Recent Progress in Japanese Geographical Studies on Sustainable Rural System: Focusing on Recreating Rurality in the Urban Fringe of the Tokyo Metropolitan Area

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Abstract: In this paper we point to “rurality” as an option within “urbanity” in the urban fringe of the Tokyo metropolitan area as well as discuss some ways for recreating rurality and a mechanism for restructuring it within a sustainable rural system. Rural and urban residents have been mixed in the urban fringe, and rurality has been diminishing with the increasing number of urbanites and the decreasing amount of rural land use. In some parts of the urban fringe, however, a sustainable rural system has been restructured through the establishment of farm shops, social networks, and activities connected to the conservation of forestland. These functions as a node to connect rurality with urbanity, and reinforcing this connection over time has led to the development of a sustainable rural system that comprehensively combined characteristics of rural and urban communities. Explaining how a sustainable rural system is restructured through intertwining rurality and urbanity is an important issue for contemporary geographical studies.

Key words: urban fringe, rurality, sustainable rural system, rural and urban establishments, Tokyo metropolitan area

Introduction

Within a specific metropolitan area, a continuum of land uses from urban to agricultural is characterized by a concentric structure centered on that metropolitan area (Bryant 1981). This structure consists of a built-up area known as a concentrated core, an urban fringe, an urban shadow, and a rural hinterland, and spatial differences within the structure are mainly related to the impact of urbanization, which most strikingly is reflected in the land-use patterns of the urban fringe (Bryant et al. 1982; Kikuchi and Moran 1990; Kikuchi 1994; Kikuchi 2002). Because, in the urban fringe, the same characteristics that make land desirable for agricultural use make it desirable for urban use, agricultural land use and “rurality” (the atmosphere and cultural traits of the countryside) decline as urban land use and “urbanity” (the atmosphere and cultural traits of a city) come to dominate the urban fringe (Ilbery 1985). The urban fringe is characterized not only by land being in the advanced stages of transition from agricultural to urban uses but also by agricultural land use remaining in the landscape, notably by an increase in part-time farms and the development of extensive agriculture (Bryant and Johnston 1992; Kikuchi and Tsutsumi 1998). In the Tokyo metropolitan area, the urban fringe has been characterized by a strong conflict between agricultural and urban land use, and the former has tended to be reduced drastically since the period of high economic growth in Japan (Kikuchi and Takatori 1998; Kikuchi and Obara 2004). As a consequence, most farmers have reduced their investments in and intensity for agriculture, and they have left their farmland idle in the expectation that its value will rise before it is converted to such urban uses as residential and commercial lots.

Although analyzing such land-use patterns is an important issue, recreating a rurality that includes rural land use and communities has recently become a more important issue in contemporary research in rural geography (Murdoch and Pratt 1993; Marsden 1996). In this
paper, we therefore make a point of rurality as being an option within the urbanity of the urban fringe of the Tokyo metropolitan area, as well as discuss some types of recreated rurality and its role as a sustainable rural system. The significance or meaning of rurality is often associated with the character of an area where there used to be rural communities. In such an area, environmental and economic aspects are noted expressions of this character as well as affecting locations within the community that are related to agricultural activities. Rurality therefore comprises agricultural activities and land use, farmland itself, and farms within a community, and interconnections among these elements play an important role in developing rurality (Halfacree 1995; Liepins 2000). Although agricultural activities and rurality have generally been declining with the advance of urbanization, in some parts of the urban fringe rurality has been recreated by restructuring some basic elements of rural areas, and this has led to restructuring a sustainable rural system (Bowler et al. 2002).

**Outward Movement of the Urban Fringe in the Tokyo Metropolitan Area**

Analyzing the spatio-temporal changes within the urban fringe of the Tokyo metropolitan area is important not only because of the conversion of agricultural land to urban but also because of the competition between these land uses. For Figure 1, which shows the outward movement of the Tokyo urban fringe from 1976 to 1997, the urban fringe was defined on the grounds of agricultural land being converted to urban uses and appropriate lines being drawn onto a set of land-use maps (Kikuchi and Obara 2004). As of 1976, the urban fringe was within a thirty-kilometer radius of the center of metropolitan Tokyo, and its curving pattern was distorted by land conditions and transportation networks. Although the urban fringe extended significantly to the west and northwest of the metropolitan area, its extension to the north and east was restricted by topography, notably low-lying land and rolling, hilly land.

