Feasibility analysis of acquiring forest certification system in the Monobe river basin's forest

Yuta Inoue and Tsunemi Watanabe
Kochi University of Technology

***ABSTRACT*:**
In late years the price of domestic woods has been low due to falls of import prices of foreign product woods in Japan. This invites a decline of management motivation of forestry managers. As a result, giving-up of an artificial plantation, advancement of dilapidation, frequent occurrence of natural disasters, and lowering of functions of the forest are concerned about. The situation is similar in the forest of Kochi Monobe river basin, and immediate measures are demanded. In Japan, the forest certification system acquisition is considered for one of the remedies of the forest management problems. Forest certification system is a system to certify the forest managed adequately. Specific logo marks are put to forestry products from the certified forest. The system promotes the purchase certified goods by consumers with priority by adding values to forestry products, and help to achieve desirable forest management. In this research, the authors pay attentions to forest certification system expected as one of the remedies of the forest management problems and examine a possibility of the certification acquisition in the Kochi Monobe river basin's forest. The authors focus on Yusuhara town that had already acquired the forest certification in Kochi. Comparative analysis with the Monobe river basin's forest is made, and a possibility of the certification acquisition in the forest of Monobe river basin is studied. As a result of the analysis, the feeding damage by wildlife was remarkable. Thus, at first Monobe river basin should concentrate on developing necessary measures. It is concluded, therefore, that a possibility that Monobe river basin's forest can acquire the forest certification is low now.

KEYWORDS: Forest functional decline, The Monobe river basin's forest, Forest certification system

1. INTRODUCTION

1.1 Background

1.1.1 The present situation of the Japanese forest maintenance

Forest covers about 67% of the country, and Japan is called eminent forest country in the world.

This forest has versatile functions (Table 1-1). Such functions support our daily life although they are difficult to be felt. However, in recent years, since import prices of the foreign product wood fall, the slump of the domestic wood price continued. Thus, daily wage of forestry employee came to exceed the wood price of the cedar per $1m^3$ (Figure 1-1). As a result, forestry management becomes difficult, and the above wage and price situation causes a decline of the management motivation of the forestry manager. In addition, aging of a number of forestry employees is advanced, and the total number of employees decreases year by year.

The forest management such as the thinning is not performed, and the forest is "abandoned." Artificial forest is in condition to be ruined. In this situation the forest may not be able to show versatile original functions, and the frequent occurrence of the natural

disaster is concerned about.

Table 1-1 Multiple functions of forest

① Biological diversity maintenance
② Global environment maintenance
③ A prevention of earth and sand disaster function, a soil conservation function
④ Source of a river cultivation function
⑤ A comfortable environmental formation function
⑥ Health and a recreation function
⑦ A culture function
⑧ A material production function

(Source: Forestry Agency homepage)

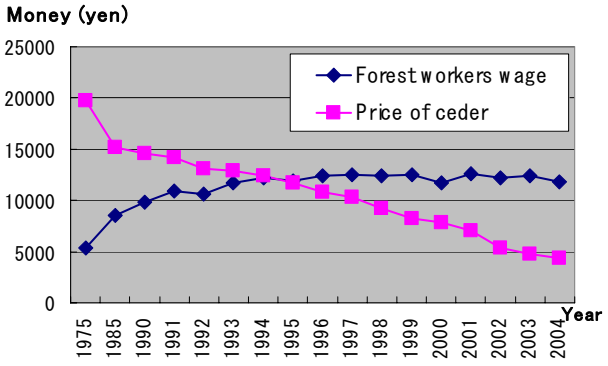

Figure 1-1 Change of the forestry workers wage and a wood price of a cedar（In Japan）
(From change (index comparison) of logging and lumber production worker wage and wood price in mountain)

1.1.2 The present situation of the forest maintenance of Kochi

Forest covers about 84% of all areas of the prefecture, and Kochi is a forest prefecture eminent in Japan. Because a large-scale afforestation was performed in Kochi from 1945 to 1955, the ratio of an artificial plantation with cedar and Japanese cypress reaches about 65% of the forest cover.

The artificial forest cannot be kept a healthy state unless it is maintained artificially. Since these artificial plantations are different from the natural woods consisting of the trees which have already inhabited there, natural update is hard to be performed. Much of the artificial forest was planted during the above-mentioned period, and the age of trees is becoming 40 and 50 years old, which needs thinning.

However, maintenance such as thinning was not performed enough in Kochi by factors of the aging of the forestry employees and decrease in their numbers. As a result, the artificial plantations with insufficient maintenance are increasing. The outbreak of disasters in mountainous district and lowering of the forest function is concerned about.
Such situations are also observed in a forest belt in Monobe river basin. Improvement of the forest management is needed.

