

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

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 FY2020 FILP

(Unit: billion yen)

FY2020 FILP	Estimated outstanding amount of FILP lending at the end of FY2019
5.6	108.0

3. Estimated policy cost analysis of the project

(1) Policy cost (Unit: billion yen)

Category	FY2019	FY2020	Fluctuation
1. Government expenditure (subsidies, etc.)	5.8	3.7	-2.1
2. Government revenue (payments to the government, etc.)*1	-	-	-
3. Opportunity cost of capital investments, etc.	729.6	690.0	-39.7
Total (1+2+3=policy cost(A))	735.4	693.7	-41.8
Analysis period (years)	89 years	89 years	-

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

Category	FY2019	FY2020	Fluctuation
(A) Policy cost (previously cited)	735.4	693.7	-41.8
1) Opportunity cost of capital investments, etc. provided before the beginning of the analysis period	499.4	285.0	-214.4
2) Policy cost expected to be newly accrued during the analysis period	236.1	408.7	+172.6
Government expenditure (subsidies, etc.)	5.8	3.7	-2.1
Government revenue (payments to the government, etc.)*1	-	-	-
Opportunity cost of surplus, etc.	154.2	364.8	+210.6
Opportunity cost of capital investments, etc.	76.0	40.1	-35.9

(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.
			693.7	736.2	+42.5

(3) Year-to-Year comparison analysis

(Computing any fluctuation from previous year)

(Unit: billion yen)

Policy cost	Simple comparison (before adjustment)	FY2019	FY2020	Simple fluctuation
		735.4	693.7	-41.8
Past year comparison (after adjustment)	1) Adjusting initial years (Analysis results after adjusting initial year to that for FY2020 analysis)	2) Adjusting assumed interest rates (Analysis results of re-estimation using assumed interest rate for FY2019)		Real fluctuation (2-1)
		734.4	721.3	-13.1

[Real fluctuation factor analysis]

○ Factors behind policy cost increase

- Increase in cost due to rise in operating expense (+5.0 billion yen)

○ Factors behind policy cost decrease

- Decrease in cost due to increase in timber sales revenue (-18.1 billion yen)

(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 FY2020 and thereafter: 284.6 billion yen)
- 2) The analysis period: Forestation for Water Conservation: 89 years until all lumbering is completed (89 years in FY2019).
- 3) The operational income (revenue from timber sales) is estimated based on latest lumber 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 FY2038 when the project is expected to be possibly carried out with project revenues. From then, income from revenue from timber sales shall be appropriated for the funds for repayment such as loans. The period for revenues to be anticipated from revenue from timber sales shall be regarded to be until FY2108 when land afforested in and prior to FY2001 has matured and is deforested.

(Unit: billion yen)

FY	Result				Estimated 2019	Planned 2020	Assumptions for calculation	
	2015	2016	2017	2018			2021-2108	
Operational income	0.36	0.41	0.66	0.57	0.51	0.46	233.7	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 483,000 hectares was completed by the end of FY2019.

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 10,871.3 billion yen for the total expenses and 15,649.5 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): 10,729.7 billion yen
- (2) Mountain terrain preservation effect (soil outflow prevention, mudslide prevention): 3,674.3 billion yen
- (3) Environment preservation effect (carbon fix): 1,077.5 billion yen
- (4) Timber production effect (securing and facilitation of timber production): 168.0 billion yen