By 1987, at the height of the Japanese “bubble economy,” the urban fringe had expanded outward in most places around the Tokyo metropolitan area, was roughly characterized in shape by prongs, and can be divided into the three patterns of great movement, stable movement, and stagnation. “Great movement” of the urban fringe occurred to the southwest, northwest, and east, where there was a close relationship to transportation networks and land that was available for development. In these places, the speed of outward movement was too fast to control the conversion to urban land use through city planning. “Stable movement” of the urban fringe was found in the western part of metropolitan Tokyo, where there are mountainous areas that restricted expansion. “Stagnation” along the urban fringe was characterized by little outward movement, occurred in the north, and had a close relationship with unavailable land for urban use. Although the speed of movement in the zone of stagnation was slow enough to control the conversion of land use from agricultural to urban through city planning, urban sprawl did occur in some places because of the disorderly development around regional centers.

From then until 1997, the urban fringe had expanded rapidly in all areas and created a distinct shape. Great movement had occurred to the southwest, west, northwest, north, northeast, and east, in every case being connected to main railway and/or highway networks radiating away from central Tokyo, while areas of stable movement and stagnation were observed to exist in

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**Figure 1.** The outward movement of the Tokyo metropolitan urban fringe from 1976 to 1997.

Source: National Land Information System.
areas lying between such transportation networks. Although the intervals between rapid and slow movement outward along the urban fringe were small from the south to the northwest, they were large from the north to the east despite the great demand for urban land use there as elsewhere. A major factor, other than land conditions and transportation networks, was the importance of rice cultivation and the accessibility of off-farm employment. In the outer fringes of the eastern suburbs of Tokyo, in fact, cultivating rice not only has been maintained in spite of the severe competition between agricultural and urban land use but has also served as a restraint on the progress of urban expansion (Kikuchi and Obara 2004).

As a whole, the spatio-temporal changes of the Tokyo metropolitan urban fringe from 1976 to 1997 have been characterized by an outward movement with areal differences that depended on such factors as land conditions, transportation networks, accessibility to the metropolitan center, socioeconomic activities, infiltration of an urban lifestyle, and city planning. Also, in conjunction with the speed of outward movement and areal differences, agricultural land use in the urban fringe came to be related to either an unsustainable rural system or a sustainable one (Kikuchi and Obara 2004). The former is generally observed in many parts of the urban fringe where agricultural land is constantly converted for urban land uses, while the latter can be seen in some parts of the urban fringe where re-structuring of the rural system has taken place by recreating rurality through such activities as establishing farm shops, cultivating social networks, and conserving forests. In terms of rural land use and rurality, the following sections discuss unsustainable and sustainable rural systems in the urban fringe.

**Unsustainable Rural Systems in the Urban Fringe of the Tokyo Metropolitan Area**

As an example of an “unsustainable” rural system within the urban fringe, land-use changes in the Shimo-Fuda district were studied. This area is situated in the city of Choufu (a part of the inner fringe of the western “suburbs” of Tokyo) at approximately twenty kilometers from the metropolitan center, and five main trends in land-use changes within the district were identified for the period 1962–1993. These involved land being converted to urban land uses, multiple cropping of vegetables, factory farming, labor-saving agriculture, and social fallow land (Kikuchi and Takatori 1998), all of which is plotted in Figure 2. According to this map, it is clear that the trend of converting land into urban uses was the most dominant of the five trends, and this accurately reflects the results of the strong competition between agricultural and urban land uses in areas where urbanization was promoted, notably around rural settlements and railway stations. Because this trend was based on accessibility to a railway station, it was characterized by changing land use from agriculture to apartment buildings for commuters, while the same trend was dominant along main roads where urban expansion took place as ribbon development. This pattern of land-use change not only occurred because of easier access to a railway station and/or the convenience of a major road, but also was shaped by the influence of urbanites moving through the area (Kikuchi and Takatori 1998), which included such problems as theft, vandalism, littering, and dumping. On top of this, a turning point took place when paddy fields were subdivided for the construction of detached houses as part of the adjustments in rice production in the early 1970s.

