Emerging 'Authorized Neighborhood Associations' and Changing Communal (Iriai) Forest Ownership in Japan

U. Yamashita[1], K. Balooni[2], M. Inoue[3]

In rural Japan, people have collectively managed local forest resources since time immemorial using the traditional 'Iriai' (communal) system. Iriai forests have been changing in terms of use and ownership patterns, and have also declined, due to a series of new forest policies and rapid economic growth that caused the boom and subsequent depression of domestic forestry. In recent years, changes in Iriai forest ownership have been taking place. One cause is the emergence of Authorized Neighborhood Associations introduced under the revised Local Autonomy Law (1991) independent of forest policies. This study analyzes the effects of emerging multi-functional Authorized Neighborhood Associations on collectively owned forests in Japan. First we have undertaken institutional and policy analysis of the formally established Authorized Neighborhood Associations, the government sponsored Forest Producers' Cooperatives and the traditional Iriai system. Thereafter we have provided evidence from case studies conducted in Nagano Prefecture in Japan. This study reveals that the emergence of the Authorized Neighborhood Association institution in Japan has helped to clarify registration of forestland ownership. The Authorized Neighborhood Association institution is also emerging as an alternative to Forest Producers' Cooperatives, which have lost significance in today's forestry market in Japan. Authorized Neighborhood Associations ignore Iriai rights and hence the problems associated with the rights remain. There are also attempts by the Iriai rights-holders to avoid such conflicts, particularly, those arising from the arrival of new settlers. The government of Japan needs to recognize the growing influence of Authorized Neighborhood Associations in the forestry sector and to formulate appropriate forest policies to deal with this new situation. There is also a need to review the present relevance of the Forest Producers' Cooperatives. In view of declining Iriai forests in Japan, it is important for local people to retain their traditional forest rights without too many transaction costs or complex regulations.

Keywords: *Authorized Neighborhood Associations, Forest Producers' Cooperatives, Iriai forest, Iriai system, Iriai rights-holders, Japan*

1. INTRODUCTION

In rural Japan, people have collectively managed local forest resources since time immemorial using the traditional 'Iriai' system that relies on informal regulation of forest management. These arrangements were used by the Iriai rights-holders living in a specific area for timber extraction to build homes, for collecting firewood, fodder,

[1] Graduate School of Agricultural and Life Sciences, The University of Tokyo, Tokyo, Japan.
[2] Indian Institute of Management Kozhikode, Kozhikode, India.
[3] Graduate School of Agricultural and Life Sciences, The University of Tokyo, Tokyo, Japan.

and dry grass and twigs for fertilizing paddy fields, and for charcoal-making.

Iriai forests have been changing in terms of use and ownership patterns, and have also declined, due to series of forest policies and rapid economic growth that caused the boom and subsequent depression of domestic forestry (Kawashima et al., 1959-1961). Availability of substitutes for forest products and the government policies promoting tree plantations in the 1950s led to dramatic changes in forest composition from natural forests to tree plantations (Takei et al., 1989). Additionally, steep mountain slopes in Japan hinder mechanization and thereby affect productivity (Seo and Taylor 2003). This elevates domestic timber production costs, compelling wood-based industries to continue imports (Handa 1990; Tsutsui 1983). In fact domestic production has largely been replaced by imported wood, which accounts for 40% of the global trade volume of industrial roundwood (Fujiwara 2003). There is also a corresponding decrease in silviculture operations in unmanaged forests, leading to environmental hazards like soil erosion, and vulnerability to rain, weeds, and insects (Forestry Agency 2005; Seo and Taylor 2003). On the other hand, better economic opportunities have led rural people, particularly the younger generation, to change their profession from farming to manufacturing and services, with a corresponding country-to-city migration. Japan is currently facing a crisis of too few people left to maintain rural lands (Kato et al., 1997). On the whole, these factors have adversely affected the Iriai system in terms of forest management and ownership.

Forest policies in particular have induced a change in Iriai forest ownership. Since the beginning of the Meiji era (1867–1911), the state acquired legal ownership of Iriai forests, thereby depriving local people of their pre-modern Iriai rights. Initially some Iriai forests were put into the category of national forests and later into that of public forests. However, the government changed this policy in 1966 and started allowing private ownership of Iriai forests. Since 1966, a number of Forest Producers' Cooperatives (FPCs), a formal grassroots forestry institution for collective and efficient forest production, have been established with the former Iriai rights-holders as stakeholders.

Iriai forests in Japan can be recognized as a typical common pool resource (CPR). Most characteristics of traditional Iriai system correspond to the eight design principles (clearly defined boundaries, congruence between appropriation and provision rules and local conditions, collective-choice arrangements, monitoring, graduated sanctions, conflict-resolution mechanisms, minimal recognition of rights to organize and nested enterprises) illustrated by long-enduring CPR institutions (Ostrom 1990), the ten attributes of successful common-property regimes (McKean 1999), and the seven challenges of institutional design for managing CPRs (Stern et al., 2002). More than fifty years ago these served Iriai forests in Japan well, but today the present decline in timber value, increased mobility of the population and the increased demand for other land use, has put Iriai forests at risk. However, the decline in the Iriai system in Japan should be seen in a different context compared to decline of CPR management systems in developing countries (e.g., Jodha 1986), where local people are dependent on them for their livelihood. In fact, Japan has more parallels with the present condition of CPRs in Western Europe as rural areas

are experiencing significant changes and in general, there is a changing economic significance of natural resources. For example, the crofting common grazings in Scotland are “under major pressure from the economic restructuring, socio-cultural recomposition and changing policy context that characterize contemporary rural change” (Brown 2006, 109).There are some parallels in reasons for decline of Iriai system in Japan and crofting common grazings in Scotland (Brown 2006).

Despite the decline in the Iriai system and the large extent of unmanaged Iriai forest, local people continue to value such forest as CPR. Additionally, in recent years public expectations regarding forest functions are diversifying and the number of people who are actively involved in forests is increasing (Forestry Agency 2005; Fujiwara 2003). This has led to the promotion of consensus-based forest management in Japan (Fujiwara 2003), a trend similar to that seen in other developed countries (see, e.g., Beckley 1998; Pulzl and Rametsteiner 2002). Notably, with the changing forestry scene in Japan, ownership has become the most crucial factor in conserving Iriai forests.

