9 |
| 2041 | ×0.3335 | 1.80 | 10 | 1.50 | 17 | | | | | 27 | 9 |
| 2042 | ×0.3207 | 1.80 | 10 | 1.50 | 17 | | | | | 27 | 9 |
| 2043 | ×0.3083 | 1.80 | 10 | 1.50 | 17 | | | | | 27 | 8 |
| 2044 | ×0.2965 | 0.70 | 4 | 0.60 | 7 | | | | | 11 | 3 |
| 2045 | ×0.2851 | 3.30 | 18 | 2.70 | 31 | | | | | 49 | 14 |
| 2046 | ×0.2741 | 5.60 | 30 | 4.70 | 55 | | | | | 85 | 23 |
| 2047 | ×0.2636 | 2.30 | 12 | 2.00 | 23 | | | | | 35 | 9 |
| 2048 | ×0.2534 | 5.00 | 27 | 4.30 | 50 | | | | | 77 | 20 |
| 2049 | ×0.2437 | 1.70 | 9 | 1.50 | 17 | | | | | 26 | 6 |
| | | | | | | | | | | | |
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| | | | | | | | | | | | |
| | | | | | | | | | | | 700 |
| | | | | | 700 | ÷ | 561,063 | × | 348,086 | = | **434** |

**木材生産等便益**
**生産確保・増進便益**
**路網整備による増進分**

56,557

$$B = \sum_{t=1}^{Y} \frac{V_t \times @}{(1+i)^t}$$

| | | | |
|---|---|---|---|
| Y: | 評価期間 | | 47 |
| Vt主: | 主伐量　林道を整備した場合の t 年後における伐採材積(m3)<br>算出表 | スギ<br>ヒノキ | 0.00～648.80<br>0.00～646.50 |
| Vt間: | 間伐量　林道を整備した場合の t 年後における伐採材積(m3)<br>算出表 | スギ<br>ヒノキ | 0.00～7.70<br>0.00～6.50 |
| @: | 主伐材　木材市場価格(円／m3)<br>京都府内木材市場価格の平均 | スギ<br>ヒノキ | 12,025<br>25,925 |
| @: | 間伐材　木材市場価格(円／m3)<br>京都府内木材市場価格の平均 | スギ<br>ヒノキ | 12,025<br>25,925 |

| | | 主伐 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | スギ | | ヒノキ | | | | | | | |
| 年度 | 社会的割引率 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 年度 | 社会的割引率 |
| 2002 | ×1.5395 | | | | | | | | | 2002 | ×1.5395 |
| 2003 | ×1.4802 | | | | | | | | | 2003 | ×1.4802 |
| 2004 | ×1.4233 | | | | | | | | | 2004 | ×1.4233 |
| 2005 | ×1.3686 | | | | | | | | | 2005 | ×1.3686 |
| 2006 | ×1.3159 | | | | | | | | | 2006 | ×1.3159 |
| 2007 | ×1.2653 | | | | | | | | | 2007 | ×1.2653 |
| 2008 | ×1.2167 | | | | | | | | | 2008 | ×1.2167 |
| 2009 | ×1.1699 | | | | | | | | | 2009 | ×1.1699 |
| 2010 | ×1.1249 | | | | | | | | | 2010 | ×1.1249 |
| 2011 | ×1.0816 | | | | | | | | | 2011 | ×1.0816 |
| 2012 | ×1.0400 | | | | | | | | | 2012 | ×1.0400 |
| 2013 | ×1.0000 | | | | | | | | | 2013 | ×1.0000 |
| 2014 | ×0.9615 | 359.90 | 4,328 | 352.80 | 9,146 | | | | | 2014 | ×0.9615 |
| 2015 | ×0.9246 | 648.80 | 7,802 | 646.50 | 16,761 | | | | | 2015 | ×0.9246 |
| 2016 | ×0.8890 | 246.30 | 2,962 | 238.00 | 6,170 | | | | | 2016 | ×0.8890 |
| 2017 | ×0.8548 | 573.80 | 6,900 | 561.90 | 14,567 | | | | | 2017 | ×0.8548 |
| 2018 | ×0.8219 | 172.70 | 2,077 | 164.40 | 4,262 | | | | | 2018 | ×0.8219 |
| 2019 | ×0.7903 | 79.70 | 958 | 76.70 | 1,988 | | | | | 2019 | ×0.7903 |
| 2020 | ×0.7599 | 79.70 | 958 | 76.70 | 1,988 | | | | | 2020 | ×0.7599 |
| 2021 | ×0.7307 | 79.70 | 958 | 76.70 | 1,988 | | | | | 2021 | ×0.7307 |
| 2022 | ×0.7026 | 79.70 | 958 | 76.70 | 1,988 | | | | | 2022 | ×0.7026 |
| 2023 | ×0.6756 | 79.70 | 958 | 76.70 | 1,988 | | | | | 2023 | ×0.6756 |
| 2024 | ×0.6496 | 31.00 | 373 | 29.80 | 773 | | | | | 2024 | ×0.6496 |
| 2025 | ×0.6246 | 31.00 | 373 | 29.80 | 773 | | | | | 2025 | ×0.6246 |
| 2026 | ×0.6006 | 31.00 | 373 | 29.80 | 773 | | | | | 2026 | ×0.6006 |
| 2027 | ×0.5775 | 31.00 | 373 | 29.80 | 773 | | | | | 2027 | ×0.5775 |
| 2028 | ×0.5553 | 31.00 | 373 | 29.80 | 773 | | | | | 2028 | ×0.5553 |
| 2029 | ×0.5339 | 44.30 | 533 | 42.30 | 1,097 | | | | | 2029 | ×0.5339 |
| 2030 | ×0.5134 | 44.30 | 533 | 42.30 | 1,097 | | | | | 2030 | ×0.5134 |
| 2031 | ×0.4936 | 44.30 | 533 | 42.30 | 1,097 | | | | | 2031 | ×0.4936 |
| 2032 | ×0.4746 | 44.30 | 533 | 42.30 | 1,097 | | | | | 2032 | ×0.4746 |
| 2033 | ×0.4564 | 44.30 | 533 | 42.30 | 1,097 | | | | | 2033 | ×0.4564 |
| 2034 | ×0.4388 | 48.70 | 586 | 45.40 | 1,177 | | | | | 2034 | ×0.4388 |
| 2035 | ×0.4220 | 48.70 | 586 | 45.40 | 1,177 | | | | | 2035 | ×0.4220 |
| 2036 | ×0.4057 | 48.70 | 586 | 45.40 | 1,177 | | | | | 2036 | ×0.4057 |
| 2037 | ×0.3901 | 48.70 | 586 | 45.40 | 1,177 | | | | | 2037 | ×0.3901 |
| 2038 | ×0.3751 | 48.70 | 586 | 45.40 | 1,177 | | | | | 2038 | ×0.3751 |
| 2039 | ×0.3607 | 0.00 | 0 | 0.00 | 0 | | | | | 2039 | ×0.3607 |
| 2040 | ×0.3468 | 0.00 | 0 | 0.00 | 0 | | | | | 2040 | ×0.3468 |
| 2041 | ×0.3335 | 0.00 | 0 | 0.00 | 0 | | | | | 2041 | ×0.3335 |
| 2042 | ×0.3207 | 0.00 | 0 | 0.00 | 0 | | | | | 2042 | ×0.3207 |
| 2043 | ×0.3083 | 0.00 | 0 | 0.00 | 0 | | | | | 2043 | ×0.3083 |
| 2044 | ×0.2965 | 8.90 | 107 | 7.80 | 202 | | | | | 2044 | ×0.2965 |
| 2045 | ×0.2851 | 8.90 | 107 | 7.80 | 202 | | | | | 2045 | ×0.2851 |
| 2046 | ×0.2741 | 8.90 | 107 | 7.80 | 202 | | | | | 2046 | ×0.2741 |
| 2047 | ×0.2636 | 8.90 | 107 | 7.80 | 202 | | | | | 2047 | ×0.2636 |
| 2048 | ×0.2534 | 8.90 | 107 | 7.80 | 202 | | | | | 2048 | ×0.2534 |
| 2049 | ×0.2437 | 0.00 | 0 | 0.00 | 0 | | | | | 2049 | ×0.2437 |
| | | | | | | | | | | | |
| 合計 | | | | | | | | | | | |