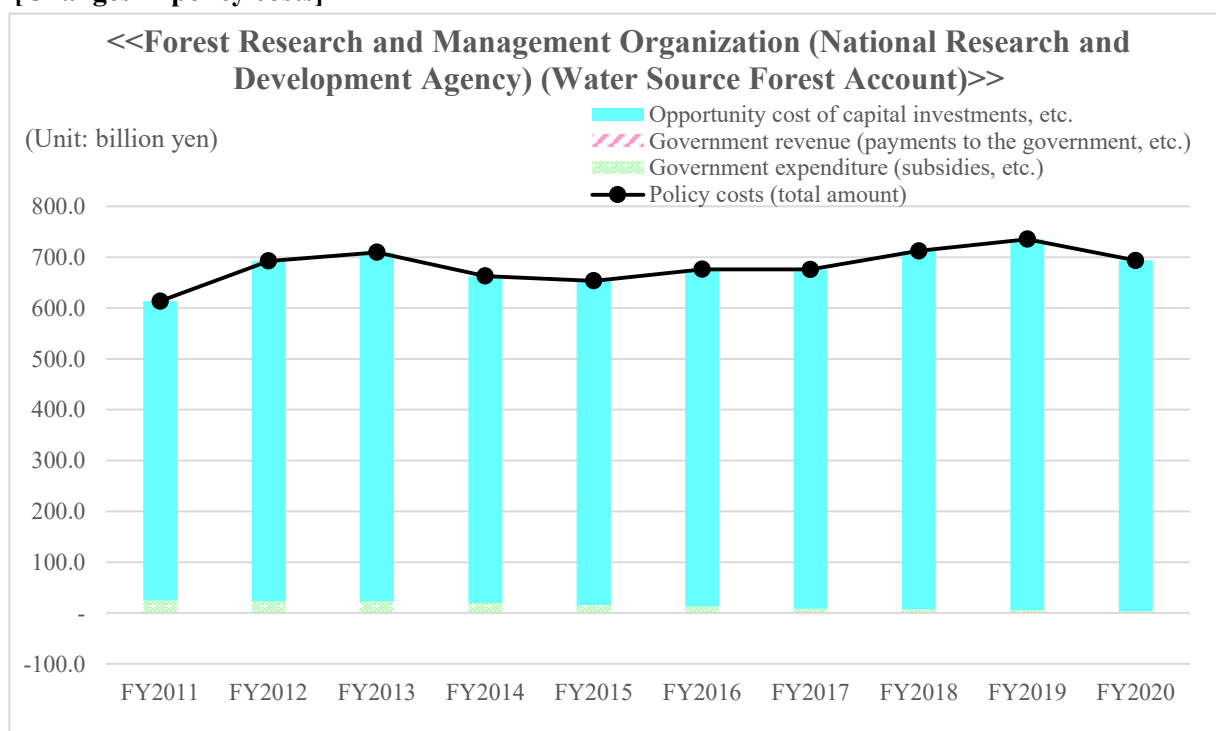
Albeit the difficulty in obtaining a quantitative measurement of the benefits generated by the operations in and after FY2020, the benefit can be estimated as follows with a certain condition and based on the aforementioned amount of the impact;

in the case where the social discount rate is set to 4%: 1,810.6 billion yen

in the case where the social discount rate is set to that of the policy cost analysis: 2,895.3 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)

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
Policy costs (total amount)	613.7	692.8	709.6	663.1	653.8	676.3	676.1	712.5	735.4	693.7
Government expenditure (subsidies, etc.)	25.0	22.9	23.0	19.7	15.7	13.0	8.3	7.1	5.8	3.7
Government revenue (payments to the government, etc.)	-	-	-	-	-	-	-	-	-	-
Opportunity cost of capital investments, etc.	588.8	669.9	686.5	643.4	638.1	663.2	667.8	705.4	729.6	690.0

【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 (FY2020)】

- The policy cost in FY2020 decreased by 13.1 billion yen from the previous year in real terms due mainly to a rise in revenue from timber sales, indicating no problem. In the sensitivity analysis (case before the negative interest rate policy), the policy cost increased by 42.5 billion yen from the basic case due to changes in assumptions including the assumed discount factor, indicating no problem.