There has been a new twist in Iriai forest ownership since the early 1990s when local people started to establish Authorized Neighborhood Associations (ANAs), a formal local institution with corporate status. ANAs established under the 1991 revised Local Autonomy Law, have had a significant impact on Iriai forest ownership. This law gives Iriai rights-holders the opportunity to become legal owners of Iriai forests, and to maintain and improve the traditional forest rights. This is a voluntary change independent of forest policies. A number of studies have identified the causes of CPR decline and shown that resource users often create institutional arrangements to manage them and transform weak institutions into stronger ones in order to adapt to changes and uncertainties (e.g., Armitage, 2005; Ostrom, 1992; Ostrom et al., 2002). The change in Iriai forest ownership in Japan that we describe in this study may well be such an example.

Studies have neatly documented the dramatic change in Japanese forestry from before to after World War II. Before the war, mainly lawyers had inquired into the characteristics of the Iriai system (Kainou 1943). Later there was a larger number of studies on Iriai forests by scholars (see, e.g., Kawashima et al., 1959–1961; Kondou 1959), and the research agenda broadened. However, little research has focused on the socioeconomic and policy aspects of Iriai forests since the late 1980s. Moreover, no policy development process has taken place with respect to the Iriai forests in recent years. There are a few research studies (e.g., Nakagawa 1998) on the influence of ANAs on the forestry sector, yet institutional and political analysis is not enough. Research evaluating the role of ANAs in forestry sector in Japan would help to envisage new forest policies to manage Iriai forests.

This article analyzes the effects of ANA emergence on Iriai forest ownership in Japan. The basic research question is: Why are Iriai rights-holders increasingly converting to ANAs? To answer this, we first have undertaken institutional and policy analysis of the formally established ANAs, the government sponsored Forest Producers’ Cooperatives (FPCs), and the traditional Iriai system. This analysis helps to weigh the advantages and disadvantages of institutional change. Thereafter, in

order to comprehend why local communities are shifting to ANAs, we have provided evidence from case studies conducted in Iiyama City and Sakae Village in Nagano Prefecture in Japan. We also conducted a case study in Ina City in Nagano Prefecture to assess the drawbacks of ANAs, specifically, the conflicts between Iriai rights-holders and new settlers.

2. CANGES IN IRIAI FOREST OWNERSHIP SINCE THE MEIJI RESTORATION

According to the still-effective Civil Code of 1896, there are two types of Iriai rights. In one, a group of local people have collective-use rights over Iriai forest owned by individual(s) or other entities; alternatively, a group of local people have exclusive ownership and use rights. Iriai rights cannot be formally registered with the government but the rights exist irrespective of the formal/registered owner of the forestland. There are also four types of Iriai forest-use patterns (Kawashima 1983; McKean 1992): collective use: rights-holders as individuals can enter any part of the Iriai forest to collect forest products according to group norms; corporate use: rights-holders collectively harvest Iriai forest products to generate income for common use while prohibiting access by individuals; individual use: each right-holder as an individual uses an allocated part of Iriai forest but cannot sell her/his part; and contract use: all rights-holders retain collective ownership and can lease Iriai forest to another party for harvesting timber or other benefits. This typology of Iriai rights and forest-use patterns varies from place to place. One of the common characteristics is that a family loses its Iriai right when it moves out of the locality.

Iriai rights are effective as long as practices of collective forest management like planting, thinning, pruning, and weeding continue. However, the present reality is that with the continuous decline in forest use in Japan, the Iriai system of forest management has been reduced to merely a nominal institution. On the other hand, ownership of Iriai forest is becoming relatively more critical under the modern land ownership system in view of increased land value.

Next, we explain how the various types of Iriai forest ownership have emerged. This analysis is based on studies undertaken by Handa (1990) and Kawashima et al. (1959–1961). Iriai forests have been modernized in three general ways: national, municipal and private forest ownership. The changes in ownership started with nationalization of Iriai forest under the demarcation of national and non-national forests in 1874 during the Meiji era; non-national forests include those owned by prefecture/municipality, individuals, association and so on. The government sought to erode Iriai rights and establish a new ownership system to increase land tax revenue. Subsequently, many Iriai forests were nationalized, while others were integrated with municipal forests.

Nationalization of forests was followed by integration of Iriai forests into public forests. There were two big consolidations of municipalities in the 1880s and 1950s. This enabled local government to appropriate forests previously owned by villages and towns, most of which were Iriai forests. But many villages and towns rejected the merger because they did not want to part with their Iriai forests. This compelled the government to allow villages and towns to maintain their forest rights by establishing

a special ward or financial ward (*Zaisanku*). Furthermore, from 1910 to 1938, the national government promoted a program to unify Iriai forests, including hamlet forests, into municipal forests. As an outcome, substantial proportions of Iriai forests were reclassified under the municipal forest category.

Groups of Iriai rights-holders who were not willing to hand over their forests to national or local governments resorted to other measures to retain Iriai forest ownership. In such cases, various bodies such as associations, public corporations, individuals, groups of individuals, shrines, and temples were recognized as *de jure* owners. For administrative purposes, such Iriai forests are categorized by the state as 'hamlet forests' (*buraku-yuu-rin*), which are *de jure* private forests. But in reality these forests are *de facto* Iriai forests that are yet to be modernized. Hereafter, Iriai forest means a 'forest yet to be modernized' in terms of ownership and rights.

The type of ownership of Iriai forest in 1960, just before the enforcement of privatization policy, is shown in Table 1. This table shows there were 1,603,000 ha of Iriai forest. But actually there were many other *de facto* Iriai forests inside national and public forest under the previous policies, as described above. Nakao (1989) estimated that total area of *de facto* Iriai forest in 1960 was more than 3,000,000 ha.

In 1966, a privatization policy was implemented as another alternative to the modernization of national and municipal Iriai forest ownership. This was facilitated by a new law enacted to modernize Iriai rights. Under this law and the program promoting modernization of Iriai forest (hereafter referred to as the 'modernization program'), a number of FPCs were established to modernize Iriai forest ownership in order to facilitate joint forestry operations for efficient forest production.

