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Status and Trends in Forest Environment Transfer Tax and Information Interface between Prefectures and Municipalities: Multi-Level Governance of Forest Management in 47 Japanese Prefectures

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Abstract: In 2019, Japan introduced a national forest-environment-transfer tax (FETT). Prefectural and municipal governments receive tax revenue. Currently, 37 prefectures in Japan have prefectural forest taxes, and the prefectures need to demarcate how their own taxes and the national tax are being used. This study analyzed the overall use trends of national tax, which is for supporting municipal forest management, and review the status of prefectural forest environmental taxes. National tax was primarily applied to organizing the information of forests and their owners. The main components of support by prefectures to municipalities were support to questionnaires for private forest owners, other technical supports, securing successors, and training successors. Regarding the prefectural taxes, forest types and policies, which were implemented by the taxes, were reviewed in 18 prefectures. The differentiation of the tax uses of prefectural tax and FETT as a national tax was implemented based on the types of forest and supporting activities, and the spatial scales of forest management. The formation of FETT does not necessarily accompany the flexible assignment of jurisdictions and functions of multi-level governance, with potentially limiting impacts so far. This study could concretely conclude with the demand for participatory social learning toward sustainable forest policymaking and implementations of payment for ecosystem services in forests at the multi-levels of the national government, prefectures, and municipalities.

Keywords: information exchange interface; prefectures; municipality; forest environment transfer tax

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1. Introduction

1.1. Contexts of Introduction of Forest Environment Transfer Tax

Japan's forest policy was conventionally conducted at the national (Forestry Agency), prefectural (forestry departments), and site (forest associations) levels. In 2019, the New Forest Management System (NFMS or *Shinrin Keiei Kanri Seido*) was introduced to provide municipalities under the prefectural level with a bigger role in forest management. To support this objective and the implementations of forest policies responding to the United Nations Framework Convention on Climate Change (UNFCCC) Paris Accord, the increase of insufficiently management forests, and the related issue of unregistered owners, municipalities receive a forest environment transfer tax, but are requested to disclose online how the revenue is used in the following fiscal year. Prefectural governments also receive 20% (gradually decreased to 10%) of the forest environment transfer tax, intended as fund assistance for municipalities. Currently, 37 prefectures already have their own forest-related taxes (Prefectural Forest Environmental Tax, PreFET) (Table 1), which were enforced before the newly introduced national ones. The names of the taxes are similar or identical. Those

taxes can be interpreted as one type of payment for ecosystem service schemes [1–5], because actors of forest management can receive subsidies as payment from tax payers as beneficiaries of the forest ecosystem services (Table 2).

Table 1. Comparison of PreFET and FETT.

	Level	Established	Budget Size	Scope
PreFET	Prefecture (37)	2003	30 billion (total)	Diverse
FETT	Tax: National Implementation: municipality Support: prefecture	2019	20 billion (2019) 40 billion (2020–2021) 50 billion (2022–2023) 60 billion (2024–)	Unmanaged privately owned artificial forests

Table 2. Locally involved payment for ecosystem service (PES)-related projects with intermunicipal and multi-level governance in developed countries.

Project Name/Type	Copenhagen Energy PES Scheme	Dōshi Water Source Forest Conservation Scheme (Yokohama City)	PreFET	FETT	Scheme of Slowing the Flow at Pickering
Country (Level of governmental bodies)	Denmark (municipal level)	Japan (municipal level)	Japan (prefectural level)	Japan (national level)	UK (national level)
Project objectives	Conservation of water sources and decreasing chemical use in forests	Conservation of water sources	Diverse (mainly for forest management)	Responding to the increase of unregistered owners and the Paris Accord	Risk management of flooding
Policy measures for forests	Payment for stopping chemical use and converting farmland to broad-leaved forest and purchase of farmland for tree planting	Thinning coniferous forests and increasing broad-leaved and mixed forests. Public-private partnership and volunteer activities	Thinning insufficiently managed forests, adding mixed forests, and environmental and forest education	Management of unmanaged artificial forests. Promotion of domestic woods. Education	Forest creation
Characteristic forest-related local roles	Conducting and managing tree planting by a local government	Consigned corporations conduct forest management	Prefectures and consigned corporations, such as forest associations, conduct the work	Both prefectures and municipalities could decide how to spend governmentally allocated funds.	Participation in land planning and management

Note. The materials of the Copenhagen Energy PES Scheme, Dōshi Water Source Forest, payment from downstream to upstream areas, and slowing the flow at Pickering are compiled from Shibata (2019).

Unregistered owners of forest lands have caused problems for land management. A 2017 survey conducted by the Ministry of Land, Infrastructure, Transport and Tourism of Japan (MLIT) showed that the land ratio of unregistered forest owners was higher (28.2%) than that of agricultural lands (19.0%) or residential lands (19.3%). Since forest owners are unregistered, consensus on forest management is delayed and forest lands tend to be abandoned as the population ages and decreases in number, to be concise (cf. [6]). Therefore, the government introduced NFMS as a way to address the issues of unregistered owners, and passed forest environment transfer taxes to support the program financially. Specifically, the Forest Environment and Forest Environment Transfer Tax (Heisei 31 Law 3 [平成31年法律第 3 号]) passed the Diet in 2018 and the Forest Environment Transfer Tax

(FETT) was introduced in 2019 (Table 1). The direct transfer of control to municipalities was meant to address unmanaged private forests.

A national forest law was formally launched in the Tax Reform Proposal 2018 (or *Zei-Tai-ko*) during December 2017. The tax was introduced with explicit reference to the UNFCCC Paris Accord, aiming to maintain forest functions as carbon sinks to combat global climate change. Governments could spend revenue in forest management for reducing environmental hazards. The "foreseen timing of NFMS introduction" (coinciding with the passage of FETT) was mentioned in the Tax Reform Proposal 2018 as necessary for introducing the new national tax. Proclaimed in June 2018, NFMS enforcement began in April 2019. Municipalities are expected to have as much as 80% (gradually increasing to 90%) of the FETT allocated to them, reflecting their increased role.