(Reference) Financial Statements

Balance Sheet (Water Source Forest Account)

(Unit: million yen)

Item	End of FY2018 (Result)	End of FY2019 (Estimated)	End of FY2020 (Planned)	Item	End of FY2018 (Result)	End of FY2019 (Estimated)	End of FY2020 (Planned)
(Assets)				(Liabilities and equity)			
Current assets	7,639	7,211	7,221	Current liabilities	14,397	10,559	10,153
Cash and bank deposits	7,480	6,838	6,825	Forest Research and Management Organization bonds to be redeemed within one year	3,100	-	-
Prepaid expenses	15	15	15	Discount on bond (-)	- 0	-	-
Accrued income	0	0	0	Short-term loans payable	10,728	10,048	9,602
Return for provision for bonuses	-	205	193	Lease liabilities (short-term)	20	20	20
Other current assets	144	153	188	Accrued payments	387	254	305
Fixed assets	1,053,438	1,079,441	1,101,022	Accrued expenses	41	16	16
Tangible fixed assets	1,053,253	1,079,273	1,100,866	Deposit received	18	17	17
Water source forest	1,051,832	1,077,884	1,099,507	Allowances			
Buildings	10	8	6	Allowance for bonuses	-	205	193
Structures	30	26	23	Other current liabilities	104	-	-
Tools furniture and fixtures	112	87	62	Fixed liabilities	104,983	100,556	96,421
Land	1,269	1,269	1,269	Asset collateral liabilities			
Intangible fixed assets	45	28	16	Asset collateral subsidies	92	66	46
Trademark rights	1	1	1	Long-term loans payable	102,343	97,995	93,993
Software	44	27	15	Lease liabilities (long-term)	75	55	35
Telephone subscription right	0	0	0	Reserves			
Investment and other assets				Reserves for retirement pensions	2,473	2,439	2,348
Security deposit and guarantee	140	140	140	(Total liabilities)	119,380	111,115	106,574
				Capital			
				Financing by the Government	751,400	762,172	772,943
				Capital surplus	188,100	211,292	226,723
				Capital surplus	201,701	226,457	243,640
				Other administrative costs accumulated			
				Amount equivalent to accumulated net gains or losses on sale or disposal (-)	- 13,601	- 15,166	- 16,917
				Retained earnings	2,197	2,075	2,004
				Reserve carried forward during former medium-term target period	897	397	-
				Reserve fund	829	1,300	1,678
				Unappropriated income for the current year	472	377	326
				(Of this, gross profit)	(472)	(377)	(326)
				(Total equity)	941,697	975,538	1,001,670
Total assets	1,061,077	1,086,653	1,108,243	Total liabilities and equity	1,061,077	1,086,653	1,108,243

Notes 1. Components may not add up to the total because of rounding.

2. Results at the end of FY2018 are adjusted for comparison with estimated results at the end of FY2019 and planned results at the end of FY2020.

Income Statement (Water Source Forest Account)

(Unit: million yen)

Item	FY2018 (Result)	FY2019 (Estimated)	FY2020 (Planned)
Ordinary expenses	2,387	2,672	2,405
Cost of forestation activities	104	62	50
Administrative expense related to sales from and termination of forestation activities	341	892	760
Water reservoir forest service expense	20	25	20
Administrative expenses for reconstruction promotion	49	33	33
General and administrative expenses	759	791	860
Finance expenses	1,107	868	682
Miscellaneous losses	6	0	0
Ordinary income	2,359	2,549	2,334
Revenues from forestation activities	448	407	356
Compensation for administrative expenses related to sales from and termination of forestation activities	335	839	668
Reversal of asset collateral subsidies	29	26	21
Revenue from national treasury subsidies	1,405	1,156	1,145
Revenue for water reservoir forest service cost	2	3	2
Income regarding return for provision for bonuses	-	33	31
Financial income	0	0	0
Miscellaneous income	141	85	111
Ordinary loss	28	123	71
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	28	123	71
Reversal of reserve carried forward during former medium-term target period	500	500	397
Gross profit	472	377	326

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