Still, agricultural land use continued to exist. Raising vegetables was the largest such land use in terms of acreage, and the crops included not only cabbages, Chinese cabbages, and radishes that were traditionally grown but also carrots, onions, broccoli, and cauliflower. Alongside this diversification in cultivation, it became possible to raise vegetables more than three times a year, although the amount of produce was relatively small. This multiple cropping became a distinctive form of agricultural land use and was characteristically intensive in terms of land and labor, while most fields for raising vegetables came to be designated as productive green land. Such designation provides for advantages in paying land taxes if a farm maintains its farmland for more than thirty years. As this policy came into effect, urban farmland fulfilled other functions,
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Figure 2. Trends in land-use changes from 1962 to 1993 in Shimo-Fuda, a district within the inner fringe of the western "suburbs" of Tokyo. Source: field survey.

including those of amenity and preventing disasters (Takatori 2000).

The trend of converting land into factory farming, such as raising vegetables in greenhouses, was developed around urban land uses. Because factory farming requires a lot of money to be invested in plants and equipment, a long-term strategy and the risks of management have to be specially considered. Although farms which engaged in this type of farming needed to use their capital, land, and labor intensively, the increase in factory farming led to a rise in agricultural productivity per hectare as well as supported the development of suburban agriculture.

In contrast to intensive farming, two non-urban alternatives were found to exist. A form of agricultural land use based on farming characterized by extensive land use, a reduction in the amount of labor, and fewer outlays on capital could be seen in such activities as raising garden trees or chestnuts. This trend, termed "labor-saving agriculture," was distributed spottily both around the settlement and on upland fields. Yet, although most of the upland fields for labor-saving agriculture have been designated as productive green land, and agricultural land uses have been maintained for tax savings, this change in land use has been unsustainable in spite of some policies supporting it. While intensive multiple cropping has been undertaken by farms with heirs or members within the generation of youth, labor-saving agriculture has been engaged in by
farms without heirs or members of the younger generations. Furthermore, labor-saving agricultural land use tends to be converted into social fallow land (the fifth trend) when control of the farm changes hands, and it later is converted to urban land use because of the rise in value of the land.

**Restructuring a Sustainable Rural System by Recreating Rurality in the Urban Fringe of the Tokyo Metropolitan Area**

Recreating rurality through establishing farm shops in Kodaira

Although the acreage of farmland has decreased with the advance of urbanization in Kodaira, a city which is located within the inner urban fringe of western Tokyo, its decrease has been restrained through policies and the recent enforcement of rural restructuring. In terms of rural restructuring, farm shops have played an important role in the conservation of rural land use because they are the key means to link rural and urban land use (Kikuchi et al. 2002). A “farm shop” is defined as a place where many kinds of agricultural products are sold directly to urban residents and which is located on the side of farmland or at the gate of a farm (Takatori 1998). Although farm shops have not enjoyed a sophisticated distribution system for their products, many kinds of fresh and safe vegetables have been sold through them. It is therefore important to consider the development of these shops and their characteristics because most of them suit the environment within the urban fringe.

Figure 3 shows the distribution of farm shops in Kodaira. Although there have been many conversions of farmland into residential and commercial lots, and many subdivisions into small lots for sale along the main roads, some acreage of farmland has remained around roadside farm shops that are located along main roads and which have ensured the continuity and maintenance of agricultural land use. Their large-scale, cooperative management includes a few shopkeepers, while the farms connected to the roadside shops tend to be about 0.8 to 1.0 hectares in size. Most of them are part-time farms with one farmer who is mainly engaged in farming, but some have more than one full-time farmer who is between 40 and 60 years old. These farmers have cultivated many kinds of vegetables, potatoes, or beans through multiple cropping each year and, through sales directly to urban resi-

![Figure 3. The distribution of farm shops in Kodaira, a city within the inner fringe of the western “suburbs” of Tokyo (2000). Source: field survey.](image)
dents from their shops, they play a large part in the supply of fresh, low-price farm produce. The shops are open from 9 a.m. to 8 p.m. every day so that not only can housewives make good use of them during the daytime, but so too can commuters stop by on their way home in the evening. Generally speaking, the successful development of the roadside shops has been ensured by their high accessibility to urban consumers and a great deal of information about their needs.