| 間伐 | | | | | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| スギ | | ヒノキ | | | | | | | | | |
| 伐採材積 | 効果額 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 伐採材積 | 効果額 | 効果額 | 現在価値化 |
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| | | | | | | | | | | | |
| 2.90 | 35 | 2.40 | 62 | | | | | | | 13,571 | 13,049 |
| 2.90 | 35 | 2.40 | 62 | | | | | | | 24,660 | 22,801 |
| 2.90 | 35 | 2.40 | 62 | | | | | | | 9,229 | 8,205 |
| 2.90 | 35 | 2.40 | 62 | | | | | | | 21,564 | 18,433 |
| 2.90 | 35 | 2.40 | 62 | | | | | | | 6,436 | 5,290 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 2,982 | 2,357 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 2,982 | 2,266 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 2,982 | 2,179 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 2,982 | 2,095 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 2,982 | 2,015 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 1,230 | 799 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 1,230 | 768 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 1,230 | 739 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 1,230 | 710 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 1,230 | 683 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 1,666 | 889 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 1,666 | 855 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 1,666 | 822 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 1,666 | 791 |
| 1.10 | 13 | 0.90 | 23 | | | | | | | 1,666 | 760 |
| 2.40 | 29 | 2.00 | 52 | | | | | | | 1,844 | 809 |
| 5.40 | 65 | 4.50 | 117 | | | | | | | 1,945 | 821 |
| 7.70 | 93 | 6.50 | 169 | | | | | | | 2,025 | 822 |
| 4.50 | 54 | 3.80 | 99 | | | | | | | 1,916 | 747 |
| 7.20 | 87 | 6.10 | 158 | | | | | | | 2,008 | 753 |
| 2.50 | 30 | 2.10 | 54 | | | | | | | 84 | 30 |
| 1.80 | 22 | 1.50 | 39 | | | | | | | 61 | 21 |
| 1.80 | 22 | 1.50 | 39 | | | | | | | 61 | 20 |
| 1.80 | 22 | 1.50 | 39 | | | | | | | 61 | 20 |
| 1.80 | 22 | 1.50 | 39 | | | | | | | 61 | 19 |
| 0.70 | 8 | 0.60 | 16 | | | | | | | 333 | 99 |
| 3.30 | 40 | 2.70 | 70 | | | | | | | 419 | 119 |
| 5.60 | 67 | 4.70 | 122 | | | | | | | 498 | 137 |
| 2.30 | 28 | 2.00 | 52 | | | | | | | 389 | 103 |
| 5.00 | 60 | 4.30 | 111 | | | | | | | 480 | 122 |
| 1.70 | 20 | 1.50 | 39 | | | | | | | 59 | 14 |
| | | | | | | | | | | | |
| | | | | | | | | | | | 91,162 |
| | | | | | 91,162 | ÷ | 561,063 | × | 348,086 | ＝ | **56,557** |

森林整備経費縮減等便益
森林管理経費縮減便益

8,596

$$B=\sum_{t=1}^{T}\frac{t\times(T0-Tt)\times M\times @}{T\times(1+i)^{t}\times 60}+\sum_{t=T+1}^{Y}\frac{(T0-Tt)\times M\times @}{(1+i)^{t}\times 60}$$

| | | |
|---|---|---|
| T: | 整備期間(年) | 7 |
| Y: | 評価期間 | 47 |
| T0: | 林道を整備する前における森林への往復所要時間(分) | 232 |
| Tt: | 林道を整備した場合の森林への往復所要時間(分) | 84 |
| M: | 管理等の延べ人口数(人／年)<br>京都府調査結果 | 212 |
| @: | 賃金単価(円／h・人)<br>京都府賃金単価 | 938 |
| 60: | 単位合わせのための調整値 | |

