

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

<https://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 FY2019 FILP**

(Unit: billion yen)

FY2019 FILP	Estimated outstanding amount of FILP lending at the end of FY2018
5.7	113.1

**3. Estimated policy cost analysis of the project**

**(1) Policy cost** (Unit: billion yen)

Category	FY2018	FY2019	Fluctuation
1. Government expenditure (subsidies, etc.)	7.1	5.8	-1.3
2. Government revenue (payments to the government, etc.)*	-	-	-
3. Opportunity cost of capital investments, etc.	705.4	729.6	+24.3
<b>Total (1+2+3=policy cost(A))</b>	<b>712.5</b>	<b>735.4</b>	<b>+23.0</b>
Analysis period (years)	89 years	89 years	-

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

Category	FY2018	FY2019	Fluctuation
(A) Policy cost (previously cited)	712.5	735.4	+23.0
1) Opportunity cost of capital investments, etc. provided before the beginning of the analysis period	549.9	499.4	-50.5
2) Policy cost expected to be newly accrued during the analysis period	162.6	236.1	+73.5
Government expenditure (subsidies, etc.)	7.1	5.8	-1.3
Government revenue (payments to the government, etc.)*	-	-	-
Opportunity cost of surplus, etc.	75.2	154.2	+79.0
Opportunity cost of capital investments, etc.	80.3	76.0	-4.3

**(4) Sensitivity analysis (cases where assumptions change)**

(Unit: billion yen)

(A) Policy cost (previously cited)	Case for raising lending and fundraising rates by 1 %	Fluctuation	1. Government expenditure (subsidies, etc.)			2. Government revenue (payments to the government, etc.)*			3. Opportunity cost of capital investments, etc.		
			1. Government expenditure (subsidies, etc.)	2. Government revenue (payments to the government, etc.)*	3. Opportunity cost of capital investments, etc.	1. Government expenditure (subsidies, etc.)	2. Government revenue (payments to the government, etc.)*	3. Opportunity cost of capital investments, etc.	1. Government expenditure (subsidies, etc.)	2. Government revenue (payments to the government, etc.)*	3. Opportunity cost of capital investments, etc.
735.4	745.6	+10.2	+4.8	-	+5.3	-	-	-	-	-	-
735.4	746.8	+11.4	+0.2	-	+11.1	-	-	-	-	-	-

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

\* 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.

**(3) Year-to-Year comparison analysis**

(Computing any fluctuation from previous year)

(Unit: billion yen)

		FY2018	FY2019	Simple fluctuation
Policy cost	Simple comparison (before adjustment)	712.5	735.4	+23.0
	Past year comparison (after adjustment)	711.2	744.4	+33.1

[Real fluctuation factor analysis]

○Factors behind policy cost increase

- Increase in cost due to decline in timber sales revenue (+17.3 billion yen)
- Increase in opportunity cost due to increase in accepted capital investments accompanying postponement of growing tree sales (+8.4 billion yen)
- Increase in opportunity cost due to increase in accepted capital investments accompanying changes in fiscal loan terms and conditions (+7.4 billion yen)

○Factors behind policy cost decrease

- None

#### 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. 407,000 hectares which were afforested in and prior to FY2001 are calculated until the completion of the project. (Total operating expenses in FY2019 and thereafter: ¥ 284.0 billion)
- 2) The analysis period: Forestation for Water Conservation: 89 years until all lumbering is completed (89 years in FY2018).
- 3) The Organization's equity in the operating revenues (revenue from timber sales) of the development of water source forests is calculated in reference to the "Lumber Conversion 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 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 FY2107 when land afforested in and prior to FY2001 has matured and is deforested.

(Unit: billion yen)

FY	Result				Estimated	Planned	Assumptions for calculation	
	2014	2015	2016	2017	2018	2019	2020-2107	
Operational income	0.53	0.36	0.41	0.66	0.45	0.51	190	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 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

##### (Reference) Outcome and social and economic benefits of operations

In Forestation for Water Conservation, the afforestation project in private water source forest areas totaling 481,000 hectares was completed by the end of FY2018.

The estimates on the beneficial effects for the 407,000 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 ¥8,726.4 billion for the total expenses and ¥11,125.3 billion for the total benefits.