On the contrary, shops at the gate of a farm or farmland are located within traditional rural settlements rather than along main roads, and they are small-scale establishments without a shopkeeper (Figure 4). Although farmland around traditional rural settlements has been converted into residential lots, and subdivisions of them into smaller lots for residential development, some acreage of farmland has survived under the auspices of multi-functional land use that involves agricultural production, productive green land, amenity space, and land for disaster prevention. Under such circumstances, "gate shops" play an important role as the key establishment in continuing and maintaining rural land use, despite their small size, because they are supported by a very small amount of productive green land and by the needs of local urban residents for fresh farm produce. Farms managed by the gate shops are between 0.4 and 0.8 hectares, and most of them have more than one part-time farmer between 40 and 60 years old and mainly engaged in nonagricultural work, while some of them have full-time farmers over 60 years old. Because such farmers gradually cultivate some vegetables, potatoes, and beans through annual double cropping, it is difficult for them to raise these crops on a large scale. Most of their produce is sold directly to regular customers who live around their settlements, hence these shops play a large part in supplying fresh, low-priced farm produce as well as serve as a good connection between rural and urban residents, whose relationship is generally friendly and based on convenience.

In Kodaira, although urban residents and farmers have been mixed in traditional rural settlements, the traditional rurality—consisting of the farms, farmland, general community, agriculture-based economic activities, and various establishments which supported these activities—has been lost as the number of urban residents has increased and the amount of rural land use has decreased. Although this rurality developed through exclusive, strong relationships among the farmers, it was disrupted as the number of urban residents increased and agriculture declined with the loss of such socioeconomic bases as farmland, members of the farming labor force, and some types of rural establishment. An urbanity which comprises urban residents and their community, urban land use and economic activities, and various urban establishments that support urban lifeways has come to dominate the regional character, but it is not supported by communities which are poorly organized and have weak relationships among residents at the expense of individualism and a focus on private life. This is because these communities have evolved through the influx of urbanites who commute to the metropolitan center and live within the urban fringe mainly for a place to sleep. Overall, then, these communities and the resulting urbanization have turned out to be alternatives to rurality, and their dominance not only has led to weakening rurality within the urban fringe but also has made it difficult for rurality and urbanity to exist there.

Recreating rurality in Kodaira, however, has been attempted by both farmers and urban residents. As shown in Figure 5, the interrelationships among the elements of urbanity have been

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Figure 4. A farm shop at the gate of farmland in Kodaira.
(taken by the author, March 2002)
connected with those of rurality through the farm shops, which have played an important role in connecting the two modes of life. Most farms have maintained their farmland and agricultural land use so that they can operate their shops and thereby create a reason to exist within an urban community. By doing so, rurality has been recreated and a sustainable rural system has been restructured in the urban fringe.

**Recreating rurality through constructing social networks in a “suburban” dairying region**

Suburban dairy farming has typically developed through good access to fresh-milk markets and advantages accrued from higher prices for milk (Figure 6). As urbanization proceeded in the Tokyo metropolitan area, it became difficult to engage in dairying in its outer fringe, so most suburban dairy farms there ceased to exist while others continued under the auspices of rural restructuring. For maintaining suburban dairy farms, it is not only essential to improve the material environment (facilities, equipment, and such like) but also important to construct various social networks and alternative relationships with urban residents (Kikuchi et al. 2006). In the cities of Hachiouji and Machida, both in the western outer fringe of “suburban” Tokyo, these networks and relationships have been achieved through three means: farm shops and direct sales of dairy products, educational programs about dairy farming, and seasonal festivals held by dairy farms.

Dairy farms in Hachiouji and Machida have shipped fluid milk directly to dairy-produce companies and contributed to the formation of the Tokyo suburban milkshed. Originally, they benefited from their good access to the fresh-milk market and the high prices for milk in the metropolitan area, but the latter advantage has been lost because the overproduction of fluid milk resulted in its price falling below the national average. In a subsequent attempt to raise the price for milk, the dairy farms established an agricul-
tural corporation which has operated a milk-processing plant and sold such products as ice cream, yoghurt, cheese, and low-temperature pasteurized milk directly to consumers (Figure 7). The many kinds of ice cream which are sold by the farm shop of this plant are notably popular with urban residents because of their freshness and delicious taste. Still, the low-temperature pasteurized milk is the most important product made by this plant. Besides being fresh and having a unique taste, it is delivered every morning to residents in the suburbs, and it competes well against the high-temperature pasteurized milk produced by large dairy-produce companies. Figure 8 shows the location of the processing plant as well as the distribution of households who are contracted to deliver milk. These households tend to be concentrated around the plant and suburban dairy farms, which themselves are in close proximity to urban residents who not only can consume fresh milk daily but also can identify the importance of the dairy farms as local producers of some of their foodstuffs. This of course has resulted in a social network that brings dairy farmers and urban residents closer together.