How was the introduction of such an environmental tax made possible nation-wide in 2019? The economy is sluggish, with a low growth rate for decades, and the population is decreasing. First, the payment of the tax is not simultaneous with the transfer tax. The Japanese population is obliged to pay a tax of 1000 yen, stringed as the FETT, starting from the tax year 2024. Second, the introduction is designed so that the population does not feel the tax increase. The population has been paying 1000 yen as a tax for disaster-prevention policies reacting to the 2011 Great East-Japan Earthquake and Tsunami since 2014, which faced less resistance due to the emergency of the issue. The payment of this tax will end in the year 2023, and then the stringed taxation of the FETT will start. The FETT will be named the forest environment tax from the year 2024 (Figure 1). There were ethical questions raised in the media [7]. Generally, losing such a tax mechanism was regarded as a lost opportunity (with no change of the re-introduction of new tax at a similar scale in the foreseeable future).

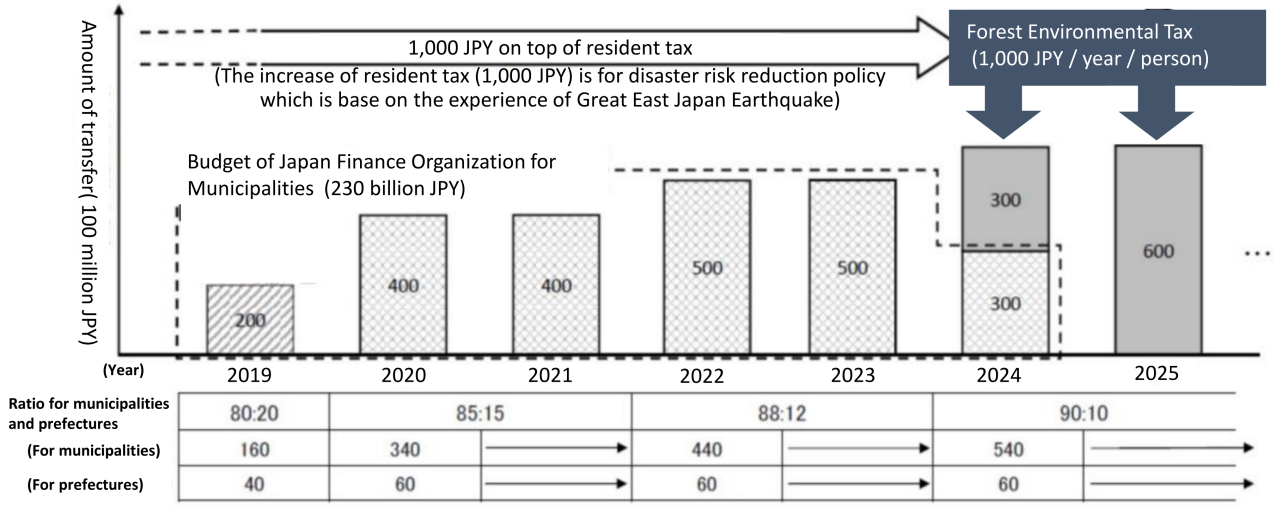

Figure 1. Budget size of the Forest Environment Transfer Tax (FETT) and amount of transfer for municipalities and prefectures (source: Forestry Agency).

The linkage of FETT and NFMS is seemingly straightforward, but the interpretation of the former offers a potential problem. The Ministry of Internal Affairs and Communications (MIAC) wrote the official proposal for FETT and categorized it as "transfer tax" (or *Joyozei* in Japanese). This meant that municipalities have the freedom to decide on expenditure, especially with regard to privately owned forests, despite the fact that protecting forest functioning is necessary for the NFMS. While this position was preferred by the MIAC, the Forestry Agency wanted to focus on forests and the environment. Thus, after the early phase of discussions indicating that FETT should be used for additional NFMS measures (rather than pre-NFMS measures), the connection between the two laws grew muddled. Indeed, the Forestry Agency initially announced a guide on this topic, which was later withdrawn without clear explanation.

The FETT changes the dynamics of forest policies; first, they force the municipalities to play a role which was conventionally implemented by forest associations together with prefectures. Second, it split the unmanaged, privately-owned forests for production and public functions by asking for the willingness and preferences of the owners.

1.2. Overview of Forest Environment Transfer Tax and Challenges of Prefectures and Municipalities

The criteria for FETT allocation are based on the area of privately owned artificial forests (frequently conifers, such as *Cryptomeria japonica* or *Sugi*), amount of employment in forestry, and the population size of municipalities and prefectures. The criteria are given weightages, which begin at 50% for forest area, 20% for employment, and 30% for population. The forest area is a more flexible category; allocation can increase by 30% with a 75–84% area ratio, and 50% with an >85% area ratio. The first and second components, plus amendments, were directly linked to forestry-related activities. However, the third component generated much controversy [8] as it prioritized urban areas.

The funding scheme has changed rapidly since 2019. The allocated amounts have increased in response to the greater risk of natural disasters, such as Typhoon Hagibis, which caused landslides, fallen trees, and blackouts across large regions of Japan, including Chiba prefecture, in October 2019. The original funding scheme was designed to increase gradually over 14 years from 20 billion yen to 60 billion yen. However, the government allocated 40 billion yen in 2020, the amount planned for 2025, indicating an acceleration of funding increase.

Prefectural governments foresee further changes due to COVID-19, particularly a decrease in housing demand that will cause a policy implementation delay of several months. The FETT at the urban area or prefectural levels may have to shift towards demand-oriented measures, such as prioritizing the use of woods in urban areas, besides the supply-side measures as an emerging priority.

