

Forest Research and Management Organization
(National Research and Development Agency) (Water Source Forest Account)

<http://www.ffpri.affrc.go.jp/>

1. Summary of operations implemented using FILP funds

Forestation for Water Conservation (The Forest Research and Management Organization, aiming at conserving headwaters, bears expenses for the project to plant water reservoir forests, conserve water resources indispensable to people's lives, preserve national land and prevent global warming in private sector forests where planting cannot be advanced only through forestry production activities under forest owners' own initiatives, although planting is necessary.)

Note: Operations not eligible for FILP include the expenses for planting since FY2002.

2. Amount of lending under FY2021 FILP

(Unit: billion yen)

FY2021 FILP	Estimated outstanding amount of FILP lending at the end of FY2020
5.1	103.6

3. Estimated policy cost analysis of the project

(1) Policy cost (Unit: billion yen)

Category	FY2020	FY2021	Fluctuation
1. Government expenditure (subsidies, etc.)	3.7	2.9	-0.9
2. Government revenue (payments to the government, etc.)*1	-	-	-
3. Opportunity cost of capital investments, etc.	690.0	731.3	+41.3
Total (1+2+3=policy cost(A))	693.7	734.1	+40.4
Analysis period (years)	89 years	89 years	-

(2) Breakdown of policy cost by the time of the provision of funds (Unit: billion yen)

Category	FY2020	FY2021	Fluctuation
(A) Policy cost (previously cited)	693.7	734.1	+40.4
1) Opportunity cost of capital investments, etc. provided before the beginning of the analysis period	285.0	353.7	+68.7
2) Policy cost expected to be newly accrued during the analysis period	408.7	380.4	-28.3
Government expenditure (subsidies, etc.)	3.7	2.9	-0.9
Government revenue (payments to the government, etc.)*1	-	-	-
Opportunity cost of surplus, etc.	364.8	327.9	-37.0
Opportunity cost of capital investments, etc.	40.1	49.7	+9.6

(4) Sensitivity analysis (cases where assumptions change)

(Unit: billion yen)

(A) Policy cost (previously cited)	Case before the negative interest rate policy*2	Fluctuation	1. Government expenditure (subsidies, etc.)	2. Government revenue (payments to the government, etc.)*1	3. Opportunity cost of capital investments, etc.
			734.1	760.4	+26.3

(A) Policy cost (previously cited)	Case of a 1% decrease in operating revenues	Fluctuation	1. Government expenditure (subsidies, etc.)	2. Government revenue (payments to the government, etc.)*1	3. Opportunity cost of capital investments, etc.
			734.1	735.6	+1.4

(3) Year-to-Year comparison analysis

(Computing any fluctuation from previous year)

(Unit: billion yen)

Policy cost		FY2020	FY2021	Simple fluctuation
		Simple comparison (before adjustment)	693.7	734.1
Past year comparison (after adjustment)	1) Adjusting initial years (Analysis results after adjusting initial year to that for FY2021 analysis)	692.6	721.2	+28.6
	2) Adjusting assumed interest rates (Analysis results of re-estimation using assumed interest rate for FY2020)			Real fluctuation (2-1)

【Real fluctuation factor analysis】

○Factors behind policy cost increase

- Increase in cost due to a decrease in revenue from sales of timber from developed forests (+17.6 billion yen)

- Increase in cost due to rise in operating expense (+11.0 billion yen)

○Factors behind policy cost decrease

-None

(Note) Components in each column may not add up to the total because of rounding

*1 Government revenue (payments to the government, etc.) is booked as a negative amount. Example: -10 b. yen for 10 b. yen in payments to government, etc.

*2 Assumed interest rates (discount factor and future interest rate) are based on the market yield on Japanese government bonds on January 28, 2016, before the introduction of the negative interest rate policy.

4. Outline of estimation and project prospect employed in the analysis

【Outline of estimation】

- 1) Regarding the Forestation Project for Water Conservation out of the various projects undertaken by the Organization, the analysis covers the operating expenses for a period ending when the portions of the project that had started by FY2001 will be completed. In the project, expenses were calculated in regard to the following works: The afforestation and water source special forests development projects which have started in FY2002 and thereafter, are excluded from the analysis because they are fully subsidized. Therefore, the forest development and management expenses of approx. 405,000 hectares which were afforested in and prior to FY2001 are calculated until the completion of the project. (Total operating expenses in FY2021 and thereafter: 281.1 billion yen)
- 2) The analysis period: Forestation for Water Conservation: 89 years until all lumbering is completed (89 years in FY2020).
- 3) Operating revenue (revenue from sales of timber from developed forests) is estimated based on the most recent timber prices
- 4) The simulation of the future development of the projects has been done based on assumptions set based on the above-described way of thinking. Then, the amounts of investment, subsidies and grants-in-aid required for the implementation of these projects are calculated based on the simulation.