The following is the breakdown:

- (1) Water source development and protection effect (flood prevention, water preservation at watersheds, water purification): ¥7,112.6 billion
- (2) Mountain terrain preservation effect (soil outflow prevention, mudslide prevention): ¥3,006.4 billion
- (3) Environment preservation effect (carbon fix): ¥871.0 billion
- (4) Timber production effect (securing and facilitation of timber production): ¥135.2 billion

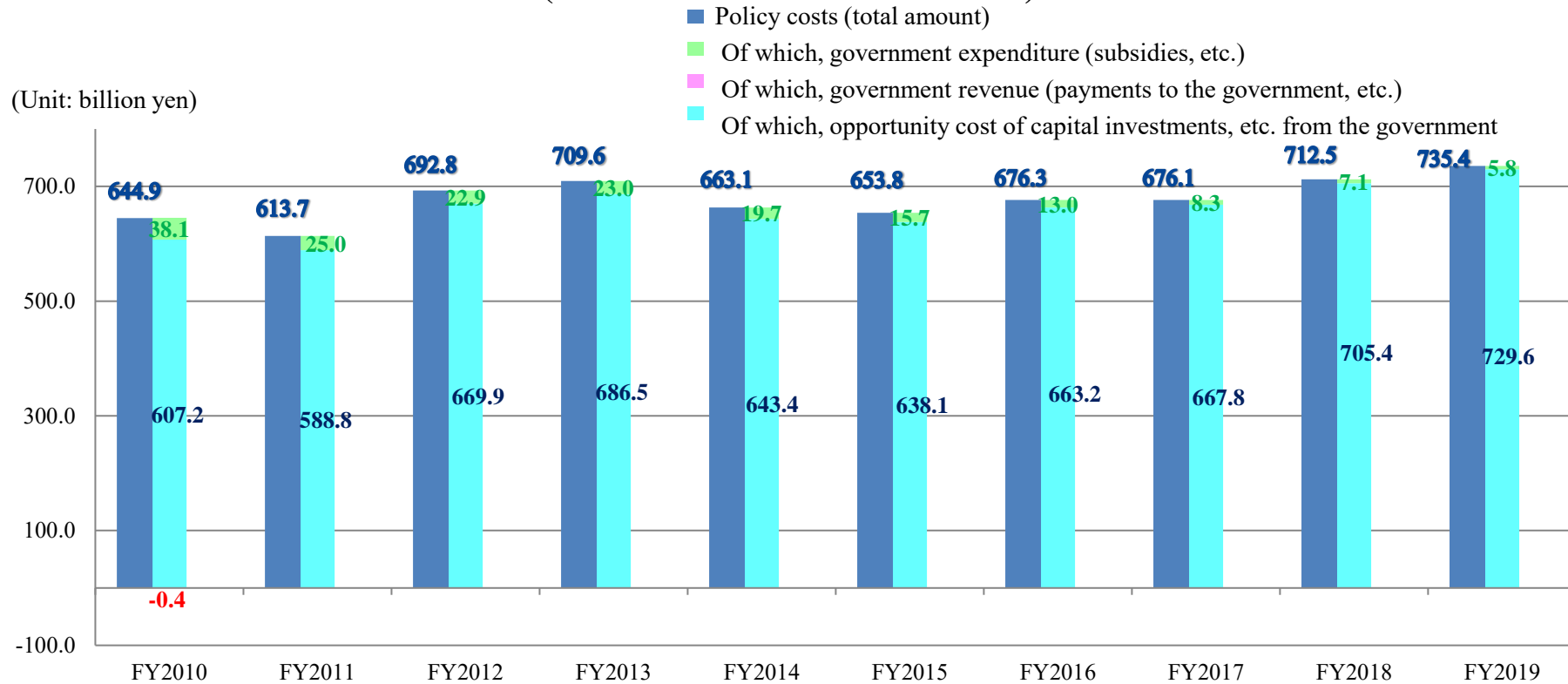
Albeit the difficulty in obtaining a quantitative measurement of the benefits generated by the operations in and after FY2019, the benefit can be estimated as follows with a certain condition and based on the aforementioned amount of the impact;

in the case where the social discount rate is set to 4%: ¥1,381.7 billion

in the case where the social discount rate is set to that of the policy cost analysis: ¥2,150.0 billion

# (Reference) Changes in Policy Costs by Component

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



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.

(Point)

- 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.