The changes in Iriai forest ownership were not without problems. These arise mostly in Iriai forests that have not yet to be modernized because they cannot be registered under the names of Iriai right-holder groups. Since a group without corporate status cannot lawfully register the forest, sometimes the group is registered under the name of a representative. However, in the case of registration by one or more individuals representing a group, if a registered individual moves out of the locality or sells forestland unaware of the fact that she/he is the registered owner, there is a risk that other rights-holders will lose their stake in the forestland. The implications are same when a registered owner dies and her/his children are not aware of the fact that their parent was a representative owner for the entire group. The crux of the problem is that land registration does not take into consideration the fact that all the Iriai rights-holders need not necessarily be registered owners. On the other hand, when a group of Iriai rights-holders establishes an FPC, it can register forestland in their name with corporate status. But there remain some practical problems due to differences between centralized FPC regulations and the local scenario.

3. EMERGENCE OF AUTHORIZED NEIGHBORHOOD ASSOCIATIONS

In addition to FPCs, ANAs have emerged as the new local institutions in Japan. ANAs are established under the 1991 revised Local Autonomy Law. This fundamental law dealing in local autonomy was first enacted in 1947. The law focuses on classification of local public bodies, lays down the outlines of their organisation and operations, and regulates the basic relationship between the state and such bodies in accordance with the principle of local autonomy to assure each of them democratic and efficient administration in order to facilitate sound development.[4] The main aim of this revised 1991 law is registering the common property of a locality including forest. Revision of this law enabled erstwhile informal Neighborhood Associations constituted by local communities to get corporate status for the first time since World War II. And hence they may possess common property of local communities. We can classify Neighborhood Associations into two types: Authorized Neighborhood Associations and Unauthorized Neighborhood Associations. Their functions are almost the same, although the latter cannot register common property as they are not legally recognized by local governments. By 2002, there were 22,050 ANAs in Japan, constituting 7.4% of all Neighborhood Associations (Government of Japan 2004).

Neighborhood Associations in urban and rural Japan differ in many aspects. The major difference emerges from the fact that Urban Neighborhood Associations hold mostly common property like community halls and parks, and other real estate, whereas Rural Neighborhood Associations hold large common properties like forests, grasslands, and paddy fields. Another difference lies in member composition. Natives and new settlers constitute the Urban Neighborhood Associations, whereas mostly natives constitute the Rural Neighborhood Associations. This difference in social structure (and social capital) results in different activities by urban and rural associations. In fact the role of ANAs under the revised Local Autonomy Law was outlined while keeping in view the needs of urban areas to facilitate authorized ownership of common property. This is because there is greater risk of losing common property in urban areas than in rural areas owing to the lack of collectivities and information about registered owners.

More Iriai rights-holders are starting to register their forestland as ANAs. Despite the importance of ANAs in forest management, forest policymakers have ignored their relevance, discussed later. However, the reality is that Iriai rights are relevant in case forest owners switch to ANAs. This is unlike a change to FPCs, which resulted in a termination of Iriai rights.

4. DIFFERENCES IN CO-EXISTING INSTITUTIONAL ARRANGEMENTS AND THE IMPLICATIONS OF CHANGE OVER

Before analysing the implications (advantages and disadvantages) of shifting from

[4] The Nippon Foundation Library: http://nippon.zaidan.info/seikabutsu/1999/00168/contents/002.htm, accessed on 23 October 2005.

one institutional arrangement to another i.e., Iriai system to FPC, Iriai to ANA, and FPC to ANA in Japan,[5] we compare important institutional and policy characteristics of these three institutions (summarized in Table 2). All three were instituted based on the principle of collectivities. However, in terms of their objectives and legal backgrounds, they differ significantly. The Iriai system is rooted in traditional customs, whereas FPCs and ANAs are formal, legally-binding organisations instituted under 20th century laws. Legally supported corporate ownership is not possible in the Iriai system, while it is in the FPCs or ANAs. This is the major reason why local people are abandoning the Iriai.

The basic objective of FPCs are joint forest production and management by members employing their own resources, whereas ANAs are a platform for local people to improve their lives by dealing with various local issues. Around 80% of FPCs were established after the implementation of government policies promoting forestry sector modernization, mostly during 1966 to 1980s (National Federation of Forest Owners' Cooperatives, 1966–2002). One goal of this modernization program was the dissolution of Iriai rights, whereas the process of establishing ANAs is driven solely by local initiatives and there are no government policies or incentives to promote their establishment.

Further, there are many legal differences between FPCs and ANAs. FPCs fall under the jurisdiction of prefectures, whereas ANAs come under municipalities. In the case of FPCs, their set-up and annual report to the prefecture involves much paperwork and a high transaction cost. On the other hand, the formation and administration of ANAs are not complicated. The basis for membership is also different. FPC membership depends on the investment in forests made by an individual forest owner living in the locality, whereas ANA membership is voluntary. In comparison, under the Iriai system, only traditional rights-holders are members.

Institutional differences are also reflected in forest management regulations. Only FPCs have a detailed and bureaucratic framework defined by law requiring, for example, that all members are active participants. The benefit sharing arrangement also varies. In the Iriai system, this is defined by custom and varies from place to place, but FPC benefits are shared according to the investment made and the forest management activities undertaken by each member. By law, ANA benefits cannot be divided on an individual basis; benefits are meant for collective consumption. Another difference arises from corporate tax. The Iriai system pays no corporate tax due its non-corporate status, but FPCs and ANAs have corporate status and hence do have to pay. However, ANAs are exempted from paying if they make no profit.

4.1 Iriai System to Forest Producers' Cooperatives

[5] Besides Iriai system, we have chosen only FPCs for comparison with ANAs for two reasons. There are a number of cases in which FPCs in the study area were dissolved and reinstituted as ANAs, but we found no instances in which financial wards, public service corporations, or Iriai forests registered in other ways (mainly organizations registered as corporations) were dissolved and reinstituted as ANAs. On the other hand, FPCs are usually established by the same group of Iriai rights-holders in a hamlet while other types of registration are by groups larger than hamlets.