【Project prospect】

The required expenses are covered by financial resources including capital investment and loans until FY2040. Subsequently, revenues from the sale of timber from developed forests will be gradually used as the fund source for loan repayments. The period during which revenues from the sale of timber from developed forests are expected is until FY2109, when land afforested in and prior to FY2001 is expected to have matured and have been deforested.

(Unit: billion yen)

FY	Result				Estimated 2020	Planned 2021	Assumptions for calculation	
	2016	2017	2018	2019			2022-2109	
Operational income	0.41	0.66	0.57	0.62	0.46	0.51	194.8	Based on harvest schedule

*Operational income does not include compensation for administrative expenses related to sales and contract cancellation.

5. Reasons for granting of subsidies, mechanism and underlying laws

This is a public project for the development of forests at water source locations as parts of protected forests, such as non-forest, sparsely wooded land and degraded forestland, for the purpose of securing stable water resources and preserving national land. Therefore, for the project expenses, excluding internal revenue sources, the project accepts capital investments (2/3 of expenses for planting before FY2001) and subsidies (the entirety of the expenses for planting and growing since FY2002 and for special measures for water source forests, as well as the amount equivalent to 2/3 of interest payable on loans) from the General Account.

(Underlying laws and regulations)

(Capital investment)

"Act on the Forest Research and Management Organization, National Research and Development Agency"

(Capital)

Article 6: The capital of the Organization shall be the amount of funds provided by the Government as provided for in Article 5, Paragraph 2 of the Supplementary Provisions of the Act.

- 2 The government may grant the Agency additional funding if deemed to be necessary within the scope provided for in the budget.
- 3 (Omitted)

(Subsidies)

Budgetary measure

(Payments to the National Treasury)

"Act on the Forest Research and Management Organization, National Research and Development Agency"

Article 17: After the disposition related to the last business year of the medium- to long-term objective period prescribed in Article 35-4, paragraph (2), item (i) of the Act on General Rules (hereinafter referred to as the medium- to long-term objective period in this paragraph and paragraph (4)) based on the provisions of Article 44, paragraph (1) or (2) of said Act, in each account related to the operations described in the preceding Article, items (i) and (ii), and if there are reserve funds specified in paragraph (1) of said Article, the Organization may appropriate the amount approved by the Minister of Agriculture, Forestry and Fisheries among the amount corresponding to such funds to the operations prescribed in Article 13, paragraph (1) during the next medium- to long-term objective period as provided by the medium- to long-term plan approved under Article 35-5, paragraph (1) of said Act concerning the next period of such medium- to long-term objective period (when the approval was obtained on the revisions according to the latter clause of Article 35-5, paragraph (1) of said Act, then as provided by the revised version).

- 2 When the Organization has a surplus after deducting the amount approved in paragraph (1) from the reserve amount stipulated in the same clause, it shall pay the surplus to the national treasury.

3 to 5 (Omitted)

6. Special remarks

None

(Reference) Outcome and social and economic benefits of operations

In Forestation for Water Conservation, the afforestation project in private water source forest areas totaling 486,000 hectares was completed by the end of FY2020.

The estimates on the beneficial effects for the 405,000 hectares of planted area (the total area targeted for mid-term assessment from FY1961 to FY2001 (Afforestation and water source forest special development projects that are carried out in FY2002 and thereafter are fully subsidized.)) based on the "Guidelines for Implementation of Evaluation on Afforestation Public Projects" indicates about 11,771.1 billion yen for the total expenses and 16,497.8 billion yen for the total benefits.