| 年度 | 社会的割引率 | t/T | 効果額 | 現在価値化 |
|---|---|---|---|---|
| 2002 | ×1.5395 | | | |
| 2003 | ×1.4802 | 0.1429 | 70 | 104 |
| 2004 | ×1.4233 | 0.2857 | 140 | 199 |
| 2005 | ×1.3686 | 0.4286 | 210 | 287 |
| 2006 | ×1.3159 | 0.5714 | 280 | 368 |
| 2007 | ×1.2653 | 0.7143 | 350 | 443 |
| 2008 | ×1.2167 | 0.8571 | 420 | 511 |
| 2009 | ×1.1699 | 1.0000 | 491 | 574 |
| 2010 | ×1.1249 | 1.0000 | 491 | 552 |
| 2011 | ×1.0816 | 1.0000 | 491 | 531 |
| 2012 | ×1.0400 | 1.0000 | 491 | 511 |
| 2013 | ×1.0000 | 1.0000 | 491 | 491 |
| 2014 | ×0.9615 | 1.0000 | 491 | 472 |
| 2015 | ×0.9246 | 1.0000 | 491 | 454 |
| 2016 | ×0.8890 | 1.0000 | 491 | 436 |
| 2017 | ×0.8548 | 1.0000 | 491 | 420 |
| 2018 | ×0.8219 | 1.0000 | 491 | 404 |
| 2019 | ×0.7903 | 1.0000 | 491 | 388 |
| 2020 | ×0.7599 | 1.0000 | 491 | 373 |
| 2021 | ×0.7307 | 1.0000 | 491 | 359 |
| 2022 | ×0.7026 | 1.0000 | 491 | 345 |
| 2023 | ×0.6756 | 1.0000 | 491 | 332 |
| 2024 | ×0.6496 | 1.0000 | 491 | 319 |
| 2025 | ×0.6246 | 1.0000 | 491 | 307 |
| 2026 | ×0.6006 | 1.0000 | 491 | 295 |
| 2027 | ×0.5775 | 1.0000 | 491 | 284 |
| 2028 | ×0.5553 | 1.0000 | 491 | 273 |
| 2029 | ×0.5339 | 1.0000 | 491 | 262 |
| 2030 | ×0.5134 | 1.0000 | 491 | 252 |
| 2031 | ×0.4936 | 1.0000 | 491 | 242 |
| 2032 | ×0.4746 | 1.0000 | 491 | 233 |
| 2033 | ×0.4564 | 1.0000 | 491 | 224 |
| 2034 | ×0.4388 | 1.0000 | 491 | 215 |
| 2035 | ×0.4220 | 1.0000 | 491 | 207 |
| 2036 | ×0.4057 | 1.0000 | 491 | 199 |
| 2037 | ×0.3901 | 1.0000 | 491 | 192 |
| 2038 | ×0.3751 | 1.0000 | 491 | 184 |
| 2039 | ×0.3607 | 1.0000 | 491 | 177 |
| 2040 | ×0.3468 | 1.0000 | 491 | 170 |
| 2041 | ×0.3335 | 1.0000 | 491 | 164 |
| 2042 | ×0.3207 | 1.0000 | 491 | 157 |
| 2043 | ×0.3083 | 1.0000 | 491 | 151 |
| 2044 | ×0.2965 | 1.0000 | 491 | 146 |
| 2045 | ×0.2851 | 1.0000 | 491 | 140 |
| 2046 | ×0.2741 | 1.0000 | 491 | 135 |
| 2047 | ×0.2636 | 1.0000 | 491 | 129 |
| 2048 | ×0.2534 | 1.0000 | 491 | 124 |
| 2049 | ×0.2437 | 1.0000 | 491 | 120 |
| | | | | 13,855 |

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| 年度 | 社会的割引率 | t/T | 効果額 | 現在価値化 |
|---|---|---|---|---|
| 合計 | | | | 13,855 |

561,063 × 348,086 ＝ **8,596**

**森林整備経費縮減等便益：森林整備促進便益**
**洪水防止便益**
**事業効果区域**

115,534

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(f1-f2) \times \alpha \times A \times U}{360}$$

| | | |
|---|---|---|
| U: | 治水ダムの単位雨量流出量当たりの年間減価償却費（円／㎥／sec）<br>出典:「ダム年鑑2011」 | 3,520,000 |
| f1: | 事業実施前の流出係数<br>出典:「治山設計」（山口伊佐夫著,1979） | 0.65 |
| f2: | 事業実施後、T年経過後の流出係数<br>出典:「治山設計」（山口伊佐夫著,1979） | 0.55 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| α: | 100年確率時雨量（mm/h） | 156 |
| A: | 事業対象区域面積（ha） | 53.80～53.80 |
| 360: | 単位合わせのための調整値 | |
| Y: | 評価期間 | 47 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 53.80 | 17.07 | 2,604 | 3,854 |
| 2004 | ×1.4233 | 53.80 | 18.00 | 2,746 | 3,908 |
| 2005 | ×1.3686 | 53.80 | 18.93 | 2,887 | 3,951 |
| 2006 | ×1.3159 | 53.80 | 19.86 | 3,029 | 3,986 |
| 2007 | ×1.2653 | 53.80 | 23.79 | 3,629 | 4,592 |
| 2008 | ×1.2167 | 53.80 | 27.72 | 4,228 | 5,144 |
| 2009 | ×1.1699 | 53.80 | 28.19 | 4,300 | 5,031 |
| 2010 | ×1.1249 | 53.80 | 28.66 | 4,372 | 4,918 |
| 2011 | ×1.0816 | 53.80 | 29.13 | 4,443 | 4,806 |
| 2012 | ×1.0400 | 53.80 | 29.60 | 4,515 | 4,696 |
| 2013 | ×1.0000 | 53.80 | 29.60 | 4,515 | 4,515 |
| 2014 | ×0.9615 | 53.80 | 25.87 | 3,946 | 3,794 |
| 2015 | ×0.9246 | 53.80 | 22.92 | 3,496 | 3,232 |
| 2016 | ×0.8890 | 53.80 | 30.75 | 4,690 | 4,169 |
| 2017 | ×0.8548 | 53.80 | 34.03 | 5,191 | 4,437 |
| 2018 | ×0.8219 | 53.80 | 40.76 | 6,217 | 5,110 |
| 2019 | ×0.7903 | 53.80 | 47.72 | 7,279 | 5,753 |
| 2020 | ×0.7599 | 53.80 | 49.55 | 7,558 | 5,743 |
| 2021 | ×0.7307 | 53.80 | 50.40 | 7,688 | 5,618 |
| 2022 | ×0.7026 | 53.80 | 51.25 | 7,817 | 5,492 |
| 2023 | ×0.6756 | 53.80 | 52.10 | 7,947 | 5,369 |
| 2024 | ×0.6496 | 53.80 | 53.47 | 8,156 | 5,298 |
| 2025 | ×0.6246 | 53.80 | 53.47 | 8,156 | 5,094 |
| 2026 | ×0.6006 | 53.80 | 53.47 | 8,156 | 4,898 |
| 2027 | ×0.5775 | 53.80 | 53.47 | 8,156 | 4,710 |
| 2028 | ×0.5553 | 53.80 | 53.47 | 8,156 | 4,529 |
| 2029 | ×0.5339 | 53.80 | 53.33 | 8,135 | 4,343 |
| 2030 | ×0.5134 | 53.80 | 53.33 | 8,135 | 4,177 |
| 2031 | ×0.4936 | 53.80 | 53.33 | 8,135 | 4,015 |
| 2032 | ×0.4746 | 53.80 | 53.33 | 8,135 | 3,861 |
| 2033 | ×0.4564 | 53.80 | 53.33 | 8,135 | 3,713 |
| 2034 | ×0.4388 | 53.80 | 53.29 | 8,128 | 3,567 |
| 2035 | ×0.4220 | 53.80 | 53.29 | 8,128 | 3,430 |
| 2036 | ×0.4057 | 53.80 | 53.29 | 8,128 | 3,298 |
| 2037 | ×0.3901 | 53.80 | 53.29 | 8,128 | 3,171 |
| 2038 | ×0.3751 | 53.80 | 53.29 | 8,128 | 3,049 |
| 2039 | ×0.3607 | 53.80 | 53.80 | 8,206 | 2,960 |
| 2040 | ×0.3468 | 53.80 | 53.80 | 8,206 | 2,846 |
| 2041 | ×0.3335 | 53.80 | 53.80 | 8,206 | 2,737 |
| 2042 | ×0.3207 | 53.80 | 53.80 | 8,206 | 2,632 |
| 2043 | ×0.3083 | 53.80 | 53.80 | 8,206 | 2,530 |
| 2044 | ×0.2965 | 53.80 | 53.71 | 8,193 | 2,429 |
| 2045 | ×0.2851 | 53.80 | 53.71 | 8,193 | 2,336 |
| 2046 | ×0.2741 | 53.80 | 53.71 | 8,193 | 2,246 |
| 2047 | ×0.2636 | 53.80 | 53.71 | 8,193 | 2,160 |
| 2048 | ×0.2534 | 53.80 | 53.71 | 8,193 | 2,076 |
| 2049 | ×0.2437 | 53.80 | 53.80 | 8,206 | 2,000 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 186,223 |