## (Reference) Financial Statements

## Balance Sheet (Water Source Forest Account)

(Unit: million yen)

Item	End of FY2017 (Result)	End of FY2018 (Estimated)	End of FY2019 (Planned)	Item	End of FY2017 (Result)	End of FY2018 (Estimated)	End of FY2019 (Planned)
<b>(Assets)</b>				<b>(Liabilities and equity)</b>			
Current assets	7,392	6,996	6,948	Current liabilities	14,694	14,221	10,522
Cash and bank deposits	7,255	6,847	6,598	Forest Research and Management Organization bonds to be redeemed within one year	3,100	3,100	-
Prepaid expenses	14	14	14	Short-term loans payable	11,173	10,728	10,048
Accrued income	0	0	0	Accrued payments	167	334	246
Return for provision for bonuses	-	-	193	Accrued expenses	80	43	18
Other current assets	124	135	143	Deposit received	23	17	17
Fixed assets	1,036,905	1,057,712	1,076,622	Allowances	-	-	193
Tangible fixed assets	1,036,727	1,057,548	1,076,473	Allowance for bonuses	-	-	193
Water source forest	1,035,386	1,056,224	1,075,160	Other current liabilities	152	-	-
Buildings	13	10	8	Fixed liabilities	113,101	104,942	100,541
Structures	34	30	26	Asset collateral liabilities	-	-	-
Tools furniture and fixtures	25	15	10	Asset collateral subsidies	104	76	53
Land	1,269	1,269	1,269	Forest Research and Management Organization bonds	3,100	-	-
Intangible fixed assets	45	31	17	Discount on bond (-)	-0	-0	-
Temporary account for industrial property rights	0	0	0	Long-term loans payable	107,270	102,343	97,995
Software	45	31	17	Reserves	-	-	-
Telephone subscription right	0	0	0	Reserves for retirement pensions	2,627	2,524	2,493
Investment and other assets	-	-	-	(Total liabilities)	127,795	119,164	111,063
Security deposit and guarantee	133	133	133	Capital	-	-	-
				Financing by the Government	740,627	751,400	762,172
				Capital surplus	173,650	192,106	208,414
				Capital surplus	185,978	205,910	223,652
				Other administrative costs accumulated	-	-	-
				Amount equivalent to accumulated net gains or losses on sale or disposal (-)	- 12,328	- 13,804	- 15,237
				Retained earnings	2,226	2,039	1,921
				Reserve carried forward during former medium-term target period	1,397	897	397
				Reserve fund	325	829	1,142
				Unappropriated income for the current year	504	314	382
				(Of this, gross profit)	(504)	(314)	(382)
				(Total equity)	916,502	945,545	972,507
Total assets	1,044,297	1,064,708	1,083,571	Total liabilities and equity	1,044,297	1,064,708	1,083,571

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

2. Results at the end of FY2017 and projections at the end of FY2018 are adjusted for comparison with planned results at the end of FY2019.

## Income Statement (Water Source Forest Account)

(Unit: million yen)

Item	FY2017 (Result)	FY2018 (Estimated)	FY2019 (Planned)
Ordinary expenses	2,631	2,547	2,691
Cost of forestation activities	126	60	50
Administrative expense related to sales from and termination of forestation activities	396	492	922
Water reservoir forest service expense	8	28	20
Administrative expenses for reconstruction promotion	20	49	33
General and administrative expenses	735	812	798
Finance expenses	1,346	1,107	868
Miscellaneous losses	0	0	0
Ordinary income	2,635	2,361	2,573
Revenues from forestation activities	495	346	408
Compensation for administrative expenses related to sales from and termination of forestation activities	400	445	839
Reversal of asset collateral subsidies	33	28	23
Revenue from national treasury subsidies	1,576	1,465	1,162
Revenue for water reservoir forest service cost	1	3	2
Income regarding return for provision for bonuses	-	-	32
Financial income	0	0	0
Miscellaneous income	132	75	108
Ordinary profit or loss (-)	4	- 186	- 118
Temporary losses	-	-	202
Transfer of provision for bonuses accompanying accounting standard revision	-	-	202
Temporary profits	-	-	202
Income regarding return for provision for bonuses	-	-	202
Net profit or loss (-)	4	- 186	- 118
Reversal of reserve carried forward during former medium- term target period	500	500	500
Gross profit	504	314	382

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