



Environmental fiscal reforms in Japan

Contents

Conserving forest environments with tax revenues.....	2
Tochigi Prefectural Tax for Healthy Forest-Making	3
Increased tax rates for the Prefectural Inhabitant Tax on individuals to fund water source environment programms.....	7
Kanagawa Basic Policies for Conservation and Restoration of Water Source Environment	9
Kanagawa Five-Year Action Plan for Conservation and Restoration of Water Source Environment	10

Japan indicated¹ that some cases have been introduced at the following website:

<http://www.biodic.go.jp/biodiversity/shiraberu/policy/pes/en/index.html>

Conserving forest environments with tax revenues

Forests provide the services of producing substances that we use as wood and food, recharging water, preventing floods and sediment disaster in large storms, absorbing CO₂ and mitigating climate change as well as providing habitats for diverse living creatures and sites for recreation and environmental education.

Forests cover two-thirds of Japan. Although forest coverage has not changed in over 40 years, decreased demand for domestic wood and lower timber prices, tree thinning and other forest management activities have been sabotaged, therefore depleting many planted forests. In planted forests that have not been adequately thinned or cut, the forests are too dense for roots to establish themselves deep in the soil and for sunlight to pass the leaves to the forest floor. This has inhibited underbrush growth, therefore making the soil vulnerable to snow, wind and typhoon-inflicted damages. This also depletes the biodiversity in the area. Of these planted forests which require appropriate management by human hands, 77 percent is non-national² (figure below) and is managed under the will of their owners, with the exception of forest reserves which are subject to a mandatory management schedule. With forestry yielding little profit, new financial sources to fund forest improvement of planted forest, which are privately or publicly manage, need to be sought.



Source: Forestry Agency, Survey on Status of Forest Resources (as of March 31, 2007)

With the adoption of the Collective Decentralization Law in 2000 which enabled Japanese local governments to individually levy taxes for specific purposes, Kochi Prefecture formulated the Forest Environment Tax in 2003. Under the tax program, the prefecture maintains and restores the diverse functions of forests by directly improving them using the tax revenue, collected from the public, the people who are, in essence, the beneficiaries of the blessings provided by forests. From this perspective, the Forest Environment Tax can be regarded a similar example of payments for ecosystem services (PES). Kochi Prefecture's innovative example has been succeeded by other local governments, the number of

¹ Japan (2012). Preliminary Report for the "Strategy for Resource Mobilization", submission to the Secretariat of the Convention on Biological Diversity

² Non-national forests refer to those either privately-owned or owned by local governments.

which totals 30 prefectures and one city as of April 2009. The introduction of this new tax program has enabled local governments to securely implement their tree trimming-oriented forest improvement programs according to an established schedule.

This section will introduce three forest environment taxes: Kochi Prefecture's pioneering example, Tochigi Prefecture's program which discloses valuations of the tax's accomplishments and Kanagawa Prefecture's program which comprehensively addresses the conservation and restoration of water source environments instead of only forest environments.

Tochigi Prefectural Tax for Healthy Forest-Making

- Year started: 2008
- Actor: Tochigi Prefecture

Background

In Tochigi Prefecture, forests, which cover 55 percent of the land, have played an essential role in citizens' lives. They have not only provided ecosystem services, including timber production and water recharge, but have also been enjoyed by many people as places for recreation and rest. However, during the period of economic growth and the bubble economy, residential land and recreation facilities were developed, consequently depleting forest area, while competition with inexpensive imported timber shrank demand for domestic timber and lowered wood prices. Therefore, domestic forestry and the lumber industry became stagnant, thereby hindering the proper management of these forests.

It should be noted that approximately 60 percent of the forest area in the prefecture is privately owned or communal, nearly 100 thousand hectares -approximately 30 percent of total forest area - of which were covered by Japanese cedar and hinoki cypress forests of the stand age of 16 to 60 years, therefore in need of thinning, at the end of fiscal 2008. Approximately 70 thousand hectares of these forests are aged 36 to 60 years, suitable mainly as construction wood. However, almost all of them have remained inadequately managed as a result of slumping lumber prices (log price for cypress produced in Tochigi marked 12,700 yen per square meter in fiscal 2008) which have dropped to one-third of what they were thirty years ago.