The second of the three means for integrating the dairy farms with the lives of local urban residents are educational programs for school children. In the “social studies” component of elementary education in Japan, children learn a lot about local history, geography, and environments through real-world observations and experiences, so those in Hachiouji and Machida visit dairy farms to study about how cows are

![Figure 7. A milk-processing plant in Machida. (taken by the author, September 2006)](image)

![Figure 8. The distribution of households which are contracted to deliver milk and the location of a dairy plant in the cities of Hachiouji and Machida in the outer fringe of the western “suburbs” of Tokyo (2002). Source: field survey.](image)
Figure 9. The interrelationship between rurality and urbanity in a dairying region within the outer fringe of the western “suburbs” of Tokyo.

kept and used. One program provides children with the opportunity to feed cows and to observe what and how they eat, while another requires them to milk cows with their own hands and to taste the milk and the yoghurt which they make. Such programs play an important role in cultivating an appreciation of dairy products, and their parents also hear about the dairy farms from the children and come to understand that the farms are a good source of educational “material.”

Seasonal festivals hosted by the dairy farms are the third means to build the social network involving the farms and the urban residents. An example of the main event at such a festival is a barbecue, for which people living near a dairy farm and their guests are invited. The dairy farmers grill the beef from fattened Holstein cattle and treat their guests to it along with fresh milk, yoghurt, cheese, and beer. As the farmers and the urban residents mix, they talk about many things, which might allow the farmers to learn about what suburbanites think about cows in their midst and the suburbanites to learn about how difficult it is to undertake dairying in the outer urban fringe and to understand the usefulness of dairy farms as green spaces. Especially for the dairy farmers, though, these festivals play a very important role in getting their neighbors to understand their circumstances and reason for being.

Because the dairy farms and residents in the “suburbs” are in close contact within the dairy-farming region within the outer urban fringe, the traditional rurality of the area has been lost. This rurality was destroyed by the influx of urban residents, who have not been pleased with the smells, noises, and other negative externalities (notably the manure) of the cattle economy, while the rural landscape has been damaged by the loss of ecological and socioeconomic bases that supported dairying over a broader area than today. As urbanity came to dominate the outer urban fringe, it was found to be incompatible with the cow-based rurality, hence the dairy farms in Hachiouji and Machida responded by improving their farming environments so that they would be compatible to some degree with the lifeways of the urban residents.

According to Figure 9, which shows a framework for how rurality has been recreated within the outer suburban fringe, a “rural-urban establishment” functions as a node to connect rurality with urbanity and thereby to contribute to recreating rurality, which has been characterized by the construction of diverse social networks in the case of the dairying regions. This is actually different from the situation elsewhere within the outer suburban fringe, where the node that serves as a rural-urban establishment has tended to create a single social network. Because engaging in dairy farming is more difficult than doing other forms of farming within the outer fringe, the dairy farms must construct diverse social networks rather than one only, and the interrelationships that they cultivate tend to be
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more firm than those built on a single network.

Recreating rurality through the development of conservation activities in the Totoro Forest of the Sayama Hill District

In the Sayama Hill District within the northwestern "suburbs" of the Tokyo metropolitan area, dispersed urban land use and urban sprawl accelerated the competition for rural land. Although forests had traditionally been maintained as green spaces in spite of their being available for housing needs, their size decreased in the 1970s and 1980s when lots for housing were developed around rural settlements and near railway stations. Because the economic function of forestland declined along with forestry and the utilization of forest resources, and because forestland was not given preferential treatment within the land-tax system as was productive green land, farmers tended to sell parts of their forestland to pay taxes and/or to earn a lot of money. Since the 1990s, however, rural and urban residents in the Sayama Hill District have recognized that forestland has played an important role in maintaining a high-quality residential environment by providing green spaces, places of quietness and spirituality, and other amenities, so it has been conserved in selected patches such as those which comprise the Totoro Forest (Kikuchi and Obara 2005).