186,223 ÷ 561,063 × 348,086 ＝ **115,534**

## 森林整備経費縮減等便益：森林整備促進便益
### 流域貯水便益
### 事業効果区域

18,935

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(D2-D1) \times A \times P \times U \times 10}{365 \times 86400}$$

| | | |
|---|---|---|
| A: | 事業対象区域面積（ha） | 53.80～53.80 |
| P: | 年間平均降雨量（mm／年）<br>京都地方気象台データ | 1,519 |
| D1: | 事業実施前の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.51 |
| D2: | 事業実施後、T年経過後の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.56 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| U: | 開発流量当りの利水ダム年間減価償却費（円／m3／S）<br>出典：「ダム年鑑2011」 | 1,038,000,000 |
| Y: | 評価期間 | 55 |
| 10: | 単位合わせのための調整値 | |
| 365: | 1年間の日数 | |
| 86400: | 1日の秒数 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 53.80 | 17.07 | 427 | 632 |
| 2004 | ×1.4233 | 53.80 | 18.00 | 450 | 640 |
| 2005 | ×1.3686 | 53.80 | 18.93 | 473 | 647 |
| 2006 | ×1.3159 | 53.80 | 19.86 | 496 | 653 |
| 2007 | ×1.2653 | 53.80 | 23.79 | 595 | 753 |
| 2008 | ×1.2167 | 53.80 | 27.72 | 693 | 843 |
| 2009 | ×1.1699 | 53.80 | 28.19 | 705 | 825 |
| 2010 | ×1.1249 | 53.80 | 28.66 | 716 | 805 |
| 2011 | ×1.0816 | 53.80 | 29.13 | 728 | 787 |
| 2012 | ×1.0400 | 53.80 | 29.60 | 740 | 770 |
| 2013 | ×1.0000 | 53.80 | 29.60 | 740 | 740 |
| 2014 | ×0.9615 | 53.80 | 25.87 | 647 | 622 |
| 2015 | ×0.9246 | 53.80 | 22.92 | 573 | 530 |
| 2016 | ×0.8890 | 53.80 | 30.75 | 769 | 684 |
| 2017 | ×0.8548 | 53.80 | 34.03 | 851 | 727 |
| 2018 | ×0.8219 | 53.80 | 40.76 | 1,019 | 838 |
| 2019 | ×0.7903 | 53.80 | 47.72 | 1,193 | 943 |
| 2020 | ×0.7599 | 53.80 | 49.55 | 1,239 | 942 |
| 2021 | ×0.7307 | 53.80 | 50.40 | 1,260 | 921 |
| 2022 | ×0.7026 | 53.80 | 51.25 | 1,281 | 900 |
| 2023 | ×0.6756 | 53.80 | 52.10 | 1,302 | 880 |
| 2024 | ×0.6496 | 53.80 | 53.47 | 1,337 | 869 |
| 2025 | ×0.6246 | 53.80 | 53.47 | 1,337 | 835 |
| 2026 | ×0.6006 | 53.80 | 53.47 | 1,337 | 803 |
| 2027 | ×0.5775 | 53.80 | 53.47 | 1,337 | 772 |
| 2028 | ×0.5553 | 53.80 | 53.47 | 1,337 | 742 |
| 2029 | ×0.5339 | 53.80 | 53.33 | 1,333 | 712 |
| 2030 | ×0.5134 | 53.80 | 53.33 | 1,333 | 684 |
| 2031 | ×0.4936 | 53.80 | 53.33 | 1,333 | 658 |
| 2032 | ×0.4746 | 53.80 | 53.33 | 1,333 | 633 |
| 2033 | ×0.4564 | 53.80 | 53.33 | 1,333 | 608 |
| 2034 | ×0.4388 | 53.80 | 53.29 | 1,332 | 584 |
| 2035 | ×0.4220 | 53.80 | 53.29 | 1,332 | 562 |
| 2036 | ×0.4057 | 53.80 | 53.29 | 1,332 | 540 |
| 2037 | ×0.3901 | 53.80 | 53.29 | 1,332 | 520 |
| 2038 | ×0.3751 | 53.80 | 53.29 | 1,332 | 500 |
| 2039 | ×0.3607 | 53.80 | 53.80 | 1,345 | 485 |
| 2040 | ×0.3468 | 53.80 | 53.80 | 1,345 | 466 |
| 2041 | ×0.3335 | 53.80 | 53.80 | 1,345 | 449 |
| 2042 | ×0.3207 | 53.80 | 53.80 | 1,345 | 431 |
| 2043 | ×0.3083 | 53.80 | 53.80 | 1,345 | 415 |
| 2044 | ×0.2965 | 53.80 | 53.71 | 1,343 | 398 |
| 2045 | ×0.2851 | 53.80 | 53.71 | 1,343 | 383 |
| 2046 | ×0.2741 | 53.80 | 53.71 | 1,343 | 368 |
| 2047 | ×0.2636 | 53.80 | 53.71 | 1,343 | 354 |
| 2048 | ×0.2534 | 53.80 | 53.71 | 1,343 | 340 |
| 2049 | ×0.2437 | 53.80 | 53.80 | 1,345 | 328 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 30,521 |