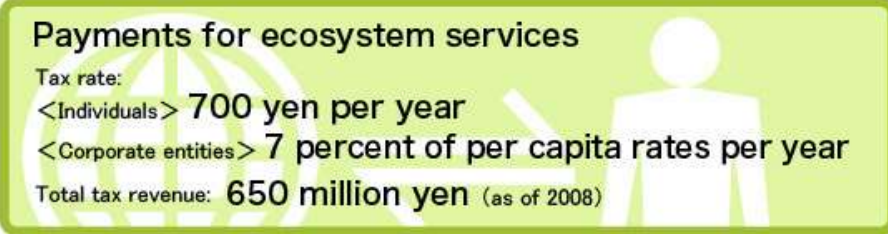
■ Constitution of forests in Tochigi Prefecture (As of March 31, 2009)

Categorization by owner / forest type		Area (ha)	Ratio (%)
National	Planted forest	34,608	9.9%
	Natural forest	87,959	25.2%
	Other	5,262	1.5%
Private or communal	Planted forest	122,155	35.0%
	Natural forest	93,813	26.9%
	Other	5,431	1.6%

Source : Tochigi Prefecture White Paper for Forests and Forestry Industry 2009

Outline

Tochigi Prefecture introduced the "Tochigi Prefectural Tax for Healthy Forest-Making" in April, 2008 with the aim of protecting and saving healthy forests for the next generation.



Payments for ecosystem services

Tax rate:

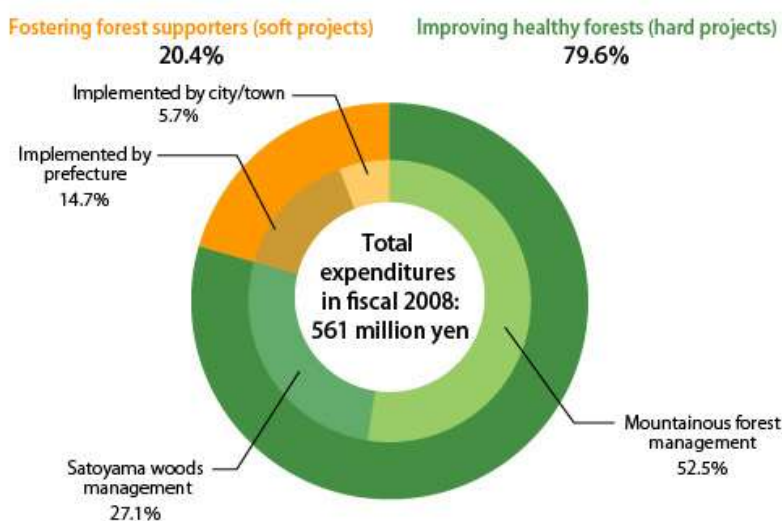
- <Individuals> **700 yen per year**
- <Corporate entities> **7 percent of per capita rates per year**

Total tax revenue: **650 million yen** (as of 2008)

The infographic features a light green background with a faint circular pattern of stylized trees. On the right side, there is a white silhouette of a person standing with arms slightly away from the body.

Nearly 80 percent of tax revenue is used for hard projects ("Improving Healthy Forests" program), or direct forest improvement projects, including tree thinning in planted forests that have been left unmanaged for over 15 years and are no longer profitable, improving wooded areas in Satoyama for which there are local calls for conservation, and implementing measures to mitigate damage caused by wild animals. Soft projects ("Fostering Forest Supporters" program), including environment education and communication to enhance understanding for the importance of forests are implemented; they include the provision of desks, chairs and benches made from forest thinning to schools and other public facilities in order to familiarize more people with the excellence of wood.

■ Major achievements of Tochigi's prefectural forest tax (fiscal 2008)



Improving healthy forests (hard projects)	
Mountainous forest improvement program	2,078 ha (71 sites in 13 municipalities)
Satoyama woods improvement program	533.33 ha (119 sites in all municipalities)
Fostering forest supporters (soft projects)	
Educational projects to communicate the excellence of wood	Distribution of 1,800 sets of wood desks and chairs in 37 schools in 12 municipalities
Forest-making information center project	Launching website, support for afforestation activities
"School in the Forest" project	14 courses (16 sessions)
Forest-related environmental education promotion	Grants for forest-related environmental education by 24 organizations
Prefectural citizens' meeting-led programs	Promotional activities for afforestation, wood-use and public awareness-raising
Assessment committee Public relations	5 committee meetings Compilation and distribution of pamphlet
Forest cultivation support program	Support to 16 organizations in 8 municipalities
Support for forest-related environmental education	20 programs with a total of 4,069 participants in 10 municipalities
Support for creating wooden environments	Support for wooden reform of 3 facilities and programs to foster appreciation for wood in 8 municipalities

Source: Tochigi Prefecture website



Disclosure of assessment results

Every year, the "Assessment Committee for Tochigi Prefectural Tax for Healthy Forest Making" evaluates the effectiveness, efficiency and progress of each program funded by the tax revenue and discloses the outcome in September.