To address these challenges, individual municipalities have tailor-made policy measures that respond to diverse physical environments (extent of privately owned forests and geology), society (landowner interests and information of boundaries), and institutions (knowledge, capacity, and available human resources) [9,10]. However, the lack of available forestry human resources and capacity is an issue for most municipalities aiming to use FETT funds, as they are not conventionally involved in forest management [11,12]. Notably, a questionnaire conducted by the Forestry Agency in September 2019 revealed that municipalities with fewer forest resources tended to delay spending allocated funds. Half of the municipalities with <1000 ha of privately owned forests earmarked their FETT budgets for future use [13].

Municipalities with limited privately owned forests also have fewer staff and little experience or expertise in forest management, in addition to receiving less in allocated FETT. The requirement to publicly disclose itemized expenditure adds to the burdens of the municipal staff. These disclosures are designed to check the appropriateness of implemented policies. However, with no precedent for FETT spending in the fiscal year 2019, facing direct opinions from the residents is considered relatively high risk for staffers in charge of FETT. Of particular importance is the fine line between what is allowed and what is inappropriate. Interviews with staff from Saitama prefecture included concrete concerns, such as "Should we use wood from other prefectures or is local wood enough?" and "What should be the ratio of wood to iron when purchasing tables for schools?" The answers may depend partially on post-disclosure citizen responses. In the majority of the policies, decisions and judgments are based on guidelines and criteria (either from the past or from the external bodies of prefectures or nations). For FETT, the decisions of expenditures and following disclosures of budgets are challenges (result of an interview with officers in charge of FETT in the Tokyo metropolitan area and Chugoku region in 2019).

1.3. Status of Prefectures and Their Roles to Support Municipalities

Both individual municipalities and prefectural governments have considerable freedom to decide the use of FETT [12]. Therefore, exact FETT allocation varies from prefecture to prefecture, although the total amount given to the prefectures is currently 20% of the total FETT. As the collected FETT gradually increases over time, prefectures receive a correspondingly lower percentage (10% by 2024) to yield a relatively stable sum. At present, the largest amounts are allocated to Hokkaido (367 million yen), Tokyo (144 million yen), Kochi (142 million yen), and Gifu (137 million yen), followed by Hyogo, Nagano, Iwate, Shizuoka, Aichi, and Miyazaki, receiving roughly 120 million yen each. Prefectures with smaller allocations are Kagawa (15.8 million), Okinawa (16.7 million), Toyama (26.1 million), Saga (28 million), and Shiga (35.3 million), followed by Nagasaki, Yamanashi, Ishikawa, Fukui, and Totori, receiving roughly 40 million yen each [14]. Thus, at the prefectural level, allocation seems to be balanced between urban and rural areas, with examples of the former being Tokyo and Aichi, and examples of the latter being Hokkaido and Kochi.

Certain prefectures have internally discussed differentiating between FETT and PreFET usage [15]. For example, Shiga prefecture amended their prefectural ordinance to clarify and define the role of PreFET in light of the national tax (Articles 1 and 4 of PreFET Ordinance of Shiga Prefecture) [12]. Besides the differences in regional and national tax systems, there are fundamental questions regarding the role of prefectural governments in the FETT. Officials interpreting these issues must strike a sensitive balance between the general principle of autonomy for transfer tax and support from the upper body.

For pragmatic reasons, many municipalities want prefectures to spend the FETT on its original purpose of forestry management at the municipal level. Yet, some prefectures decided to respect municipal autonomy and individual contexts, avoiding strong interventions; this was the case in Miyazaki, despite the presence of active forestry and the large amount of allocated funds. Regardless, municipalities must exchange information with prefectural governments or with other municipal governments regarding how to deal with situations for which local officials have little experience, such as the aforementioned disclosure of expenditures. Prefectural governments must, therefore, balance between municipal autonomy and providing support for municipal governments.

In this study, we conducted a survey for the prefectural governments to identify the status of their tax uses for supporting municipalities in the initial introduction phase of the fiscal year 2019 to 2020. These data in the initial phase are critical as they serve as a basis to compare the changes in temporal scale for future studies. By analyzing the survey result, we identified what types of supporting activities were mainly conducted for municipalities and how the prefectures differentiate the tax uses of prefectural forest environmental tax and FETT as a national-level tax. After providing the analysis result, the future directions of the utilization of the FETT scheme are discussed in the last sections of this paper, considering the concept of multi-level governance. The FETT scheme is a unique new forest tax scheme; however, since the FETT scheme can be regarded as a payment for ecosystem service scheme, the lessons learned from this study can be useful for other countries which are introducing such schemes for forest management to make their scheme more efficient and effective at national and local levels.

2. Review of Existing Studies and Concept of Multi-Level Governance

2.1. Review of Existing Studies on FETT and PreFET

Existing studies related to FETT have focused primarily on four different domains: (1) institutional FETT for urban contexts, (2) differentiation of FETT and PreFET, (3) diverse challenges for municipalities, and (4) differences in human and resource capacities across municipalities.

Discrepancies between FETT and PreFET have been identified based on goals, scope, and the reality in municipalities. While the FETT's main scope is unmanaged artificial forests with private owners, integrated budgets are transferring funds to densely populated areas with fewer artificial forests or forestry workers (Table 1). As a consequence, projects

related to promoting domestic woods or campaigns to raise awareness of forest management are conducted with the expectation of stimulating domestic demand [16]. Cost-benefit analyses from mid- to long-term perspectives should be conducted on activities that do not fall into the purview of direct forest management [17].

Second, FETT and PreFET expenses should be streamlined for the 37 prefectures that have PreFET. Several prefectures already provide guidance for operating with the two systems: Miyagi, Kanagawa, Fukui, Mie, Hyogo, Oita Fukuoka, and Kumamoto. Oita and Kanagawa have posted their guidelines online, with the former prefecture doing so based on requests from their municipalities.