30,521 ÷ 561,063 × 348,086 ＝ **18,935**

## 森林整備経費縮減等便益：森林整備促進便益
### 水質浄化便益
### 事業効果区域

49,863

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times (D2-D1) \times A \times P \times u \times 10$$

$$u = \frac{Ux \times Qx + Uy \times Qy}{Qx + Qy}$$

| | | |
|---|---|---|
| Qx: | 全貯留量のうち生活用水使用相当量<br>出典：平成24年度版「日本の水資源」 | 6.80 億 |
| Qy: | 全貯留量ーQx | 16.29 億 |
| A: | 事業対象区域面積（ha） | 53.80～53.80 |
| P: | 年間平均降雨量（mm／年）<br>京都地方気象台データ | 1,519 |
| T: | 事業実施後、貯留率が安定するのに必要な年数 | 15 |
| D1: | 事業実施前の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.51 |
| D2: | 事業実施後、T年経過後の貯留率<br>出典：「森林の間伐と水収支」（近嵐ら、1987） | 0.56 |
| Ux: | 単位当たりの上水道給水原価（円／m3）<br>出典：「日本の水資源」 | 130.00 |
| Uy: | 単位当たりの雨水浄化費（円／m3）<br>出典：「地球環境・人間生活にかかる農業及び森林の多面的な機能の評価に関する調査研究報告書」（三菱総合研究所,H13.11）「雨水利用ハンドブック」 | 68.60 |
| u: | 単位当たりの水質浄化費（U x とU y を用いてQ x とQ yで比例按分して算出） | 86.68 |
| Y: | 評価期間 | 55 |
| 10: | 単位合わせのための調整値 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 53.80 | 17.07 | 1,124 | 1,664 |
| 2004 | ×1.4233 | 53.80 | 18.00 | 1,185 | 1,687 |
| 2005 | ×1.3686 | 53.80 | 18.93 | 1,246 | 1,705 |
| 2006 | ×1.3159 | 53.80 | 19.86 | 1,307 | 1,720 |
| 2007 | ×1.2653 | 53.80 | 23.79 | 1,566 | 1,981 |
| 2008 | ×1.2167 | 53.80 | 27.72 | 1,825 | 2,220 |
| 2009 | ×1.1699 | 53.80 | 28.19 | 1,856 | 2,171 |
| 2010 | ×1.1249 | 53.80 | 28.66 | 1,887 | 2,123 |
| 2011 | ×1.0816 | 53.80 | 29.13 | 1,918 | 2,075 |
| 2012 | ×1.0400 | 53.80 | 29.60 | 1,949 | 2,027 |
| 2013 | ×1.0000 | 53.80 | 29.60 | 1,949 | 1,949 |
| 2014 | ×0.9615 | 53.80 | 25.87 | 1,703 | 1,637 |
| 2015 | ×0.9246 | 53.80 | 22.92 | 1,509 | 1,395 |
| 2016 | ×0.8890 | 53.80 | 30.75 | 2,024 | 1,799 |
| 2017 | ×0.8548 | 53.80 | 34.03 | 2,240 | 1,915 |
| 2018 | ×0.8219 | 53.80 | 40.76 | 2,683 | 2,205 |
| 2019 | ×0.7903 | 53.80 | 47.72 | 3,142 | 2,483 |
| 2020 | ×0.7599 | 53.80 | 49.55 | 3,262 | 2,479 |
| 2021 | ×0.7307 | 53.80 | 50.40 | 3,318 | 2,424 |
| 2022 | ×0.7026 | 53.80 | 51.25 | 3,374 | 2,371 |
| 2023 | ×0.6756 | 53.80 | 52.10 | 3,430 | 2,317 |
| 2024 | ×0.6496 | 53.80 | 53.47 | 3,520 | 2,287 |
| 2025 | ×0.6246 | 53.80 | 53.47 | 3,520 | 2,199 |
| 2026 | ×0.6006 | 53.80 | 53.47 | 3,520 | 2,114 |
| 2027 | ×0.5775 | 53.80 | 53.47 | 3,520 | 2,033 |
| 2028 | ×0.5553 | 53.80 | 53.47 | 3,520 | 1,955 |
| 2029 | ×0.5339 | 53.80 | 53.33 | 3,511 | 1,875 |
| 2030 | ×0.5134 | 53.80 | 53.33 | 3,511 | 1,803 |
| 2031 | ×0.4936 | 53.80 | 53.33 | 3,511 | 1,733 |
| 2032 | ×0.4746 | 53.80 | 53.33 | 3,511 | 1,666 |
| 2033 | ×0.4564 | 53.80 | 53.33 | 3,511 | 1,602 |
| 2034 | ×0.4388 | 53.80 | 53.29 | 3,508 | 1,539 |
| 2035 | ×0.4220 | 53.80 | 53.29 | 3,508 | 1,480 |
| 2036 | ×0.4057 | 53.80 | 53.29 | 3,508 | 1,423 |
| 2037 | ×0.3901 | 53.80 | 53.29 | 3,508 | 1,368 |
| 2038 | ×0.3751 | 53.80 | 53.29 | 3,508 | 1,316 |
| 2039 | ×0.3607 | 53.80 | 53.80 | 3,542 | 1,278 |
| 2040 | ×0.3468 | 53.80 | 53.80 | 3,542 | 1,228 |
| 2041 | ×0.3335 | 53.80 | 53.80 | 3,542 | 1,181 |
| 2042 | ×0.3207 | 53.80 | 53.80 | 3,542 | 1,136 |
| 2043 | ×0.3083 | 53.80 | 53.80 | 3,542 | 1,092 |
| 2044 | ×0.2965 | 53.80 | 53.71 | 3,536 | 1,048 |
| 2045 | ×0.2851 | 53.80 | 53.71 | 3,536 | 1,008 |
| 2046 | ×0.2741 | 53.80 | 53.71 | 3,536 | 969 |
| 2047 | ×0.2636 | 53.80 | 53.71 | 3,536 | 932 |
| 2048 | ×0.2534 | 53.80 | 53.71 | 3,536 | 896 |
| 2049 | ×0.2437 | 53.80 | 53.80 | 3,542 | 863 |
| | | | | | |
| | | | | | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| | | | | | |
| 合計 | | | | | 80,371 |