The main advantage of changing from Iriai to FPC is that a group of local people can collectively register and own forestland with corporate status. Local people can get favourable incentives from the government when they establish FPCs by introducing a modernization program. For example, forest owners are exempted from real estate acquisition tax, gift tax, and registration and permission tax. They also get subsidies for measuring and documenting forest boundaries. After getting corporate status, it gets much easier to set up protection forests for soil and water conservation or benefit-sharing arrangements from tree plantations between registered forest owner(s) and investor(s). In the case of the Iriai system, all the registered forest owners of an Iriai forest must give their consent in writing for arrangements pertaining to both protection forests and benefit sharing, thereby necessitating a high transaction cost. The formation of FPCs helps to overcome these problems as negotiations take place only between a prefecture or investors and the FPC.

Aside from these benefits, there are also some problems, e.g., FPC members have to pay annual corporate tax in addition to land tax, which is a collective responsibility. Even non-profit FPCs must bear the brunt of taxes. Hence there is no incentive to sustain FPCs or form new ones. In fact, some FPCs want to break away from this type of formal forest ownership arrangement for these very reasons.

4.2 Iriai System to Authorized Neighborhood Associations

The advantages of changing from Iriai to ANA are more or less the same as when changing from Iriai to FPC. The additional advantage is that forest management and other administrative duties under ANAs are much less bureaucratic than those of FPCs owing to minimum government intervention.

The main disadvantage is that in the case of ANAs, only collective use of forest benefits by members is allowed. Under the Iriai system, the utility of benefits depends on local customs. Further, the one-time cost of registering forestland under ANAs is high (JPY 100,000 to JPY 3,000,000) when there is a large forest area and a number of registered forestland owners under the Iriai system. On the other hand, ANA allows a free ride by new settlers who enjoy the same privileges from the forest as those of Iriai rights-holders. In other words, these new stakeholders do not share the initial costs of tree plantation establishment and management. This may boomerang in the future when timber fetches substantial profit.

Finally, advantages and disadvantages in case of a change from Iriai to ANAs entirely depend on local conditions, i.e., forest conditions and group characteristics.

4.3 Forest Producers' Cooperatives to Authorized Neighborhood Associations

The main advantage of conversion of FPCs to ANAs is the reduction of transaction costs. This is because the working norms of ANAs are simple compared to FPCs. Further, an ANA does not pay corporate tax as it usually makes no profit. A change from FPC to ANA involves dissolving the former and returning the forestland to its original owner, who later grants this property to the new ANA. This process, however, is complicated most of the time, with administrative procedures involving high

transaction cost.

5. CASE STUDIES

For our case studies, we first selected Nagano Prefecture because of its large proportion of Iriai forest (Government of Japan 1960). Furthermore, modernization took place on a large scale in Nagano in the past by instituting FPCs. In the second stage Iiyama City and Sakae Village in Nagano Prefecture (location shown in Figure 1) were chosen as there are relatively more ANAs in Iiyama and FPCs in Sakae. Moreover, in recent years ANAs are being established in both Iiyama and Sakae. Finally, we selected nine hamlets (out of 119) in Iiyama City, six hamlets (out of 31) in Sakae Village for detailed case studies. The number of hamlets chosen for this study was constrained by limited resources. The analysis presented in this section is based on secondary data collected from local government and primary data based on interviews with key informants belonging to Iriai groups and forest-related institutions.

We have pointed out earlier that the ANAs allow free riding by new settlers. Sometimes, it causes serious conflicts between Iriai rights-holders and new settlers. This problem was not observed in Iiyama City and Sakae Village as there are not many new settlers in these two sites. In order to study this problem in the context of emergence of ANAs, we undertook another case study of Ina City in Nagano Prefecture inhabited by many new settlers. Ina City (location shown in Figure 1) has grown in size after Takato Town and Hase Village were merged with it in 2006. But we have chosen only those hamlets for detailed case study from the former Ina City that has many new settlers. Hereafter Ina City implies the former Ina City.

Some characteristics of the case study sites are shown in Table 3.

5.1 Iiyama City and Sakae Village

Iiyama City, with a population of around 25,000 is located in the north of Nagano Prefecture. It has mountainous forests constituting 60% of the total geographical area (20,232 ha). The main occupation of local people in Iiyama is rice farming rather than forestry, which has been reduced to a side business. Sakae Village, adjoining Iiyama, is a more mountainous forest area with a population of around 2,500 people. Forestland constitutes 87.1% of the total area (27,151 ha) in Sakae. After the war, some big private companies were involved in timber production from the natural forests in Sakae. After felling, local and national governments, together with local people including Iriai rights-holders, planted new trees. Thus, local people in Sakae became involved with forestry, and they still collect mushrooms, edible wild plants, and firewood from forests. In most communities in Iiyama and Sakae, the population is declining to varying degrees. There are a few new settlers in some cases and they are usually accepted into the community.

Out of the 119 hamlets in Iiyama City, 95 hamlets own Iriai forests constituting 14% of the total forest area. Forty-five hamlets have changed their institutional profile to ANAs, whereas the rest of the hamlets (50) had formed neither FPCs nor ANAs.

There are three hamlets which had earlier formed FPCs but later changed the legal status to ANA, and therefore they own modernized forests. Sakae Village on the contrary has a different forest profile. Out of the 31 hamlets, 19 have maintained the Iriai forest; two hamlets do not own forest. There are seven FPCs none of which have changed their legal status to ANA. The comparatively large proportion of FPCs in Sakae is attributed to intense promotion of FPCs by the local government in the past. There are also three hamlets that have switched to ANAs.

We have categorized four situations in which grassroots institutions are involved in Iriai forest in Iiyama and Sakae, and accordingly selected the sampling units for detailed study by ensuring representation of the entire area (see Table 4). Table 5 presents the outline and characteristics of sample ANAs in Iiyama City and Sakae Village. This table does not show five hamlets in the sample which have not changed their Iriai system and FPCs into ANAs. The following discussion on important findings of the case studies is based on information provided in Table 5.