1.2 Aims

In this research, the authors pay their attention to forest certification system expected as one of the remedies of the forest management situation. We attempt to measure its effect and examine possibility of the certification acquisition in the monobe river basin's forest.

2. FOREST CERTIFICATION SYSTEM

In Japan, being awarded forest certification system is considered as one of the remedies of the forest management situation. Forest certification system is to evaluate and certify the forest practicing sustainable forest management. The label of the specific logo mark is attached to the forestry products from the certified forest. This label adds value and promotes consumers to prefer these products to others. The consumer can support managers of forestry that performs appropriate forest management and further contribute to world forest maintenance by choosing products with the label. The system adds value to forestry goods in this way

and supports desirable forest management on the basis of markets.

As systems which can be acquired in Japan, there are two forest certification systems: "FSC forest certification system" and "the SGEC green circulation certification system." Many forest areas receive the certification by now. The forest in Yusuhara town and Taisho town in Kochi acquired the forest certification.

2.1 FSC forest certification system

FSC (Forest Stewardship Council) forest certification system is a most reliable certification system in the world. This is mainly because the WWF (World Wide Fund for nature), a society for the conservation of nature working on a global scale, recommends this system. Another reason for the reliability is that this system uses the common standard to examine whether sustainable forest management is practiced or not.

2.1.1 Starting process of the FSC forest certification system

The process that this FSC forest certification system started is as follows. In the United Nations Conference on Environment and Development (UNCED) of 1992 sustainable development (as one of the important elements of Sustainable Development), “Sustainable Forest Management” was confirmed. In addition, with "forest principle statement" and "Agenda 21" Chapter 11, necessity of sustainable management is written down for all kinds of the forest including temperate forests and the northern forests.

As a result of argument in the No. 15 board of directors of the International Tropical Timber Organization (ITTO), labeling and certification system of the wood attracted attention as effective technique afterwards.

Because forest certification system attracted attention, various groups tried to develop the certification label. Then, many labels were possibly jumbled up, and there was a danger of being fallen into the situation that consumers could not understand which label should be trusted. Therefore, unification of the certification systems was necessary, and the WWF which was a global major conservation of nature group led to establish a certification system called FSC. Because the world's greatest conservation of nature group established and recommended FSC, consumers can rely on judging whether reasonable forest management was performed or not.

2.1.2 The principle of the FSC forest certification system

Principles of the FSC forest certification system are described in Table 2-1.

2.1.3 The effect that is expected by FSC forest certification system

A prospective effect by the FSC forest certification acquisition is summarized as follows.

“The first one is improvement of the forest management standard as a social effect. Another effect is the improvement of multiple functions of the forest by the improvement of the management standard, too. Furthermore, it is hoped that management motivation is improved by acquiring the certification for the manager of forestry.

Expected effects for producers of wood goods are increase in possibility to enter the market with increase in value-added effects with the certification label.”

Table 2.1 Principle list of the FSC forest certification system

Principle 1	They follow all laws and an international decision and principles of FSC.
Principle 2	A right to own the forest and a right to use become clear.
Principle 3	They respect the traditional right of people (indigenous people) living in the forest from old days.
Principle 4	They have a good relation with a community and a worker.
Principle 5	A crop provided from the forest is rich.
Principle 6	It is the rich forest where many creatures live.
Principle 7	Based on the basic data that forest management was investigated, it is carried out premeditatedly.
Principle 8	They check whether they perform appropriate forest management regularly.
Principle 9	They protect precious natural forest.
Principle 10	The formation of the artificial plantation does not have an influence on the natural forest.

(Source: Non profit organization Japan forest management meeting HP)

2.2 A circulation certification system of the SGEC green

SGEC green circulation certification system (Sustainable Green Ecosystem) is forest certification system established originally in Japan. Its standard incorporates the Japanese peculiar topography and vegetation distribution.

2.2.1 The start process of the SGEC green circulation certification system

It is from the latter half of 1990 that forest certification system has begun to attract attention in Japan. It was judged that a role of the forest was important as absorption source of the greenhouse gas for prevention of global warming in Japan. Therefore, when the improvement of the forest management standard was planned, needs were born to evaluate the forest as the absorption source appropriately and to certify the well managed forest. Other needs to establish certification standards were to judge whether forestry products certified abroad flowing into the Japanese forestry market were really useful for Japan or not.

It was particularly needed to prevent the situation from occurring that domestic lumber is put on a disadvantage because it was not certified due to unpopularity of forest certification systems in Japan. Furthermore, Japan has a very large-scaled artificial plantation, which is not comparable with foreign forests. The original "forest plan system" and "protected forest system," which are considered superior to other countries, are legislated.