Common expenditures cover "soft" and "hard" activities. The former includes collecting forest data, surveys of forest owners, and securing forestry workers. The latter include forest thinning and operational road construction. As several forests have already been thinned with PreFET funds prior to the introduction of FETT, governments must be careful to differentiate the uses of the taxes. Shiga prefecture has already modified their PreFET in response to FETT [12]. However, limited studies thus far have examined the differences between PreFET and FETT on a national level [18], given the latter's newness. Rather, studies have focused more on examining the effectiveness of governmental bodies than that of the institutional systems of taxes.

Currently, there are important information gaps regarding the status of municipal forestry activities. The widely divergent contexts mean that problems are difficult to predict. The trends before and after FETT introduction need to be considered, such as the rate of acquiring forest data and personnel size. A nation-wide review [10] examined national statistical data on forests and their relationship to FETT expenditure. Another study reviewed the overall trends of prefectures with PreFET and the scope of their support for municipalities under the FETT; it identified trends in prioritizing surveys of forest owners, although the institutional arrangements (e.g., reallocating staff and restructuring organizational bodies) differed [12].

Capacity limitations in municipal human resources are a structural problem with no immediate technical solutions [9]. Some municipalities have, therefore, expressed negative opinions regarding FETT because it is an administrative burden in cases of municipalities lacking staff for forestry management [11]. Thus, policies should be tailored to the capability and capacity of individual municipalities.

Staff exchanges between municipalities and prefectures (cf. [19] for Saitama prefecture and Chichibu city) can promote the transfer of knowledge and skills to municipalities. Ehime prefecture has a rare system where the prefectural staff also simultaneously serve as municipality staff in branch offices. In general, however, human exchanges per se cannot be sustainable for knowledge transfer, because higher-level staff will return to their original posts after a certain period. Municipal governments are searching for new workers [20], but temporary staff is in short supply, frequently leading to retirees from prefectural governments serving as support staff. It remains to be seen how FETT can enhance human resources for municipalities.

2.2. Multi-Level Governance

Our research framework is based on a multi-level governance, defined as "political structures and processes that transgress the borders of administrative jurisdictions, aiming to cope with interdependencies in societal development and political decision making which exist among territorial units" [21]. The concept of multi-level governance began with the establishment of the European Union (EU) [22]. Based on the subsidiarity principle, this system allows city and municipal governments to collaborate with the EU directly, instead of following a strict hierarchy of the EU as the highest authority, followed by national, state, and finally, city and municipal governments. This multi-level governance has been analyzed in the context of environmental policies [23,24].

Recent studies have examined international environmental processes, such as the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) [25].

Marks [22] applied the policy network as a conceptual framework when analyzing EU multi-level governance. The policy network is described as "dependency relationships that emerge between both organizations and individuals who are in frequent contact with one another in particular policy areas" [26]. This conceptual framework has been previously used to analyze policy-making processes [27].

The policy community is a related concept, interpreted as a type of policy network. The "community" does not necessarily refer to an organization with restrictive membership and insulation from other networks or institutions; instead, it can refer to less stable and less restrictive groups composed of actors who share an interest in a policy area [28]. For example, in watershed management, citizen groups in upland and downstream areas can be interpreted as policy communities. Understanding their interest in and awareness of management policy may be key to improving governance. Axelsson et al. [29] analyzed social learning in the network of multi-level governance in a regional sustainable development process, though a problem remained about the formalization of social learning. Keskitalo et al. [30] analyzed the attitudes of actors against the other actors in the situation of multi-governance in a forest region and claimed the importance of bridging actors in natural resource management. Despite the emergence of multi-level governance in the EU, interest groups related to German forests were mostly in the process of adapting multi-level governance, adhering to policymaking at the national or lower levels where they had been active. The application of policies, such as the EU Water Framework Directive, adapts the institutional framework and thoughts in a host country [31].

Thus, in this study, we considered the concepts of the policy network and policy communities in our analysis of multi-level governance through the implementation of PreFET and FETT. The nature of FETT implementation involves multi-level governance, and the chosen framework will help us to understand the dynamics and gaps to implementing payments for ecosystem service schemes in the relatively vertical arrangement of forest governance in Japan. Payment for ecosystem services in forest management involving multiple government levels primarily intends to solve the problems of water source preservation and landscape preservation for tourism (Table 2). The policy measures recommend tree planting, especially broadleaf trees, to retain water. On the other hand, compared with the international cases, FETT was relatively rare in its objectives, like other recent forest policies in Japan. It responds to the increase in unregistered owners in addition to the Paris Accord (Table 2). Municipalities could decide the spending of the allocated funds. though they were not so experienced in decision-making and evaluation of forest policies.

We referred to the policy network framework for the collaboration of prefectural and municipalities; concretely, the expenditure usage for their collaboration and priority to support municipality under FETT were analyzed. There are needs to analyze the multi-level governance of nations, prefectures, and municipalities, and how the dynamics amongst them, especially between the multiple levels of local governments, prefectures, and municipalities, changed over forest management and policy community.

3. Methods

We conducted questionnaire surveys on government staff in all 47 prefectures to enquire about support to municipalities under FETT (and PreFET for 37 prefectures). In the fiscal year 2019 (April to October), we conducted face-to-face surveys with all prefectural staff. In 2020 (April to July), we conducted email surveys supplemented with additional phone calls. However, because of limitations from COVID-19, face-to-face interviews were limited to a few prefectures.

As for the contents of the questionnaire, we enquired about budget size and the types of supporting activities implemented using FETT, and budget increases for priority policy areas, using a 5-point Likert scale. The questions related to the budget and supporting activities and policies were closed ended. Regarding the priority policy areas, we provided options to be selected by the respondents. For prefectures with PreFET, we also asked whether they amended PreFET when FETT was introduced. The question for this

streamlining of FETT and PreFET and differentiation of the uses of the two taxes was open ended. For this open-ended question, government staff, as respondents, could answer if there were any changes in the supporting activities and policies for municipalities, which was made because of FETT introduction. Those activities and policies included technical support for forest owner surveys and handling various types of geographic information, and the knowledge and experience sharing of those activities tended to be shared through meeting bodies organized by prefectures and municipalities. Since our main results of the survey, which was about streamlining FETT and PreFET for supporting municipalities, were qualitative data obtained by open-ended questions, we analyzed the contents of the answers to the question in a qualitative manner.