80,371 ÷ 561,063 × 348,086 ＝ **49,863**

森林整備経費縮減等便益：森林整備促進便益
土砂流出防止便益
事業効果区域

79,320

$$B = \left[ \sum_{t=1}^{T-1} \frac{t}{T \times (1+i)^{t}} + \sum_{t=T}^{Y} \frac{1}{(1+i)^{t}} \right] \times \frac{(V1-V2) \times A \times U}{1.0}$$

| | | |
|---|---|---|
| U: | 1m3の土砂を保全するために要する単位当たりの砂防ダム建設コスト（円／m3）<br>出典：「砂防便覧」平成20年版 | 5,600 |
| V1: | 事業実施前における1ha当りの年間浸食土砂量（m3）<br>出典：「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 20.00 |
| V2: | 事業実施後における1ha当りの年間浸食土砂量（m3）<br>出典：「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 1.30 |
| A: | 事業対象区域面積（ha） | 53.80～53.80 |
| T: | 事業実施後、流出係数が安定するのに必要な年数 | 15 |
| Y: | 評価期間 | 55 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 53.80 | 17.07 | 1,788 | 2,647 |
| 2004 | ×1.4233 | 53.80 | 18.00 | 1,885 | 2,683 |
| 2005 | ×1.3686 | 53.80 | 18.93 | 1,982 | 2,713 |
| 2006 | ×1.3159 | 53.80 | 19.86 | 2,080 | 2,737 |
| 2007 | ×1.2653 | 53.80 | 23.79 | 2,491 | 3,152 |
| 2008 | ×1.2167 | 53.80 | 27.72 | 2,903 | 3,532 |
| 2009 | ×1.1699 | 53.80 | 28.19 | 2,952 | 3,454 |
| 2010 | ×1.1249 | 53.80 | 28.66 | 3,001 | 3,376 |
| 2011 | ×1.0816 | 53.80 | 29.13 | 3,050 | 3,299 |
| 2012 | ×1.0400 | 53.80 | 29.60 | 3,100 | 3,224 |
| 2013 | ×1.0000 | 53.80 | 29.60 | 3,100 | 3,100 |
| 2014 | ×0.9615 | 53.80 | 25.87 | 2,709 | 2,605 |
| 2015 | ×0.9246 | 53.80 | 22.92 | 2,400 | 2,219 |
| 2016 | ×0.8890 | 53.80 | 30.75 | 3,220 | 2,863 |
| 2017 | ×0.8548 | 53.80 | 34.03 | 3,564 | 3,047 |
| 2018 | ×0.8219 | 53.80 | 40.76 | 4,268 | 3,508 |
| 2019 | ×0.7903 | 53.80 | 47.72 | 4,997 | 3,949 |
| 2020 | ×0.7599 | 53.80 | 49.55 | 5,189 | 3,943 |
| 2021 | ×0.7307 | 53.80 | 50.40 | 5,278 | 3,857 |
| 2022 | ×0.7026 | 53.80 | 51.25 | 5,367 | 3,771 |
| 2023 | ×0.6756 | 53.80 | 52.10 | 5,456 | 3,686 |
| 2024 | ×0.6496 | 53.80 | 53.47 | 5,599 | 3,637 |
| 2025 | ×0.6246 | 53.80 | 53.47 | 5,599 | 3,497 |
| 2026 | ×0.6006 | 53.80 | 53.47 | 5,599 | 3,363 |
| 2027 | ×0.5775 | 53.80 | 53.47 | 5,599 | 3,233 |
| 2028 | ×0.5553 | 53.80 | 53.47 | 5,599 | 3,109 |
| 2029 | ×0.5339 | 53.80 | 53.33 | 5,585 | 2,982 |
| 2030 | ×0.5134 | 53.80 | 53.33 | 5,585 | 2,867 |
| 2031 | ×0.4936 | 53.80 | 53.33 | 5,585 | 2,757 |
| 2032 | ×0.4746 | 53.80 | 53.33 | 5,585 | 2,651 |
| 2033 | ×0.4564 | 53.80 | 53.33 | 5,585 | 2,549 |
| 2034 | ×0.4388 | 53.80 | 53.29 | 5,581 | 2,449 |
| 2035 | ×0.4220 | 53.80 | 53.29 | 5,581 | 2,355 |
| 2036 | ×0.4057 | 53.80 | 53.29 | 5,581 | 2,264 |
| 2037 | ×0.3901 | 53.80 | 53.29 | 5,581 | 2,177 |
| 2038 | ×0.3751 | 53.80 | 53.29 | 5,581 | 2,093 |
| 2039 | ×0.3607 | 53.80 | 53.80 | 5,634 | 2,032 |
| 2040 | ×0.3468 | 53.80 | 53.80 | 5,634 | 1,954 |
| 2041 | ×0.3335 | 53.80 | 53.80 | 5,634 | 1,879 |
| 2042 | ×0.3207 | 53.80 | 53.80 | 5,634 | 1,807 |
| 2043 | ×0.3083 | 53.80 | 53.80 | 5,634 | 1,737 |
| 2044 | ×0.2965 | 53.80 | 53.71 | 5,625 | 1,668 |
| 2045 | ×0.2851 | 53.80 | 53.71 | 5,625 | 1,604 |
| 2046 | ×0.2741 | 53.80 | 53.71 | 5,625 | 1,542 |
| 2047 | ×0.2636 | 53.80 | 53.71 | 5,625 | 1,483 |
| 2048 | ×0.2534 | 53.80 | 53.71 | 5,625 | 1,425 |
| 2049 | ×0.2437 | 53.80 | 53.80 | 5,634 | 1,373 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 事業効果面積 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 127,852 |