The following is the breakdown:

- (1) Water source development and protection effect (flood prevention, water preservation at watersheds, water purification): 11,345.3 billion yen
- (2) Mountain terrain preservation effect (soil outflow prevention, mudslide prevention): 3,913.7 billion yen
- (3) Environment preservation effect (carbon fix): 1,110.1 billion yen
- (4) Timber production effect (securing and facilitation of timber production): 128.7 billion yen

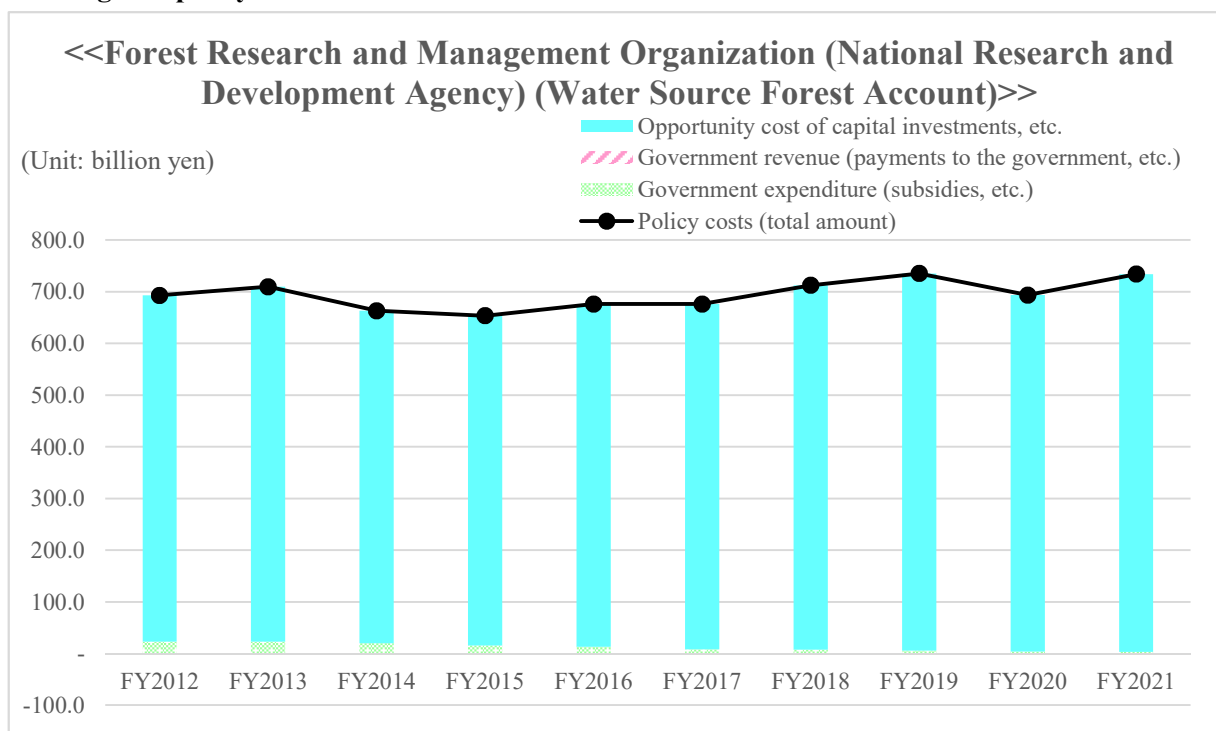
Albeit the difficulty in obtaining a quantitative measurement of the benefits generated by the operations in and after FY2021, the benefit can be estimated as follows with a certain condition and based on the aforementioned amount of the impact;

in the case where the social discount rate is set to 4%: 1,828.5 billion yen

in the case where the social discount rate is set to that of the policy cost analysis: 2,862.3 billion yen

Overview of policy cost analysis results

【Changes in policy costs】



Notes 1. Policy costs for each fiscal year differ in assumptions including interest rates applied to estimates.

2. Figures until FY2016 indicate the policy cost of Forestry and Forest Products Research Institute.

(Unit: billion yen)

	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021
Policy costs (total amount)	692.8	709.6	663.1	653.8	676.3	676.1	712.5	735.4	693.7	734.1
Government expenditure (subsidies, etc.)	22.9	23.0	19.7	15.7	13.0	8.3	7.1	5.8	3.7	2.9
Government revenue (payments to the government, etc.)	-	-	-	-	-	-	-	-	-	-
Opportunity cost of capital investments, etc.	669.9	686.5	643.4	638.1	663.2	667.8	705.4	729.6	690.0	731.3

【Explanation of policy cost trends】

- As the forestation project for water conservation in and before 2001 is subject to analysis and the total project cost remains almost unchanged, total investments accepted by the Organization that accepts investments covering a portion of the project cost remain almost unchanged. Therefore, no major fluctuations are seen in policy costs.

- Policy costs fluctuate due to interest rate changes over the long policy cost analysis period (89 years) for the long-term forestation project for water conservation.