■Evaluation Items of Tochigi Prefectural Tax for Healthy Forests

Effectiveness	How effective were the programs implemented? Analysis and evaluation based on questionnaires and quantification of: 1. Which functions were demonstrated? 2. Were there any changes witnessed in the awareness of local people?
Efficiency	How much activity has been implemented with the funds used? Analysis and evaluation based on funds required to implement a certain amount activity.
Progress	How much of the program plan has been implemented? Analysis and evaluation based on outcome of activities implemented against targets set in plan.

For example, the Assessment Report for fiscal 2008, evaluates the effectiveness of the Mountainous Forest Improvement program funded by tax revenue by comparing the actual expenditures (181 thousand yen per hectare) with the averted costs, or the assessed economic value of the projects that might have been implemented (1.53 million yen per hectare) in order to achieve the same effects, based on valuations of flood-prevention, water purification and sediment runoff prevention services provided. The efficiency of the program is studied by comparing the finalized costs per area of forest managed (181 thousand yen per hectare) with costs required in similar programs implemented in other prefectures. The progress of the program is evaluated from two dimensions, namely the

ratio of area of forest improvement completed to total area planned (rate of progress) and the ratio of final expenditures to budget (budget implementation rate).

■ Program assessment of "effectiveness"

Services	Assessed value (thousand yen) A	Improved forest area (ha) B	Assessed value per hectare (thousand yen / ha) A/B	Notes
Flood-prevention	1,449,099	2,078	697	Costs required when using flood-control dams to prevent the same amount of rainwater runoff prevented by forest
Water purification	586,724		282	Water purification costs required for the amount of water additionally absorbed by the soil as a result of forest improvement
Sediment runoff	1,145,360		551	Construction costs for erosion-control dam to deal with sediment runoff prevented by forest improvement
Total	3,181,183	2,078	1,530	

Assessed values based on "Preliminary Assessment Manual for Public Forest Projects"

Source: Tochigi Prefecture website

For forest improvement programs and soft projects for which valuations cannot easily be conducted, questionnaires are utilized. For example, the Satoyama Forest Improvement Program, which aims to preserve the landscape, guarantee safety and security in school zones and residential areas, and mitigate destructive intrusions by wild animals, conducts questionnaires to assess the program's effectiveness based on the ratio of respondents supportive of the program.

Increased tax rates for the Prefectural Inhabitant Tax on individuals to fund water source environment programmes

- Year started: 2007
- Actor: Kanagawa Prefecture

Background

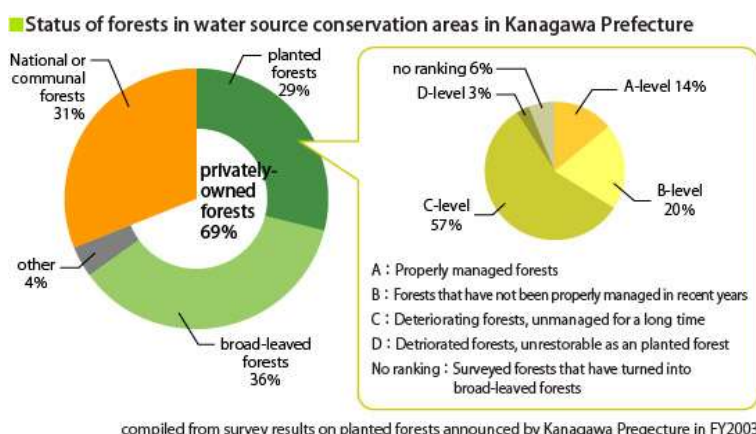
Although Kanagawa Prefecture is located in an urban area, all of its drinking water is sourced within the city boundaries, mostly from the Sagami River and Sagami River. Beginning with the early development of the Sagami Dam Construction Plan and ending with the completion of the Miyagase Dam in 2001, the prefecture has a long history of water source development projects, which has supplied the water resources supporting economic growth and welfare of its citizens.

However, the water reserved in the dams is the blessing of nature, nurtured in the natural environment of forests and rivers in the water sources areas. Although water recharge and purifications services must be maintained to preserve a healthy environment, the deterioration of forests and delayed sewage treatment in headwater areas have presented serious issues.