4. Results and Discussion

In the following sections, supports for prefectures of municipalities with diverse challenges and contexts are examined in the following first and second sub sections. Furthermore, the necessary demarcation between FETT and PreFET at the prefecture level is analyzed as a basis for support for prefectures of municipalities, in the third sub section. This could show the current capacities for the implementations of FETT and their limitations.

4.1. Budget and Supporting Activities under FETT

We received answers from 45 prefectures regarding budget size and the types of supporting activities. The latter were clustered into five categories: (1) questionnaires to private forest owners (*Ikou-chosa*), which was also the initial step in NFMS; (2) technical support and knowledge transfer (such as GIS or airborne laser scanning); (3) coordination of forest thinning; (4) securing and training new staff; and (5) other (e.g., promotion of domestic wood use) (for the allocated budget per category, see Figure 2). Technical support had the largest budget size. Most municipalities that answered questionnaires were prioritized as in the order mentioned above [11], as prefectures wanted basic data and estimates of resource distribution.

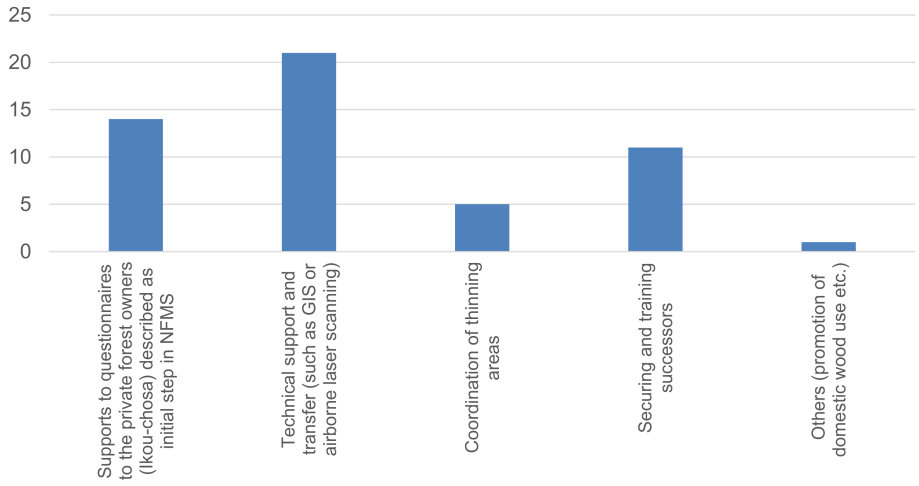

Figure 2. Number of policies and measures in individual categories (policies and measures with the largest budget sizes in the FETT revenue of each prefecture are counted. If a policy or measure is related to several categories, the policy or measure is counted in those related multiple categories).

The top-three average (and median) budget sizes were 33.62 million JPY (33.44 million JPY), 19.01 million JPY (17.05 million JPY), and 12.49 million JPY (10.15 million JPY). The second and third-highest budgets had relatively lower medians than means, because prefectures with higher budgets tended to influence the overall average.

The total budgets for questionnaires, technical support/knowledge transfer, and coordination of thinning were 1.45 billion JPY, 0.78 billion JPY, and 0.36 billion JPY, respectively.

The average budget allocated to questionnaires was higher than that to the rest. Although technical support/knowledge transfer were implemented with the largest budgets in many prefectures, the total budget size of the prefectures for the questionnaires for forest owners was the largest. The information of forest owners and their forests can be a basis for proper forest management. However, even if the prefectures and municipalities collect such information, they need to establish methods of efficient and effective use of the information. The prefectures are at the phase of information collection now, and the evaluation of the effect of the use of the information will need to be conducted in future research, considering cases of other countries that are collecting and using the information of forest owners and their forest for forest policy and its implementation.

4.2. Priority of Supporting Activities for Municipalities under FETT

We compared priority activities before and after FETT implementation in 2019; no drastic changes occurred with respect to this (Figure 3). Supporting priorities remained in questionnaires to private forest owners and technical support, followed by securing and training new staff. The third item, securing and training new staff, did not have a high budget allocation but tended to be prioritized.

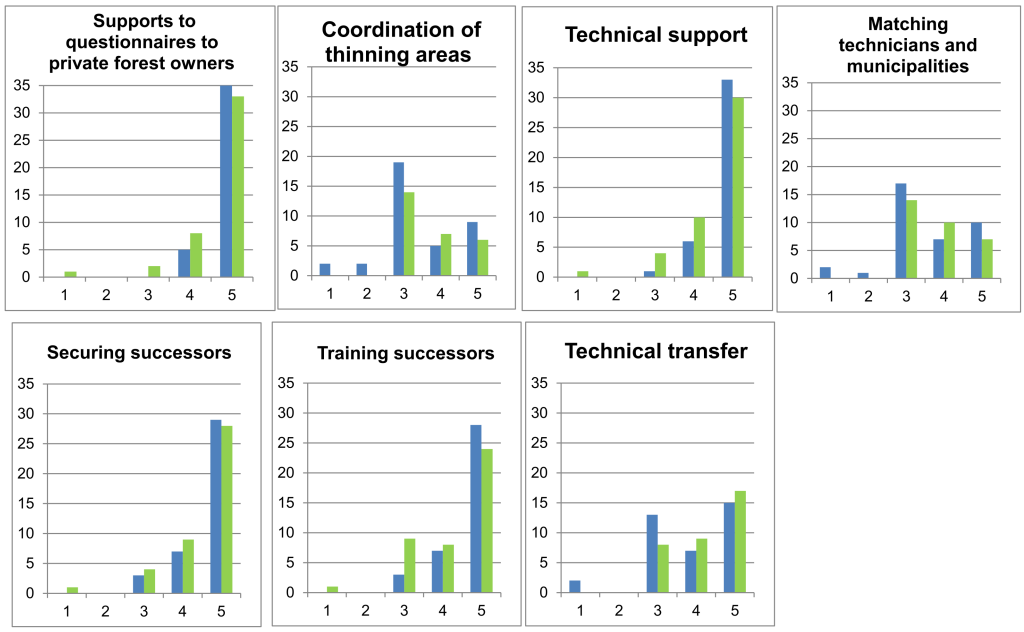

Figure 3. Degree of priority of policy and measures using FETT in 2019 (survey of 47 prefectures before (blue) and after (green) the implementation of the policies and measures). Degrees of priority of policy and measures: 1: very low, 2: low, 3: neither high nor low, 4; high, 5: very high.