It was considered that the forest certification system in Japan should be established on the basis of the viewpoints of incorporating characteristics of nature such as ecology and of the society. The system needs to incorporate Japanese natural and living environment and maintenance of biological diversity maintenance so that the support of many nations can be obtained. In addition, it was also considered necessary to establish the original Japanese type of forest certification system incorporating the actual situation such as property structure, the artificial plantation rate, and the forestry management.

However, such a certification system should also be consistent with other systems in the world and with measures of the existing country such as forest

plan system or the protected forest system. A new certification system should contribute to improvement of the forest management.

The circulation certification system of the SGEC green was established from these points.

2.2.2 The standard of the SGEC green circulation certification system

The standard of the SGEC green circulation certification system is set as follows.

Table 2.2 Standard of the SGEC green circulation certification system

Standard 1	Clear statement of the certification object forest and the decision of the management policy
Standard 2	Maintenance of biological diversity
Standard 3	The soil and maintenance and the maintenance of aquatic resources
Standard 4	Production capacity of forest ecosystem and maintenance of soundness
Standard 5	A frame of the system of the law for sustainable forest management
Standard 6	Society, maintenance of the economic advantage and an increase
Standard 7	Monitoring and information disclosure

（Source: SGEC green circulation certification meeting HP）

2.2.3 Expected effect by SGEC green circulation certification system

Next is expected effect by the SGEC green circulation certification acquisition.

“At first local brand effect can be expected as the area that cares about environment by acquiring the certification. In addition, it is expected to have improvement of management technology by objective examination, restructuring of a business entity by a check of problems such as safety and morale (environmental awareness) improvement of an employee by it, demand expansion of wood, and image improvement of a management body.”

3. COMPARISON ANALYSIS

3.1 The standard comparison of the forest certification systems

The authors compared the standards of the existing two certification systems in Japan to examine a possibility of forest certification acquisition for the Monobe river basin’s forest. As a result, the authors observed common standards in the forest certification. They are summarized as follows:

1) formation of the frame of the system for sustained forest management,
2) production capacity of the forest ecosystem and maintenance of the soundness,
3) maintenance of the biological diversity, and
4) monitoring and information disclosure.

3.2 Comparison with the precedent example

The author tried to study a case of Yusuhara, Kochi, which was a precedent example of the forest certification and make a comparison of the monobe river basin’s forest.

3.2.1 Precedent example of the forest certification acquisition（In Yusuhara）

An example which has already acquired forest certification system is Yusuhara town in Kochi. They acquire the FSC forest certification in 2000.

They succeeded in increasing certification areas by visiting an individual forest house in the town and asking them whether each would like to participate in a certification system. In addition, they planned

that they raised the interest of the person concerned with forestry by performing study party and performed the document making for public information expansion.

In examination of the forest certification, the following points are given for the point where Yusuhara was evaluated.

・ The point that has relations with a community well

・ The point where an artificial plantation prospers adequately

・ The point where the age structure of the tree is displayed adequately

・ The point where data about the forest are managed by introduction of the GIS

The following is nominated for the effect that Yusuhara got the forest certification from by acquiring it.

"Yusuhara established a system to provide with a grant of 100,000 (yen/ha) for the forest house carrying out thinning if the house registers itself with the FSC certification forest. As a result, the forest houses with the certification increases 1.9 times as much as before, and a thinning area increase rapidly.

Aiming at enhancement of public functions of the forest and activation of the regional forestry, they are currently wrestling for the forest maintenance with the emphasis on quality improvement of forest resources such as certification of FSC. Due to lowered profitability, however, the economic situation of the forestry becomes severer. Because of the aging of the forestry worker and the slump of the wood price, there is much forest stand where shih business of thinning and nurturing are insufficient. Thus, further development of logging roads are needed as infrastructure for wood production."

3.2.2 The present situation of the Monobe river basin's forest

In the Monobe river basin's forest, by naming "Forest Shih business model housing complex system," the Kami forestry owners' association has been developing work roads within 911ha of the forest in Kami City since 1995. By these measures, the road network density increases to 47.5 m/ha in 2004 from 27.0 m/ha in 1997, which is about 76% of increase.

This density increase leads to improvement of the work efficiency about the thinning. About 22% of cost cut was achieved. In this manner the forest maintenance has been conducted in Kami City. Thus, further progress of forest maintenance was expected by acquiring forest certification system.

3.3 Problems in the court official abandonment area forest

It is thought that the Monobe river basin's forest fulfills a standard of the forest certification about forest maintenance as mentioned in the previous paragraph. However, they face a serious problem now in the other items.