*5.1.1 Endogenous Factors affe*cting Establishment of Authorized Neighborhood Associations

Common findings

Forest use. In almost all the hamlets in Iiyama and Sakae, people used to collectively manage the Iriai forest while they individually gathered forest products like firewood, fodder, and dry grass from the Iriai forest. Such forest use declined after World War II, but local people planted trees and managed them. The traditional practice of using timber from the Iriai forests and the income from timber sales to collectively renovate the shrine and build community halls also declined over the years in both the study sites. But people in Sakae continued to collect non-timber forest products, as discussed earlier. This change in Iriai forest use has not affected the legal status of Iriai forest ownership. In fact, it is more influenced by local and forest conditions and also by historical circumstances.

Variation in ownership affecting formation of Authorized Neighborhood Associations. All the hamlets in Iiyama and Sakae that have established ANAs sought corporate status, which was not possible under the Iriai system. In Iiyama and Sakae, there are various types of Iriai forest ownership registration within a hamlet. For example, in Narazawa hamlet there are three types of ownership represented by an individual representative, two to ten owners, and also a shrine. The individual registered owner in Narazawa hamlet is deceased but still there has been no change in registration. As explained earlier, this situation has implications for keeping track of Iriai forest ownership.

There are other variations in Iriai forest ownership. In Okurazaki hamlet, all the rights-holders in Iriai forests are representative owners. In Koakasawa hamlet there are a number of smaller groups of rights-holders in Iriai forests within the hamlet, and each one of them owns forestland, while on the other hand the entire community in the hamlet has rights in local government-owned Iriai forest. Such variations in ownership are also found in other sample hamlets in both study sites.

These Iriai forest ownership types do not fit into present realities as they impose a transaction cost on the rights-holders for renewing registration. The establishment of ANAs has conferred corporate status on the former Iriai forests and relieved the rights-holders of such cost.

Authorized Neighborhood Associations as an alternative to modernization programs. In Iiyama City and Sakae Village, there are still many hamlets which have Iriai forests yet to be modernized, i.e., they have not changed to national forests, public forests, FPCs or disintegrated into individual/joint ownership. There are two categories in such situations. In the first category, there are hamlets unable to qualify for the conditions laid down for undertaking modernization programs. Only forests over and above 10 ha qualify. Based on this condition, Narazawa and Okurazaki hamlets do not qualify to establish FPCs under modernization programs. In another category, there are hamlets such as Kuramoto, Kosuge, and Koakasawa which are not interested in introducing modernization programs because of their various drawbacks, as explained earlier. Therefore the emergence of ANAs as an alternative institution in Japan is vital to safeguard the interests of forest owners.

Reasons for institutional change

Iriai system to Authorized Neighborhood Associations. We can find different factors inducing institutional change in forest ownership. For example, in Kuramoto hamlet, the need to change the registration of common property emerged after local people bought the land outright to build a community hall. Although the community did not have corporate status, members wanted to register the land collectively. In other cases, such as Narazawa, Okurazaki, Kosuge, and Gohougi hamlets, one of the rights-holders learned about ANAs from adjoining areas and city/village offices. Based on his recommendation, communities from these hamlets agreed to register their common property as an ANA. In Koakasawa hamlet, the introduction of modernization programs, either individual/joint ownership or FPCs, did not succeed for various reasons. When forest owners came to know about the ANA system they adopted it in lieu of other types of forest ownership. Although new settlers might potentially have caused problems, in fact there has been no conflict observed between rights-holders and new settlers because of the relatively small number of people and the lack of profit from the forestland.

Forest Producers' Cooperatives to Authorized Neighborhood Associations. The reason for the institutional change of FPC to ANA in Nishiotaki, Kamisakai and Nukui hamlets lies in the process of establishing FPCs. The main objective of establishing FPCs was to clarify the rights of all stakeholders in order to facilitate the purchase of some Iriai forestland by the local government for road construction and setting up government-managed farms. That is, there were no endogenous reasons for instituting FPCs. As a result, the rights-holders had no interest in timber production under the FPC.

However, the stakeholders in all three FPCs had to pay annual taxes ranging from

JPY 160,000 to JPY 400,000 to the local government, as well as undertake excessive paper-work. The respective chiefs of the three communities also commented that this process was quite a financial burden and that too for no profit. Most of the Iriai forest in these three hamlets is a natural forest and is not suitable for planting Cryptomeria/Sugi, a fast-growing tree species. In Kamisakai hamlet only, a tree plantation was undertaken in a small forest area. After the stakeholders found out about the ANA institution, they dissolved the FPCs to establish ANAs to overcome these problems.

Reasons for maintaining the current status

Iriai system. Two hamlets each in Iiyama City and Sakae Village which we studied still maintain the current status of their Iriai forests. Here two cases are presented. In the first case, the hamlets sought to establish ANAs, but were not successful. For example, Nakaya hamlet has been hindered by the lack of local leadership and its aging population. There is no one able to do the paperwork necessary to establish an ANA. On the other hand, Houji hamlet cannot establish an ANA due to lack of funds. And as of now, the rights-holders have no immediate need to break up the *status quo* of its Iriai forest. They do not stand to lose the forest and hence have no interest in changing it to an ANA.

In the second case, in Niteno and Uenohara hamlets, all the rights-holders are well-informed and continue to use the Iriai forest for collection of non-timber forest products. They keep their land records current when a registered owner dies. Further, registered owners do not sell their shares of the Iriai forest to anyone. In sum, given such conducive conditions, rights-holders have no risk of losing their Iriai forest and hence no interest in changing to an ANA.

Forest Producers' Cooperatives. In Sakae Village, all seven FPCs have maintained the *status quo*, mainly because the large profit surpluses from past forestry operations are used to pay annual taxes. There is continuing interest in forest management with the expectation of profits from timber in the future. In Tsukioka hamlet, FPC members even undertake thinning by themselves every year. Some FPCs even have benefit-sharing arrangements (accruing from tree plantations) with the local government.

An effective role by the Forest Owners' Cooperative[6] in Sakae Village is also helping FPCs stakeholders undertake forest management activities like weeding, thinning, and planting. The Forest Owners' Cooperative maintains a good relationship with each FPC and with Iriai rights-holders. Therefore FPCs in Sakae are not interested in changing their statuses to ANAs as timber production is generally not a priority under the ANA institution.