As planned, questionnaires to forest owners and technical support were implemented in over 30 prefectures (33 for the former and 30 for the latter). However, the implementation of securing and training successors decreased slightly from 28 in the planning phase to 24.

While the general trends were similar, priority increased for technical support and transfer, with more prefectures shifting to prioritize this activity after FETT. This result suggests that the need for technical knowledge was stronger than initially planned due to limitations in skills and human resources at the municipal level.

Budget size can be an indicator to identify the priority of policies. The surveyed budget sizes of policies and prioritized policies answered by prefectures were consistent, except for the policies for securing and training successors. The securing and training successors can be implemented as budgets of prefectures, and they are implementing them with long-term plans. This can be a reason why the budget allocations from FETT to such policies were relatively small compared with the allocations for other policies.

4.3. Streamlining FETT and PreFET in Prefectures

Formal explanations from parliament or staff typically indicated that "the types of forests covered by FETT and PreFET are different: FETT focuses on forests that cannot be properly managed with existing policy (including PreFET), notably privately owned forests, as stated in the NFMS." In other words, they implied that the two systems did not overlap.

However, expenditures and legal texts, such as ordinance, were changed. Of the 37 prefectures, 18 reviewed and altered PreFET in light of the FETT (Table 3). Expenditures were separated and information was streamlined; the Kangawa, Fukuoka, and Mie prefectures published comparative tables of the two tax systems, showing their background, purpose, and funds spent (Table 3).

Generally, activities related to thinning and forest management, securing and training new employees, and raising awareness were covered under PreFET. After review, funding switched to FETT for certain activities that better fit the purpose of the national tax. Explanations for these transfers frequently mentioned that they were conducted after careful expert consideration, but ambiguity remained regarding whether these activities were "new and additional," as originally envisioned for FETT coverage.

The PreFET and FETT have commonalities in terms of forests covered, forest resources, and public functions. Certain PreFETs are used strictly for disaster prevention (as in Osaka), meaning that splitting activities and streamlining information were relatively simple. Other PreFETs have wide-ranging and diverse policy options that include privately owned forests. In such cases, the introduction of FETT requires careful adjustment of expenditures that considers both tax systems.

This type of streamlining of schemes in other countries can be needed when they decide to introduce new forest management policies and schemes, including taxes and payment for ecosystem services. However, research on such cases in the forest management field is limited. In this context, the result provided by this research focusing on streamlining similar, but different, schemes can be useful, because climate change and other global change may require drastic changes of forest policies in individual countries in the near future. and it can be expected that many countries will start to introduce new policies and need to streamline new and existing policies.

The detailed items reviewed by prefectural governments are provided in the following part of this section.

4.3.1. Relevant Forests

Privately owned artificial forests are the main target of NFMS and FETT. These forests are considered either economically manageable or not. Manageable forests are then dealt with by appropriate organizations, while management rights (not ownership) can be delegated to municipalities for unmanageable forests. In reviewing PreFET, Ehime prefecture stated: "In the framework of Pre-FET, supporting activities for economically managed forests beyond the scope of FETT, such as securing new staff and promotion of wood uses, will be advanced." In contrast, Wakayama prefecture stated: "PreFET will be used for managing artificial forests that are not in the scope of the FETT for the purpose of disaster preventions." Here, differences in relevant forest types and purpose of funds were emphasized. At the operational level, however, technical challenges hampered efforts to determine which forests were economically manageable and which were not, particularly when available data were limited to GIS and LiDAR.

Table 3. Review and revisions of the Prefectural Forest Environmental Tax (PreFET) in 2018/2019.