To preserve and pass on to future generations the rich water resources secured through past efforts and to guarantee the stable supply of high-quality water in years to come, water conservation and restoration efforts must be launched before it is too late to restore the natural environment of water source areas. These undertakings should be begun now and continued in the long-term.

The two river systems of Sagami-gawa and Sagawaga Rivers supply 90 percent of the tap water used in Kanagawa Prefecture. The water is mostly collected in dams built within the prefecture, but 80 percent of the water catchment area is located in Yamanashi Prefecture. Groundwater, which accounts for 7.2 percent of the prefecture's water supply, sources the tap water used in Hatano City and Zama City and other municipalities in the western part of the prefecture.

The water catchment forests were completely cleared during and after World War II and replanted with Japanese cedar and hinoki cypress under a national program to plant commercial forests. As a result, although forests increased significantly in volume, they entailed the risk of being abandoned as forestry became unprofitable. Therefore, many privately-owned planted forests have deteriorated. Furthermore, the natural forests in the Tanzawa mountain range which constitute an important part of the prefecture's water source forests have become degraded as a consequence of decreased underbrush caused by the atmospheric impact of photochemical oxidants and higher concentrations of browsing deer. This has dried the soil and increased soil runoff, which, accompanied by the outbreak of sawflies, have weakened and killed beech and fir, therefore degrading the ecosystem.



Although both Sagami-gawa and Sagawaga Rivers meet national environmental standards in the main rivers, the Sagami-gawa River is contaminated in some parts of its tributaries. Lake Sagami and Lake Tsukui, also in compliance with the standards, are both eutrophied lakes with high nitrogen and phosphorus concentrations promoting increased growth of blue-green algae. The groundwater has higher concentrations of nitrate-nitrogen, nitrogen-sulfur and organochlorine compounds than environmental standards in many parts of the prefecture. Some groundwater sources which previously provided drinking water have ceased to supply water after detection of pollutants. Against this backdrop, the quality of prefectural water sources unfortunately do not satisfy the expectations of all prefectural citizens.

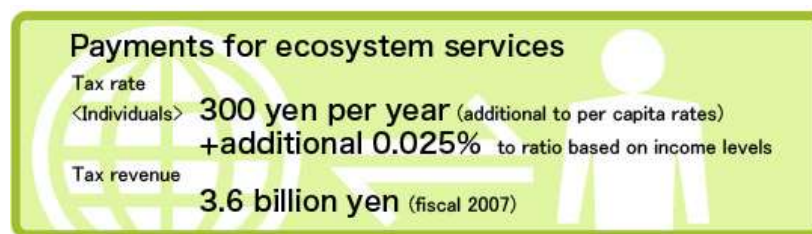
Outline

Since 2000, the Kanagawa Prefectural Government discussed and exchanged opinions with its citizens and municipalities on policy measures to conserve and restore its water source environment and on how to fund such measures. This was based on its acknowledgement that in order to steadily and continuously supply quality water, it is necessarily to promote comprehensive long-term efforts to conserve and restore the forests which nurture rich water as well as the pure water sources. Based on these discussions, the prefecture drew up the Kanagawa Basic Policies for Conservation and Restoration

of Water Source Environment, which identifies its overall measures for the next 20 years. In 2006, it also formulated the Kanagawa Five Year Action Plan for Conservation and Restoration of Water Source Environment which explains the programs to be carried out in the first five years under the Basic Policies.

In order to sustainably carry out the programs for conserving and restoring the water source environment it became necessary to secure stable financial sources, apart from the unstable general revenue which was easily affected by economic trends. In 2007, Kanagawa Prefecture decided to increase the tax rates of the prefectural inhabitant tax on individuals (annual burden of approximately 950 yen per taxpayer), comprising per capita rates and those based on income levels. The tax rate was determined based on the total expenses newly required to implement the programs stipulated in the Five-Year Action Plan.

Kanagawa's tax program differs from other prefectural forest environment taxes in terms of program coverage. It not only addresses forest conservation but also includes sewage treatment and groundwater conservation. Because it aims to establish a comprehensive policy framework that deals with both securing a stable supply of water and preserving water quality, forest conservation is considered one of many measures to retain the water circulation services of the ecosystem.