127,852 ÷ 561,063 × 348,086 ＝ **79,320**

## 森林整備経費縮減等便益：森林整備促進便益
### 土砂崩壊防止便益
### 事業効果区域

2,519

$$B = \sum_{t=11}^{Y} \frac{V \times U}{(1+i)^{t}}$$

$$V = 0.01 \times A \times R \times N \times H \times 10{,}000$$

| | | |
|---|---|---|
| U: | 1m3の土砂を保全するために要する単位当たりの砂防ダム建設コスト（円／m3）<br>出典：「砂防便覧」平成20年版 | 5,600 |
| V: | 崩壊見込み量（m3/年） | 14.43～139.89 |
| A: | 事業対象区域面積（ha） | 53.80～53.80 |
| R: | 流域内崩壊率　112 淀川<br>出典：「治山全体調査」S42からS46 | 0.0033 |
| N: | 雨量比＝50年確率日雨量／既往最大日雨量<br>雨量強度表及び京都地方気象台データ | 0.3600 |
| H: | 平均崩壊深（m）<br>出典：「治山全体調査の考え方進め方」「森林の公益的機能に関する文献要約集」「森林水文」 | 5.0 |
| Y: | 評価期間 | 55 |
| 10,000: | 単位合わせのための調整値 | |

| 年度 | 社会的割引率 | 事業対象区域面積 | 崩壊見込み量 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 2002 | ×1.5395 | | | | |
| 2003 | ×1.4802 | 53.80 | 10.14 | 57 | 84 |
| 2004 | ×1.4233 | 53.80 | 10.69 | 60 | 85 |
| 2005 | ×1.3686 | 53.80 | 11.24 | 63 | 86 |
| 2006 | ×1.3159 | 53.80 | 11.80 | 66 | 87 |
| 2007 | ×1.2653 | 53.80 | 14.13 | 79 | 100 |
| 2008 | ×1.2167 | 53.80 | 16.47 | 92 | 112 |
| 2009 | ×1.1699 | 53.80 | 16.74 | 94 | 110 |
| 2010 | ×1.1249 | 53.80 | 17.02 | 95 | 107 |
| 2011 | ×1.0816 | 53.80 | 17.30 | 97 | 105 |
| 2012 | ×1.0400 | 53.80 | 17.58 | 98 | 102 |
| 2013 | ×1.0000 | 53.80 | 17.58 | 98 | 98 |
| 2014 | ×0.9615 | 53.80 | 15.37 | 86 | 83 |
| 2015 | ×0.9246 | 53.80 | 13.61 | 76 | 70 |
| 2016 | ×0.8890 | 53.80 | 18.27 | 102 | 91 |
| 2017 | ×0.8548 | 53.80 | 20.21 | 113 | 97 |
| 2018 | ×0.8219 | 53.80 | 24.21 | 136 | 112 |
| 2019 | ×0.7903 | 53.80 | 28.35 | 159 | 126 |
| 2020 | ×0.7599 | 53.80 | 29.43 | 165 | 125 |
| 2021 | ×0.7307 | 53.80 | 29.94 | 168 | 123 |
| 2022 | ×0.7026 | 53.80 | 30.44 | 170 | 119 |
| 2023 | ×0.6756 | 53.80 | 30.95 | 173 | 117 |
| 2024 | ×0.6496 | 53.80 | 31.76 | 178 | 116 |
| 2025 | ×0.6246 | 53.80 | 31.76 | 178 | 111 |
| 2026 | ×0.6006 | 53.80 | 31.76 | 178 | 107 |
| 2027 | ×0.5775 | 53.80 | 31.76 | 178 | 103 |
| 2028 | ×0.5553 | 53.80 | 31.76 | 178 | 99 |
| 2029 | ×0.5339 | 53.80 | 31.68 | 177 | 95 |
| 2030 | ×0.5134 | 53.80 | 31.68 | 177 | 91 |
| 2031 | ×0.4936 | 53.80 | 31.68 | 177 | 87 |
| 2032 | ×0.4746 | 53.80 | 31.68 | 177 | 84 |
| 2033 | ×0.4564 | 53.80 | 31.68 | 177 | 81 |
| 2034 | ×0.4388 | 53.80 | 31.65 | 177 | 78 |
| 2035 | ×0.4220 | 53.80 | 31.65 | 177 | 75 |
| 2036 | ×0.4057 | 53.80 | 31.65 | 177 | 72 |
| 2037 | ×0.3901 | 53.80 | 31.65 | 177 | 69 |
| 2038 | ×0.3751 | 53.80 | 31.65 | 177 | 66 |
| 2039 | ×0.3607 | 53.80 | 31.96 | 179 | 65 |
| 2040 | ×0.3468 | 53.80 | 31.96 | 179 | 62 |
| 2041 | ×0.3335 | 53.80 | 31.96 | 179 | 60 |
| 2042 | ×0.3207 | 53.80 | 31.96 | 179 | 57 |
| 2043 | ×0.3083 | 53.80 | 31.96 | 179 | 55 |
| 2044 | ×0.2965 | 53.80 | 31.90 | 179 | 53 |
| 2045 | ×0.2851 | 53.80 | 31.90 | 179 | 51 |
| 2046 | ×0.2741 | 53.80 | 31.90 | 179 | 49 |
| 2047 | ×0.2636 | 53.80 | 31.90 | 179 | 47 |
| 2048 | ×0.2534 | 53.80 | 31.90 | 179 | 45 |
| 2049 | ×0.2437 | 53.80 | 31.96 | 179 | 44 |

| 年度 | 社会的割引率 | 事業対象区域面積 | 崩壊見込み量 | 効果額 | 現在価値化 |
|---|---|---|---|---|---|
| 合計 | | | | | 4,061 |

4,061 ÷ 561,063 × 348,086 ＝ **2,519**

## 森林整備経費縮減等便益：森林整備促進便益

18,437

### 炭素固定便益

#### 樹木固定分

$$B = \sum_{t=1}^{Y} \frac{V2 - V1}{Y \times (1+i)^{t}} \times D \times BEF \times (1 + R) \times 0.5 \times \frac{44}{12} \times U$$

| | | | |
|---|---|---|---|
| U: | 二酸化炭素に関する原単位(円/CO2-ton)<br>出典:「二酸化炭素地中貯留技術研究開発成果報告書」(財)地球環境産業技術研究機構(平成18年3月) | | 6,046 |
| V1: | 事業を実施しない場合の評価最終年の当該森林の見込蓄積量(m3)<br>算出表 | スギ<br>ヒノキ | 1,566<br>3,184 |
| V2: | 事業を実施する場合の評価最終年の当該森林の見込蓄積量(m3)<br>算出表 | スギ<br>ヒノキ | 3,131<br>6,367 |
| Y: | 評価期間 | | 47 |
| D : | 容積密度(t/m 3)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | スギ<br>ヒノキ | 0.314<br>0.407 |
| BEF: | バイオマス拡大係数(地上部バイオマス量／幹バイオマス量)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | 樹齢20年越<br>樹齢20年越 | スギ<br>ヒノキ | 1.23<br>1.24 |
| R : | 地上部に対する地下部の比率( 地下部バイオマス量／ 地上部バイオマス量)<br>出典:「日本国温室効果ガスインベントリ報告書」(2011年4月)(国立環境研究所温室効果ガスインベントリオフィス編) | スギ<br>ヒノキ | 0.25<br>0.26 |
| 0.5: | 植物中の炭素含有率 | | |
| 44/12: | 炭素から二酸化炭素への換算係数 | | |