Prefecture	Details of Revisions
Miyagi	Activities defined as being under the scope of the FETT will be excluded from the PreFET (Miyagi Environmental Tax)
Fukushima	The ordinance of the Fukushima Forest Environment Fund has been revised to make depositing the revenue of FETT in the fund possible.
Tochigi	Abolished two activities: 1. Promoting mixed forests with conifers and broad-leaved trees (*Shinko–Konko–Rinka*). Transition to natural forests by intensive thinning of artificial conifer forests. 2. Intensification of forest management by enlarging operational units (*Segyo–Shyuyaku–Sokushin*). Matching information (using databases known as "banks") of owners and operators to enlarge operations in forests.
Ishikawa	Transfer management of artificial forests under PreFET to municipalities, because FETT is intended to fund the municipal management of such forests under NFMS.
Aichi	Activities under PreFET (Aichi Forest and Greening Tax) were reviewed in July 2018; the decision was made to continue such activities. To differentiate between PreFET and FETT, existing activities under PreFET that can be conducted under FETT, either by prefectures or municipalities, were abolished. For thinning of artificial forests, PreFET is necessary to cover target areas and will therefore remain unchanged in this regard. For Satoyama management, existing activities under PreFET that can be conducted under FETT, either by prefectures or municipalities, were abolished. However, support to NPOs and local residents will continue during the initial phase of FETT. This is because broad-leaved trees frequently observed in Satoyama forests grow rapidly and require continued management. Support for locals will also encourage self-organized activities. Support to municipalities for wood-use promotion, including those from thinning, are abolished; such activities can be conducted under FETT either by prefectures or municipalities. However, for the purpose of organizing national planting festivals in 2019, the prefecture will continue to support activities that improve public relations related to locally produced wood. The slogan of national planting festivals is "Wood use will bridge forests and cities."
Mie	○ FETT promotes the management of public forest land, training forest workers, and the promotion of prefectural woods ○ PreFET (Forest and Green Tax) promotes forests resilient to disasters, training of volunteers, and environmental education. They have provided a detailed comparative table of the two tax systems that explain; (1) Measures for unmanaged forests 1.1 Artificial forests 1.2 Satoyama bamboo 1.3 Eliminating trees that are a hazard to people (2) Securing and training new employees (3) Raising awareness (4) Promotion of wood use (5) Support
Shiga	The Ordinance on Prefectural Tax was revised (March 2019). As a prefectural tax would be based on the present idea (policies toward environmental consideration and cooperation among prefectural citizens), it was decided not to implement policies, such as support for municipalities, based on Forest Management Law. Instead, FETT would be used to support municipalities. The prefecture determined which roles were appropriate for itself and for its municipalities. Municipalities would be responsible for tasks such as the control of locally familiar unmanaged forests because FETT is mostly distributed for this purpose. The prefecture would develop mixed needleleaf and broadleaf forests in isolated locations. This would benefit larger areas.
Kyoto	With the introduction of FETT, the prefecture reviewed municipal grants from excess taxes to avoid overlapping accounts. Policies, such as measures to eliminate dangerous trees, were expanded to strengthen disaster-prevention measures in preparation for increasing frequency of natural disasters.

Table 3. *Cont.*

Prefecture	Details of Revisions
Osaka	To differentiate PreFET and FETT, PreFET will be mainly used for urgent disaster risk reduction measures and FETT will not be used for such issues. Measures of the promotion of wood products for building childcare-support facilities and training the successors of forestry will not be implemented by PreFET after 2019, because FETT will be used to implement those measures.
Nara	Given the strong need to control unmanaged forests, the prefecture is concerned that some municipalities may have insufficient funds if they only rely on FETT. Prefectures will, therefore, continue to control unmanaged forests. Municipalities will take on measures for enhancing forests' resilience to disasters based on the current assessment of damage from increasing natural disasters. This differs explicitly from the prefecture's control of unmanaged forests. Considering the broad usage of FETT at the municipality level, the prefecture limits its measures to wider forests with the aim of benefiting trans-municipal areas. (Changing measures after 2021 is currently being considered.)
Wakayama	The use of PreFET was revised with regard to activities that can be covered under FETT, such as thinning of mixed forests. PreFET will be used for the thinning of artificial forests and high disaster-risk land management near villages, for which FETT cannot be used.
Okayama	PreFET will be used for measures related to wider areas, comprising several municipalities, while FETT will be mainly used to support municipal forest management. This differentiates between PreFET and FETT. Thinning: Measures under PreFET are conducted based on the survey results of forest owners. Results are especially important in areas surveyed based on Forest Management Law. Measures for forest insect pests: PreFET will be used to implement urgent measures in wider areas composed of several municipalities. Human resource development: PreFET will be used for measures on wider multi-municipal areas, while FETT will be used for municipal measures. Facilitating the use of timber and wood products: PreFET will not be used for public buildings constructed using FETT. Information sharing: PreFET will be used for measures on wider, multi-municipal areas, while FETT will be used for municipal measures.
Ehime	FETT is used only for entrusting forest management to municipalities and the management of unprofitable forests. PreFET is used for the management of profitable forests, human resource development, and facilitating the use of timber and wood products. A measure based on PreFET to support municipal proposals was suspended, considering that FETT can be used for this purpose.
Kochi	The guideline of PreFET has been revised to show that PreFET cannot be used for the measures implemented by the FETT framework.
Fukuoka	An external PreFET evaluation committee recommended the differentiation measures under the jurisdiction of PreFET versus FETT. Support of wood product exhibitions in public buildings has, therefore. Been removed from the list of PreFET-relevant measures.
Oita	Human resource development and capacity building in the forestry sector are implemented using FETT.
Miyazaki	Although previously conducted using PreFET, thinning, registration of public forests, and promotion of prefectural wood products are now conducted using FETT. Considering the goal of PreFET (conservation of forests), we have strengthened the use of PreFET funds for conservation-related measures, such as driftwood outflow prevention and reforestation.
Kagoshima	Prefectural ordinance of PreFET has been revised to change the name of PreFET from "Forest Environmental Tax" to "Prefectural Tax for Our Forest managements" to differentiate FETT and PreFET.

4.3.2. Differentiation of Supporting Activities: Promotion of Wood Use and Support for New Hires

Certain prefectures, such as Tochigi, Aichi, Mie, Osaka, and Fukuoka, revised their PreFET to avoid promoting wood use because such activities can be funded by FETT, particularly in urban areas. Oita prefecture decided that forestry employee training and support was covered under the FETT. Other prefectures (e.g., Ehime) determined that PreFET covered the promotion of wood use and employee training. Thus, during the early stage of FETT, prefectures varied considerably in their categorization of activities that fall under PreFET versus FETT.

4.3.3. Streamlining of Activities

Some activities were abolished as prefectures sought to streamline processes. Ehime prefecture abolished PreFET funding for activities co-organized with municipalities in June 2018, because municipalities will have their own funding from the FETT. In contrast, Mie prefecture decided on August 24, 2018 to continue funding activities proposed by municipalities under the PreFET framework, at least for the initial period of FETT implementation. They took care to avoid overlap between the two systems.