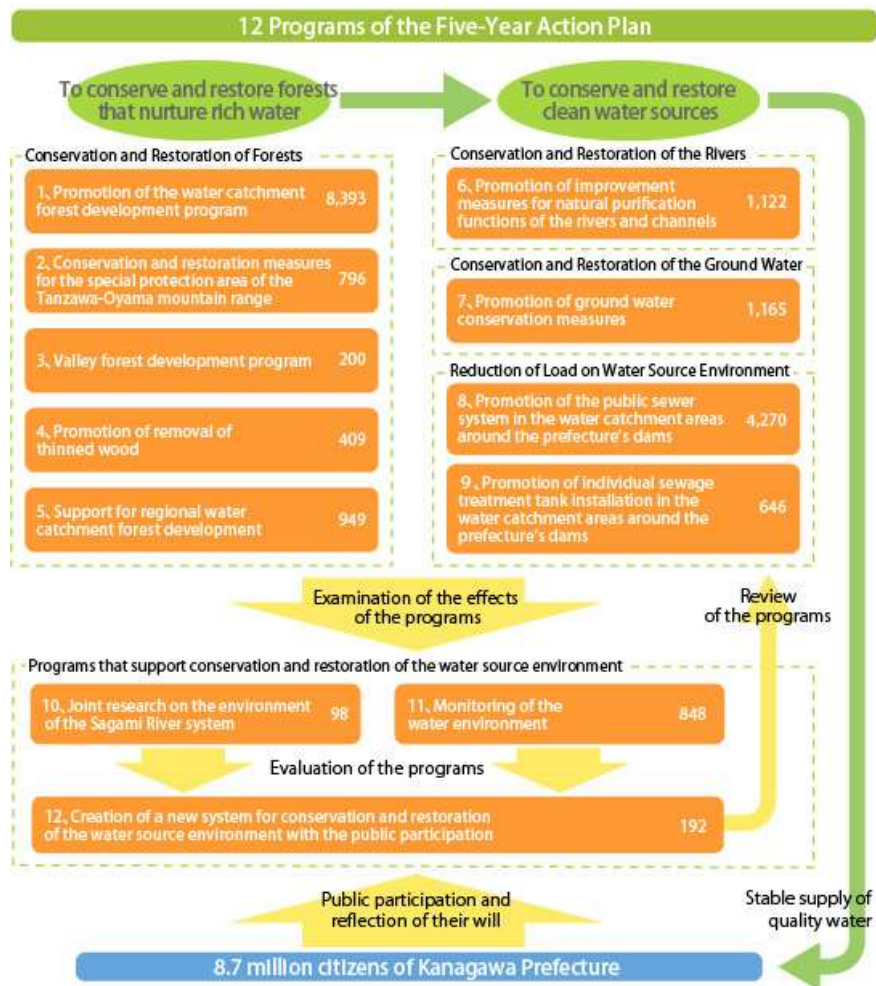
Kanagawa Basic Policies for Conservation and Restoration of Water Source Environment

The Kanagawa Basic Policies for Conservation and Restoration of Water Source Environment identifies the basic ideas of comprehensive and systematic policies to promote conservation and restoration of the water source environment as well as guidance on the development of measures by policy area for the next 20 years.

Effective period	fiscal 2007-2026
Purpose	To secure the stable supply of quality water
Basic idea	To conserve and restore the functions of the sound and natural water cycle in the watersheds from upstream - in neighboring prefectures - to downstream, covering all surface and groundwater veins, and the entire area including interrelated urban areas sharing water sources.
Guiding principles	1. Policies shall be promoted in a comprehensive manner 2. Policies shall be developed based on public will 3. Policies shall be promoted based on adaptive management

In order to effectively and steadily promote efforts to conserve and restore the water sources environment according to the Basic Policies, the Five-Year Action Plan defines programs to be implemented in the first five years of the 20 years covered by the Basic Plan.

Effective period	Fiscal years 2007-2011
Programs covered	<p>-Programs expected to have direct effects on the conservation and restoration of water source environments and which are to be implemented in the water source conservation areas within the prefecture</p> <p>-Programs designed to build a new system to promote conservation and restoration of water source environments</p>
Number of programs and newly required expenses	<p>12 programs</p> <p>Total expenditures in five years: approximately 19 billion yen</p> <p>Average annual expenditures: approximately 3.8 billion yen</p>



*figures represent total of newly required funds under five-year program (million yen)

During the first two years of the plan (fiscal years 2007-2008), most of the programs have progressed according to the Plan, with the exception of a few projects implemented at the municipality level.

Participatory Tax Program

The Kanagawa Citizens' Council for the Conservation and Restoration of Water Source Environment, comprising 30 members, including experts, representative of relevant organizations and publicly recruited committee members, deliberates policy measures in order to incorporate public opinion in each level of policy development, namely, planning, implementation, assessment and review.

■ Structure of Citizens' Council