3.3.1 The issue of feeding damage by the wildlife

One of the problems in particular in the Monobe river basin's forest is a feeding damage problem by the deer. In addition to the damage for the lower vegetation, the tree skinning is frequent. The feeding damage by the deer has a great influence on forest vegetation.

In Kochi, there is the area where a lot of deer inhabits in the east and west, and Monobe river basin in Kami city belongs to the area where the distribution of the eastern part is centered. Therefore the damage is remarkable in Kochi (Figure 3-1 and Figure 3-2).

In the area that has already acquired the forest certification, Tosa-cho and Yusuhara-cho, inhabitant

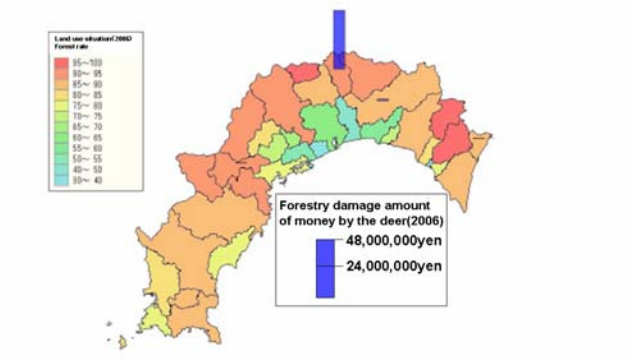

Figure 3-1 Forestry damage by deer in monetary terms by municipality（2006）
(Source: Kochi specific animals (deer) protection management plan)

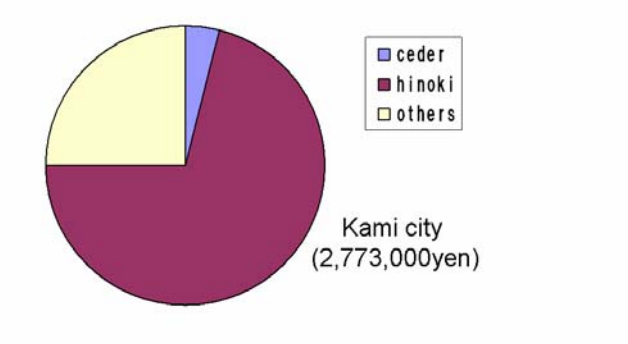

Figure 3-2 Tree classification damage ratio of the forestry by deer in Kami City
(Source: Kochi specific animals (deer) protection management plan)

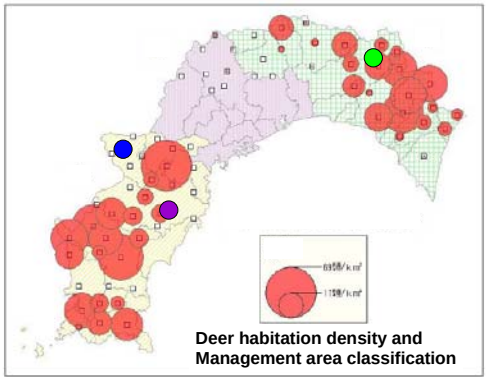

Figure 3-3 Deer habitation density distribution and management division (2007)
(Source: Kochi specific animals (deer) protection management plan)

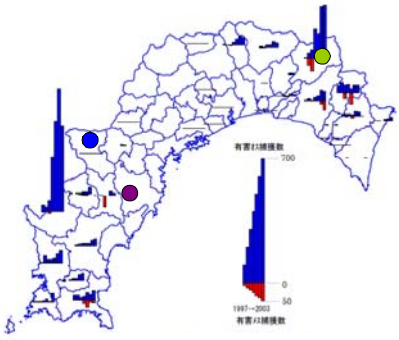

Figure 3-4 Captured head count of the deer in Kochi
(Source: Kochi specific animals (deer) protection management plan)

of much deer is not confirmed yet (Figure 3-3, and Figure 3-4). These areas with certification do not seem to suffer from the feeding damage by the deer.

4. CONCLUSIONS

An attempt is made to examine Monobe river basin forest with common standard components of the forest certification discussed in Section 1 in Chapter 3. Regarding the formation of a frame of a system for sustainable forest management, they have already performed logging road maintenance as forest maintenance project. Thus, there seems no problem particularly.

However, in other standards, the current conditions in Monobe do not seem to satisfy standards. In particular, evaluation of the production capacity of forest ecosystem and maintenance of soundness would be low because of frequent occurrence of feeding damage.

It is concluded that a possibility to acquire the forest certification is low in Monobe river basin's forest. The region should take an anti-feeding damage measure immediately.

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