The Totoro Forest was named after the title character in "My Neighbor Totoro," a well known animation film produced in 1988 under the direction of Miyazaki Hayao (Figure 10). Through this film, many Japanese were exposed to the rural landscape of their country in the 1950s, and this landscape was modeled on that in the Sayama Hill District and included rustic settlements, forests, upland fields, and tea fields. Forested land in particular was represented in the form of a grove housing the local deity and served as a spiritual symbol. Since the 1970s, however, the amount of forested land in this district has decreased because of the creation of lots for housing, making it necessary for the residents to conserve what remains of their forestland. An organization known as the Totoro Foundation was established by local rural and urban residents in 1990 and bought parts of the forestland from farmers, who had planned to sell their forestland to pay inheritance taxes, to become reserves within the forest (see Figure 11). Some of the Totoro Forest has therefore been conserved as a national trust, and because the Totoro Forest was portrayed as a typical Japanese rural landscape by Miyazaki, its conservation has become a symbol for the conservation of forests.

Forestland in the Sayama Hill District was traditionally used for producing compost, firewood, and charcoal by rural residents, and the bed of the forest was kept clear by such activities by the farmers as collecting fallen leaves, trimming off low branches, and cutting down the undergrowth. In the 1970s and 1980s, though, these activities had been neglected, so it has been important for the foundation to manage and maintain its forestland regularly after having acquired it. This is done by members of the foundation—mainly urban residents living around the Totoro Forest—who cut the undergrowth in the summer and collect the fallen leaves in the autumn under the voluntary guidance of farmers. While some rural residents participate in these activities because of their sentimentality for rural life and religion, urban residents participate as a means to enjoy rural recreation and to express a yearning for rurality. Needless to say, such activities create an interrelationship between rural and urban residents as well as help to recreate rurality.

The decrease in the amount of farmland and forestland and in the number of farming households has led to the decline of rural land use in this region, where many urban residents have
moved as part of the promotion of urbanization. Although rural and urban residents have been mixed, the traditional rurality has been lost and urbanity has come to dominate the Sayama Hill District. This urbanity has not, however, been well developed by communities with urban residents because they are poorly organized and have weak relationships among themselves since they commute to and from the Tokyo metropolitan center, where they are employed, and treat their residences simply as places to sleep rather than as a “hometown” (furusato). On the other hand, recreating rurality has been put into effect by the conservation activities of both rural and urban residents in the Totoro Forest. According to Figure 12, which shows the interrelationship between rurality and urbanity in the Sayama Hill District, it is the Totoro Forest which has served
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to bring these elements together.

Conclusion

Rural and urban residents have been intermixed in the urban fringe of the Tokyo metropolitan area, and the traditional rurality there has been lost through the influx of urban residents and the decrease in rural land use. The rural landscape has been damaged by the loss of ecological and socioeconomic bases and some types of rural establishment, while urbanity has come to dominate the regional characteristics within the urban fringe. Because rurality and urbanity are mutually contradictory, it is difficult for them to coexist, yet in some parts of the urban fringe rurality has been recreated through the establishment of farm shops, construction of social networks, and development of forest conservation activities. This has led to a sustainable rural system since the 1990s, and an important issue now is to develop connections between rurality and urbanity within a sustainable rural system, the framework for which comprises mutual relationships that are cultivated through the likes of farm shops, social networks, and forest conservation activities. As part of this process, rural residents maintain a sentimentality for the spirituality of rural space, while urban residents demonstrate a yearning for rurality.

Farm shops, social networks, and forest conservation activities have become indispensable for both rural and urban residents because they function as a node to connect rurality with urbanity. Reinforcing this connection has led to the development of sustainable rural systems that comprehensively intertwine rural and urban communities. The construction of social networks has played a particularly important role, and as the social networks become stronger, the relationships between rural and urban residents become closer despite their differences. Further recreation of rurality within the urban fringe is characterized by diversifying the social networks, which reinforces rural sustainability. Putnam (2000) and Woodhouse (2006) point out that social networks among individuals and groups are identified as social capital and that a high level of social capital will display a high level of economic development. As they have also pointed out, diversification of social networks within the urban fringe leads to a higher level of social capital and to the development of a sustainable rural system which recreates rurality. This can lead to social sustainability that comprehensively intertwines rural and urban communities, as can be seen to be happening in the urban fringe of the Tokyo metropolitan area.

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