5.1.2 Exogenous Factors affecting Establishment of Authorized Neighborhood

[6] Forest Owners' Cooperatives are another type of grassroots forestry institution in Japan comprising forestland owners who undertake common forestry operations such as cutting trees, thinning and planting. Small Forest Owners' Cooperatives merge into one big Forest Owners' Cooperative nowadays for financial and political reasons, and also in order to effectively raise forestry concerns.

Associations

The Nagano prefectural government, municipalities, and Forest Owners' Cooperatives are affecting the establishment of ANAs one way or another. One of the major responsibilities of the prefectural government in the forestry sector, particularly in the context of Iriai forests in recent decades, has been to establish FPCs and advise them on forest policies. However, in Nagano Prefecture, seven FPCs out of 156 have already dissolved and changed into ANAs, and 87 out of the 149 existing FPCs are losing money. The institutional change from FPC to ANA is inevitable given these economic problems. But this is not seen as desirable by the prefectural government. Furthermore, the prefectural government does not recognize the establishment of ANAs as a viable means of managing Iriai forests, favoring the FPC as an institutional tool to modernize Iriai forests despite local preferences. In other words, the prefectural government has failed to grasp the grassroots realities. This suggests a need to review current forest policies, particularly those concerning FPCs.

Municipalities, which grant legal status to ANAs, in a prefecture support the purpose of ANAs to varying degrees. Almost half the municipalities in Nagano Prefecture have no ANAs within their administrative boundaries. This would imply a lack of promotion of information to local communities. In seven out of eight municipalities except for Nagano City (including Iiyama City and Sakae Village) in northern Nagano Prefecture falling within the scope of our study, all the established ANAs have registered Iriai forests as communal property. Nagano City has prevented ANAs from registering Iriai forests as communal property. The municipality fears that if an ANA turns a profit even once, then it has to pay annual corporate tax every following year.

Unlike the prefectural government and a few municipalities, which are discouraging the formation of ANAs in Nagano Prefecture, Forest Owners' Cooperatives have influenced the formation of ANAs. The Forest Owners' Cooperative which looks after Sakae Village actively discourages change from FPC to ANA because ANAs are not designed for forestry. However, the Forest Owners' Cooperative in Iiyama City encourages institutional change from FPC to ANA to avoid annual corporate tax payments to municipalities and the prefecture.

5.2 Ina City

Ina City with a population of around 65,000 and around 25,000 households is located in the south of Nagano Prefecture. The population of Ina City has been consistently increasing for the last five decades. The municipal government has successfully introduced industrial development after the war. There are some industrial parks in the Ina city and many workers have moved into Ina City from adjoining areas and other cities. There is also an increase in the number of foreign workers. About 23% of the population of Ina City is over 65 years old; this is lower than Iiyama City and Sakae Village. Forestland constitutes 58.4% of the total area (20,764 ha) in Ina City. Out of 68 hamlets, 42 have changed their institutional profile to ANAs. On the other hand, seven FPCs have been established after introduction of the modernization

programs. We selected four hamlets in Ina City for detailed case study.

We found two types of engagement of traditional Iriai rights-holders with new settlers. In the first type, they accept new settlers as Iriai rights-holders; this takes place in those cases where hamlets have switched from Iriai system to ANAs. In the second type, traditional Iriai rights-holders do not accept new settlers as Iriai rights-holders. In this case, hamlets do not want to establish ANAs because once they establish ANAs, they have to accept new settlers as rights-holders. Next, we further describe these two situations.

5.2.1 Acceptance of New Settlers as Iriai Rights-holders

Harashinden and Shimotonoshima hamlets accept the new settlers as Iriai rights-holders. In Harashinden hamlet, 112 out of 177 households are new settlers. The community owns Iriai forest of 40 ha. The traditional Iriai rights-holders planted trees in this forest and looked after them for decades. Around 0.17 ha of this area is rented out to a ski resort, accruing some income to the community. To register their common property collectively, Harashinden hamlet established the ANA. The traditional Iriai rights-holders of this hamlet accept the new settlers as Iriai rights-holders without any dillemma. Once the new settlers become ANA members by paying a fee of JPY 50,000, they can benefit from the Iriai forest. Alternatively, new settlers are asked to undertake a specific task for managing Iriai forest.

Shimotonoshima hamlet, which once established FPC, changed their status to ANA in order to avoid the financial burden of annual taxes. There are 44 households of new settlers constituting about 20% of the total households, who are also treated as Iriai rights-holders, as in the case of Harashinden hamlet.

5.2.2 Rejection of New Settlers as Iriai Rights-holders

Comment [i1]: Not clear to me. where is the conflict between rights holders and the new settlers.

Kamimaki and Kitsunejima hamlet reject the new settlers as Iriai rights-holders. In Kamimaki hamlet, about 80% of all the households are new settlers whereas the rest of the households are traditional Iriai rights-holders who collectively own common property including forestland. The latter have sold their commons as cemetery ground to new settlers located both inside and outside the hamlet. The Iriai rights-holders received a large amount of money from this sale which was equally distributed amongst them. In the process of increasing new settlers, the traditional Iriai rights-holders had formed a separate group from the community that includes new settlers. Traditional Iriai rights-holders are members of the community, but they are also the members of another group that are consisted of only traditional Iriai rights-holders. There is an ongoing debate in the community to switch from Iriai system to an ANA. However, the efforts are not successful as a few traditional Iriai rights-holders oppose this move.

Comment [i2]: Not clear

The case of Kitsunejima hamlet is more or less the same as Kamimaki hamlet. These two hamlets show that in a situation that leads to conflict between traditional Iriai rights-holders and new settlers over common property including Iriai forests, the former tend to avoid establishing ANAs otherwise they would have no choice but to

accept the latter as rights-holders.

6. CONCLUSIONS

The emergence of the Authorized Neighborhood Association (ANA) institution in Japan, made possible by the revision of local autonomy policy, has helped to clarify forest rights and registration of forestland ownership. This implies there is no need to change the registration of an Iriai forest time and again, and also eliminates problems associated with variations in Iriai forest ownership. In other words, the ANAs are facilitating conservation of collective Iriai forest ownership. ANAs are emerging as an alternative institution in situations where Iriai forest usage has declined precipitously over the years or where modernization was not implemented for reasons such as a small Iriai forest area, and where hamlets preferred to stay with Iriai forest management rather than instituting Forest Producers' Cooperatives (FPCs). The ANA institution is also emerging as an alternative to FPCs. Unlike FPCs, ANAs are easy to establish and involve fewer legal regulations and administrative complexities, while at the same time, like FPCs, they facilitate the corporate status that suits present socioeconomic conditions. The post-war FPC institution, which was meant to modernize Iriai forests, has lost significance in today's forestry market in Japan because timber imports have undermined domestic timber production. The ANA institution is filling the gap.