| | | スギ | | ヒノキ | | | | | | | | 合計 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 年度 | 社会的割引率 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 事業効果蓄積 | 効果額 | 効果額 | 現在価値化 |
| 2002 | ×1.5395 | | | | | | | | | | | | |
| 2003 | ×1.4802 | 78.91 | 422 | 160.50 | 1,132 | | | | | | | 1,554 | 2,300 |
| 2004 | ×1.4233 | 75.88 | 406 | 154.33 | 1,088 | | | | | | | 1,494 | 2,126 |
| 2005 | ×1.3686 | 72.96 | 390 | 148.39 | 1,046 | | | | | | | 1,436 | 1,965 |
| 2006 | ×1.3159 | 70.15 | 375 | 142.68 | 1,006 | | | | | | | 1,381 | 1,817 |
| 2007 | ×1.2653 | 67.46 | 361 | 137.20 | 967 | | | | | | | 1,328 | 1,680 |
| 2008 | ×1.2167 | 64.86 | 347 | 131.92 | 930 | | | | | | | 1,277 | 1,554 |
| 2009 | ×1.1699 | 62.37 | 334 | 126.84 | 894 | | | | | | | 1,228 | 1,437 |
| 2010 | ×1.1249 | 59.97 | 321 | 121.97 | 860 | | | | | | | 1,181 | 1,329 |
| 2011 | ×1.0816 | 57.66 | 308 | 117.28 | 827 | | | | | | | 1,135 | 1,228 |
| 2012 | ×1.0400 | 55.44 | 297 | 112.76 | 795 | | | | | | | 1,092 | 1,136 |
| 2013 | ×1.0000 | 53.31 | 285 | 108.43 | 764 | | | | | | | 1,049 | 1,049 |
| 2014 | ×0.9615 | 51.26 | 274 | 104.26 | 735 | | | | | | | 1,009 | 970 |
| 2015 | ×0.9246 | 49.29 | 264 | 100.25 | 707 | | | | | | | 971 | 898 |
| 2016 | ×0.8890 | 47.39 | 254 | 96.39 | 680 | | | | | | | 934 | 830 |
| 2017 | ×0.8548 | 45.57 | 244 | 92.68 | 653 | | | | | | | 897 | 767 |
| 2018 | ×0.8219 | 43.82 | 234 | 89.12 | 628 | | | | | | | 862 | 708 |
| 2019 | ×0.7903 | 42.13 | 225 | 85.69 | 604 | | | | | | | 829 | 655 |
| 2020 | ×0.7599 | 40.51 | 217 | 82.40 | 581 | | | | | | | 798 | 606 |
| 2021 | ×0.7307 | 38.95 | 208 | 79.23 | 559 | | | | | | | 767 | 560 |
| 2022 | ×0.7026 | 37.46 | 200 | 76.18 | 537 | | | | | | | 737 | 518 |
| 2023 | ×0.6756 | 36.01 | 193 | 73.25 | 516 | | | | | | | 709 | 479 |
| 2024 | ×0.6496 | 34.63 | 185 | 70.43 | 497 | | | | | | | 682 | 443 |
| 2025 | ×0.6246 | 33.30 | 178 | 67.72 | 477 | | | | | | | 655 | 409 |
| 2026 | ×0.6006 | 32.02 | 171 | 65.12 | 459 | | | | | | | 630 | 378 |
| 2027 | ×0.5775 | 30.79 | 165 | 62.61 | 441 | | | | | | | 606 | 350 |
| 2028 | ×0.5553 | 29.60 | 158 | 60.21 | 424 | | | | | | | 582 | 323 |
| 2029 | ×0.5339 | 28.46 | 152 | 57.89 | 408 | | | | | | | 560 | 299 |
| 2030 | ×0.5134 | 27.37 | 146 | 55.66 | 392 | | | | | | | 538 | 276 |
| 2031 | ×0.4936 | 26.32 | 141 | 53.52 | 377 | | | | | | | 518 | 256 |
| 2032 | ×0.4746 | 25.30 | 135 | 51.46 | 363 | | | | | | | 498 | 236 |
| 2033 | ×0.4564 | 24.33 | 130 | 49.48 | 349 | | | | | | | 479 | 219 |
| 2034 | ×0.4388 | 23.39 | 125 | 47.58 | 335 | | | | | | | 460 | 202 |
| 2035 | ×0.4220 | 22.49 | 120 | 45.75 | 323 | | | | | | | 443 | 187 |
| 2036 | ×0.4057 | 21.63 | 116 | 43.99 | 310 | | | | | | | 426 | 173 |
| 2037 | ×0.3901 | 20.80 | 111 | 42.30 | 298 | | | | | | | 409 | 160 |
| 2038 | ×0.3751 | 20.00 | 107 | 40.67 | 287 | | | | | | | 394 | 148 |
| 2039 | ×0.3607 | 19.23 | 103 | 39.11 | 276 | | | | | | | 379 | 137 |
| 2040 | ×0.3468 | 18.49 | 99 | 37.60 | 265 | | | | | | | 364 | 126 |
| 2041 | ×0.3335 | 17.78 | 95 | 36.16 | 255 | | | | | | | 350 | 117 |
| 2042 | ×0.3207 | 17.09 | 91 | 34.77 | 245 | | | | | | | 336 | 108 |
| 2043 | ×0.3083 | 16.44 | 88 | 33.43 | 236 | | | | | | | 324 | 100 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2044 | ×0.2965 | 15.80 | 85 | 32.14 | 227 | | | | | | | 312 | 93 |
| 2045 | ×0.2851 | 15.20 | 81 | 30.91 | 218 | | | | | | | 299 | 85 |
| 2046 | ×0.2741 | 14.61 | 78 | 29.72 | 210 | | | | | | | 288 | 79 |
| 2047 | ×0.2636 | 14.05 | 75 | 28.58 | 201 | | | | | | | 276 | 73 |
| 2048 | ×0.2534 | 13.51 | 72 | 27.48 | 194 | | | | | | | 266 | 67 |
| 2049 | ×0.2437 | 12.99 | 69 | 26.42 | 186 | | | | | | | 255 | 62 |
| 合計 | | | | | | | | | | | | | 29,718 |

29,718 ÷ 561,063 × 348,086 ＝ **18,437**