【FILP agency's self-assessment of policy cost analysis results (FY2021)】

- The policy cost in FY2021 increased by 28.6 billion yen from the previous year in real terms. The results of the sensitivity analysis (case of a 1% decrease in operating revenues) showed an increase of 1.4 billion yen compared with the basic case. The main factor is a decline in revenues due to a fall in timber prices. The results of the sensitivity analysis (case before the negative interest rate policy) showed an increase of 26.3 billion yen due to the effects of the discount factor and other assumptions, but no particular problem was recognized.

(Reference) Financial Statements

Balance Sheet

(Unit: million yen)

Item	End of FY2019 (Result)	End of FY2020 (Estimated)	End of FY2021 (Planned)	Item	End of FY2019 (Result)	End of FY2020 (Estimated)	End of FY2021 (Planned)
(Assets)				(Liabilities and equity)			
Current assets	8,567	8,243	7,737	Current liabilities	10,684	10,207	9,792
Cash and bank deposits	8,208	7,810	7,378	Short-term loans payable	10,048	9,602	9,344
Prepaid expenses	16	16	16	Lease liabilities (short-term)	20	20	21
Accrued income	0	0	0	Accrued payments	289	335	182
Return for provision for bonuses	207	219	215	Accrued expenses	14	12	13
Other current assets	136	198	128	Deposit received	40	18	18
Fixed assets	1,073,089	1,108,649	1,127,112	Allowances			
Tangible fixed assets	1,072,903	1,108,481	1,126,956	Allowance for bonuses	207	219	215
Water source forest	1,071,512	1,107,120	1,125,623	Other current liabilities	66	-	-
Buildings	8	6	4	Fixed liabilities	100,549	96,407	92,187
Structures	27	23	20	Asset collateral liabilities			
Tools furniture and fixtures	89	63	41	Asset collateral subsidies	90	65	46
Land	1,269	1,269	1,269	Long-term loans payable	97,995	93,993	89,749
Intangible fixed assets	49	32	19	Lease liabilities (long-term)	55	35	14
Trademark rights	1	1	0	Reserves			
Software	48	31	19	Reserves for retirement pensions	2,409	2,315	2,378
Telephone subscription right	0	0	0	(Total liabilities)	111,233	106,613	101,979
Investment and other assets				Capital			
Security deposit and guarantee	136	136	136	Financing by the Government	762,172	772,943	782,784
				Capital surplus	206,113	235,234	248,119
				Capital surplus	221,497	252,358	266,824
				Other administrative costs accumulated			
				Amount equivalent to accumulated net gains or losses			
				on sale or disposal (-)	- 15,383	- 17,124	- 18,705
				Retained earnings	2,137	2,102	1,968
				Reserve carried forward during former			
				medium-term target period	397	-	1,752
				Reserve fund	1,300	1,740	-
				Unappropriated income for the current			
				year	439	362	216
				(Of this, gross profit)	439	362	216
				(Total equity)	970,422	1,010,278	1,032,870
Total assets	1,081,655	1,116,892	1,134,849	Total liabilities and equity	1,081,655	1,116,892	1,134,849

Notes: Components may not add up to the total because of rounding.

Income Statement

(Unit: million yen)

Item	End of FY2019 (Result)	End of FY2020 (Estimated)	End of FY2021 (Planned)
Ordinary expenses	2,215	2,457	2,507
Cost of forestation activities	120	47	50
Administrative expense related to sales from and			
termination of forestation activities	416	762	916
Water reservoir forest service expense	17	25	24
Administrative expenses for reconstruction promotion	22	44	33
General and administrative expenses	769	896	954
Finance expenses	868	682	530
Miscellaneous losses	3	0	0
Ordinary income	2,154	2,422	2,373
Revenues from forestation activities	446	355	272
Compensation for administrative expenses related to			
sales from and termination of forestation activities	425	669	790
Reversal of asset collateral subsidies	28	25	18
Revenue from national treasury subsidies	1,108	1,186	1,134
Revenue for water reservoir forest service cost	2	3	2
Income regarding return for provision for bonuses	38	37	36
Financial income	0	0	0
Miscellaneous income	108	148	121
Ordinary loss	61	35	134
Temporary losses	208	-	-
Transfer of provision for bonuses accompanying			
accounting standard revision	208	-	-
Temporary profits	208	-	-
Income regarding return for provision for bonuses	208	-	-
Net loss	61	35	134
Reversal of reserve carried forward during former			
medium-term target period	500	397	350
Gross profit	439	362	216

Note: Components may not add up to the total because of rounding.