Forest ownership under ANA has some drawbacks too. In many cases, an ANA is successful in overcoming problems associated with Iriai forest registration, but it is unable to completely cope with the problems arising from Iriai rights. Unlike the FPC, an ANA by definition does not dissolve Iriai rights because this depends on the preferences of rights-holders. In most cases, ANAs ignore Iriai rights and hence the problems associated with them remain. For example, there might be conflicts between traditional Iriai rights-holders and new settlers without Iriai rights when a collective decision is required in the future to get substantial income accrued to ANAs from the sale of timber. Although there is not yet any firm evidence to substantiate these fears, policy intervention for the future must clarify the status of Iriai rights under the ANA, i.e., whether Iriai rights should be continued or not. For example, in Scotland, the Land Reform (Scotland) Act 2003 has provided new mechanisms for facilitating common ownership of the crofting common grazings to help shareholders to acquire a more relevant bundle of rights (Brown 2006). In India, even after implementation of joint forest management (JFM) program leading to establishment of new grassroots forestry institutions (JFM Committees), a new forest policy directive (Government of India 2000) has made provision to legally recognize numerous self-initiated forest protection groups in some parts of the country.

On the other hand, we also found that in some cases the traditional Iriai rights-holders avoid establishing ANAs because they do not want to accept new settlers as Iriai rights-holders in order to avoid conflict between traditional Iriai rights-holders and new settlers resulting from the drawbacks of ANA system. Although this paper could not reveal the underlying reason of this situation, we can say that when traditional Iriai rights-holders distinguish themselves from new settlers, they may tend to conserve the traditional Iriai rights. However, it seems in the

present situation even in those areas where there are a lot of new settlers, some traditional Iriai rights-holders accept new settlers as Iriai rights-holders. There is a need for more research to grasp the grassroots reality.

The government of Japan needs to recognize the growing influence of ANAs in the forestry sector and to formulate appropriate forest policies to deal with this new situation. It is expected that the ANA institution will expand and take over the role of FPCs in Japan as most of the FPCs are losing money (National Federation of Forest Owners' Cooperatives, 1966–2002). Another policy measure could be to prevent the break-up of FPCs by exempting them from paying corporate taxes, and also easing state-administered regulations. It is important to review the FPC institution, too.

Finally, we conclude this study from the point of view of CPR management. In view of declining Iriai forests in Japan, it is important for local people to retain their traditional forest rights without too many transaction costs or complex regulations. The institution that allows local people to attempt innovative forest management strategies that go beyond timber production to forest uses like recreation and non-timber forest products production is of most relevance today. The slump in timber production and the increasing expectations of the general public for multifunctional uses and ecosystem services from forests make the ANA a better fit than the timber-production oriented FPC.

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Comment [KB3]: PLEASE WRITE FULL NAMES OF THE JOURNALS.

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Table 1 Iriai Forest Ownership Pattern in Japan (as of 1960)

Ownership [a]	Area ('000 ha)[b]	Number of groups of rights-holders
Old municipalities (before merger into single municipalities)	26	543
Divisions of old municipalities (before merger into single municipalities)	325	18,120
Previous municipality (before merger) established as financial wards	491	2,047
Individuals	26	3,050
Group of individuals with joint ownership	500	52,250
Private companies	1	56
Organizations with corporate status	86	2,887
Associations	73	2,112
Temples or shrines (community)	75	21,643
Total Iriai forest area	1,603	109,909

Source: Government of Japan (1960).

[a] We can see all types of ownership in remaining Iriai forests. However, given the methodology of data collection used by the Ministry of Agriculture, Forestry and Fisheries in 1960, data on forest area in national and prefecture forests are not available.

[b] Recent information on forest area under various types of Iriai forest ownership does not reflect ground realities. This is because even though changes in Iriai forest ownership have been taking place since 1960, forest use patterns and other traditional characteristics remain more or less the same.

Table 2 Comparative Institutional and Policy Characteristics

	Iriai system	Forest Producers' Cooperatives	Authorized Neighborhood Associations
Main objective	Traditional collective forest management and utilization by a group of forest rights-holders	Collective management of forest production by members	Facilitate collectivities amongst local people for mutual benefit in different development arenas
Enabling law	The Civil Code, 1896 (Articles 263, 294)	The Forest Law, 1951; Later facilitated by The Forest Owners' Cooperative Law, 1978	The Local Autonomy Law, 1991 (Article 262)
Iriai right	Yes	No (instituted to eliminate Iriai right)[a]	Case-by-case basis
Collective ownership by law (registration with corporate status)	Not possible	Possible	Possible
Membership	Iriai rights-holders	An individual residing in the locality and investing in collective forest management	All local inhabitants volunteering in collectivities
Benefit-sharing	Varies from locality to locality, mostly defined by customs	Distributed among members	Only for collective use by members
Legal measures for forest management and utilization	None (based on local customs)	Obligation of each and every member to some activity (principle of self-help) whenever required within the stipulated framework	None
Corporate tax to local government	No	Yes	Yes; exempted in case of non-profit

[a]There is a possibility that the Iriai rights of FPCs established before 1966 may not have been dissolved.

Table 3 Characteristics of Case Study Sites

	Iiyama City	Sakae Village	Ina City
Total population	25,205	2,482	64,992
Total number of households	8,159	924	24,843
Total land area (ha)	20,232	27,151	20,764
Total forest area (ha)	12,205	23,662	12,129
Ratio of forest area (%)	60.3	87.1	58.4

Source: Iiyama City Office, Sakae Village Office and Ina City Office.