4.3.4. Differentiation between PreFET and FETT in Terms of Scale

Several prefectures differentiate between PreFET and FETT based on scale: either forest size or the amount of accompanying functions. PreFET includes diverse forest types beyond privately owned artificial forests. Management under PreFET frequently encompasses wider areas to address disaster prevention (e.g., landslides, frequent heavy rains, and typhoons). For example, Nara prefecture revived unmanaged forests beyond municipality boundaries under PreFET. Okayama prefecture prioritized PreFET funds for implementing pest control and disease prevention while abolishing the promotion of domestic wood, as the latter can be included under FETT. Securing and training forestry employees was also categorized into PreFET.

The timing of using taxes for artificial or mixed stands in semi-rural areas (e.g., Satoyama forests) differed between PreFET and FETT. In Aichi prefecture, PreFET is used in the initial phase of management of Satoyama forests to provide continuity with previous forest plans, but future funding may come from FETT. The management of Satoyama forests can be interpreted in diverse ways, with some interpretations involving the elimination of trees that may cause danger to pedestrians and traffic.

4.3.5. Disaster Prevention

Disaster prevention is increasingly becoming an important cause for the PreFET (as was the case with Mie, Kyoto, Wakayama, and Miyazaki). Additionally, Osaka focused exclusively on disaster prevention from the beginning.

5. Challenges and Future Directions

We reviewed the current status of FETT implementation and how it interacted with PreFET at the early phase of introduction. Municipalities have a shortage of human resources, while prefectures are uncertain with regard to the degree of support they can offer. Furthermore, the situation of the individual prefectures varies in terms of whether they have PreFET and how it is used. Municipalities had rarely been involved in forest management before the introduction of FETT. Long-term top-down policy implementation might not lead to the involvement of local and wider grass-root communities in the implementation and evaluation of FETT. While 37 prefectures are streamlining FETT and PreFET to avoid overlap in the use of the two taxes, the supports of prefectures for municipalities are focusing on technical support to enhance the capacity of municipalities under the diverse regional contexts. The divides among national, prefectural, and municipal governments could remain without determined actions for social learning. This study showed that the emergence of FETT kept the continuous administrative boundaries in forest policymaking,

especially between the prefectural and municipal levels. The application of FETT would be further concerning as the explanation by the central government was vague and general. As a result, the assessment of the policy measures remained nebulous. If this was the result of the current policy implementation, governments could improve the policies and their implementations by introducing an active agenda of social learning, in addition to the identification of active coordinators in Japan's multi-level forest governance [29,30].

The implementation of FETT and its interaction with PreFET face many challenges. For example, policy processes are either poorly recorded or not publicly disclosed. Explanations of policy changes are often vague and general, precluding detailed understanding. For example, the MIAC justified increasing the overall budget size of the FETT in the Tax Reform Proposal of 2020 by stating that the changes "reflect the current situation of forest management by prefectures and municipalities and the further need to promote implementations." Relatedly, tax policy is generally complex [32], and, in the case of FETT, both the MIAC and the Forestry Agency are involved in development, while prefectures and municipalities are involved in implementation.

The degree of guidance and reasoning differ among systems. As described in the Introduction, the NFMS was referred to in the Tax Reform Proposal 2018 as the background of FETT. The documents, including guidelines, for NFMS were published by the Forestry Agency. In the initial phase, there were moves that the Forestry Agency will publish guidelines for FETT, which was later toned down to examples from municipalities.

Addressing these challenges will involve further research and cooperation on multiple-level governance, facilitating the interaction of policy networks of FETT and PreFET. Every five years, the PreFET is reviewed and relevant ordinances are extended for 4–5 years. Accurate, detailed records of these reviews will benefit future discussions. These prefectural records should be combined for municipal evaluation and citizen responses for comprehensive evaluation.

There need to be further discussions for the accountability of the FETT. In current explanations, the accountability of the FETT is the disclosure of expenses information by the municipality. The judgment criteria are unclear and cause concern among staff. Moreover, determining the appropriateness of expenditure is based on input from citizens who may not possess the relevant knowledge or expertise. Even then, the efforts to involve local and grass-root communities could benefit both local and national forest management. The advantage of PreFET was said to be their participatory character in involving citizens for their introduction, use, and monitoring contributing to public awareness [17]. It remains to be seen how such participatory processes will evolve with the introduction of FETT at the national level.

6. Conclusions

This study identified that prefecture activities fell into three broad areas: (1) adjusting budgets under FETT, (2) determining supporting activities types under FETT, and (3) streamlining services under the two tax systems. Surveys for forest owners and technical support for municipalities received the largest proportion of the budget. Another prioritized activity was securing and training new forestry employees. The most important elements that separated the PreFET and FETT jurisdiction were forest type, supporting activities, and spatial scale.

The coexistence of FETT and PreFET presents a mixed picture at this early stage. For multi-level governance to function, experience and information sharing are critical for both prefectural and municipal staff. Yet, one of the reasons for continuing the PreFET is that the two tax systems have entirely different purposes and scopes, such exchanges and discussions are avoided, at least at the official level in many prefectures. Only 18 out of 37 prefectures revised their PreFET in 2020, and the revisions were very limited. This appears to be partly because of fears that the PreFET will be downsized or abolished. While none of the prefectures felt that FETT had a negative effect on PreFET, surveys revealed that officials asked whether other prefectures referred to sizing down or abolishing PreFET.

Open information exchange will be necessary in the future to address revisions and the duplication of activities under PreFET and FETT. This should be comprehensive stakeholder discussion.

The accommodation of both tax systems is expected to be easier for both policymakers and citizens as municipalities continue to work with FETT. Future studies can gather more data on the overall impact of FETT on NFMS or on general forest policies. Evaluation of FETT outcomes should examine both citizen responses and successful management of privately owned artificial forests. Right now, an immediate outcome is the involvement of municipalities, with some remaining passive under the top-down creation of the FETT. While it remains to be seen how multi-level governance and social learning will develop, our findings can serve as a basis for future exchanges between national and local governments in Japan and other countries which need to streamline policies and schemes, including forest taxes and payment for ecosystem services.

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