Table 4 Institutional Situations and Sampling Units

	Iiyama City	Sakae Village
Iriai system to Authorized Neighborhood Associations[a]	42 (4 – Narazawa, Okurazaki, Kuramoto, Kosuge)[c]	3 (3 – Hirataki, Koakasawa, Gohougi)
Forest Producers' Cooperatives to Authorized Neighborhood Associations[a]	3 (3 – Nishiotaki, Kamisakai, Nukui)	0 (0)
Maintaining current status as Iriai system[b]	51 (2 – Nakaya, Houji)	19 (2 – Niteno, Uenohara)
Maintaining current status as Forest Producers' Cooperatives[b]	0 (0)	7 (1 – Tsukioka)

[a]Categorized under institutional change.
[b]Categorized under maintaining current status.
[c]Figures/names in the parenthesis are sampling units/hamlets.

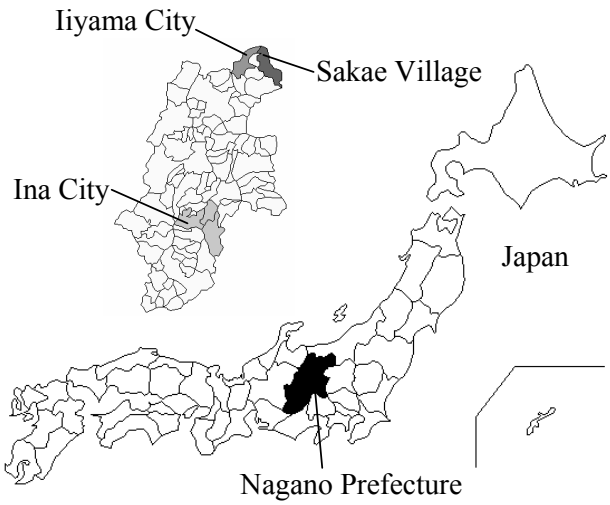
Table 5 Outline and Characteristics of Sample Authorized Neighborhood Associations in Iiyama City and Sakae Village

Name of hamlet[a]	Narazawa	Okurazaki	Kuramoto	Kosuge	Hirataki (Y1)
Motivation for instituting ANAs	Awareness about ANAs and their usefulness in the context of the problems faced by rights-holders.	Awareness about ANAs and their usefulness in the context of the problems faced by rights-holders.	To overcome problems in connection with purchase of land for community hall in 1997.	To overcome problems emerging from the demise of registered owners.	One registered forest-owner claimed private right in communal land. Awareness about ANAs and their usefulness to overcome the above problem faced by rest of rights-holders led to establishment of ANA.
Previous registered forest-owner(s)	(i) One representative forest-owner. (ii) Joint forest ownership by two to ten representatives. (iii) Shrine.	(i) Joint forest ownership by all 60 and more rights-holders. (ii) Several representatives of rights-holders. (iii) One representative forest-owner.	Two representative forest-owners, that too moved out of hamlet in mid-1990s.	(i) One representative forest-owner. (ii) Joint forest ownership by two to three representatives. (iii) Shrine. (iv) Mizuho village (previous village). (v) Iiyama City.	Joint ownership of three representatives, shrine, and temple (local people have not handed over their Iriai forest to ANA).
Establishment of ANA	December 1995	September 1996	October 1997	June 2000	July 1994
Communal forest owned by ANAs[b]	2 ha	0.13 ha	8.2 ha	33.5 ha	0 ha
Expenses incurred on registering ANAs	Japanese Yen (JPY) 2,940,000	JPY 200,000	JPY 100,000	About JPY 700,000	N.A.
Forest use and management	Local people harvested trees and used profits for collective use until 1970.	Local people have neither used nor managed forests as they are small.	Local people planted trees in early 1970s and cared for them until 1985. Now they do not go to their forest.	Few local people verify forest boundary annually. Sometimes forest thinning is undertaken by hiring services of Forest Owners' Cooperative.	Some of the local people collect mushrooms.
Personnel	Seven members for managing communal property.	Four members for managing communal property.	One manager who is also in charge of irrigation system.	Seven members for managing communal forest and irrigation system.	No

[a]X1 to X7 hamlets are in Iiyama City and Y1 to Y3 hamlets are in Sakae Village. In X1 to X4 hamlets and Y1 to Y3 hamlets, Iriai system has been changed into ANAs, whereas in X5 to X7 hamlets FPCs have been changed into ANAs.
[b]Other communal property owned by the sample ANAs consists of a mix of a community hall, a housing site, agriculture farms including paddy fields, an irrigation pond, non-forestland, and multiple-use land.

Contd.

Name of hamlet	Koakasawa	Gohougi	Nishiotaki	Kamisakai	Nukui (On verge of instituting ANA by dissolving FPC)
Motivation for instituting ANA	Introduction of modernization programme did not succeed. Awareness about ANAs and their usefulness in the context of the problems faced by rights-holders led to establishment of ANA.	Awareness about ANAs; adjoining hamlet Koakasawa instituted ANA.	Local people established FPC in 1985 but there was no forest production. They dissolved FPC to avoid taxes and paperwork.	Local people established FPC in 1986 but there was no forest production. They dissolved FPC to avoid taxes and paperwork.	Local people established FPC in 1983 but there was no forest production. They broke up FPC to avoid taxes and paperwork.
Previous registered forest-owner(s)	Some groups in the hamlet, Koakasawa group, Sakae Village.	Joint forest-ownership by three representatives.	FPC	FPC	
Establishment of ANA	January 1995	September 2000	October 2000	March 2000	
Communal forest owned by ANA[b]	47.7 ha	7.7 ha	378.9 ha	46 ha	351 ha (owned by FPC)
Expenses incurred on registering ANA	JPY 100,000	JPY 380,000	About JPY 170,000	JPY 1,400,000	
Forest use and management	Local people planted trees until 1995 and they are managing them and also collect edible wild plants and mushrooms.	Local people verify forest boundaries annually and undertake activities like weeding, thinning once in several years. They collect mushrooms from the forest.	Forest thinning was undertaken in 2000 by hiring services of Forest Owners' Cooperative.	In 2000 and 2003 forest thinning was undertaken by hiring services of Forest Owners' Cooperative.	
Personnel	One manager who is also in charge of irrigation system.		No	No	



Note: The upper right section of Ina City is the former Takato Town and the lower right section of Ina City is the former Hase Village.

Figure 1 Location of case study sites in Japan