

URBAN AGRICULTURE IN ASIA: LESSONS FROM JAPANESE EXPERIENCE

Kunio Tsubota
Kyushu University Asia Centre
6-10-1, Hakozaki, Higashi-Ku
Fukuoka City 812-8581, Japan

ABSTRACT

There are two major reasons why urban agriculture (UA) has drawn people's attention recently. One is the positive role that UA plays for the household security of the urban poor. In the Asian context, however, another reason seems more important – better land use in urban and rural areas. Unchecked sprawling of urban areas is causing a number of serious problems: upsurge in land prices and taxes, poor infrastructure, disruption of farming activity, pollutions, to name a few. Japan has a long history of encountering and tackling these problems. Various 'carrot and stick' policies have been adopted, most notable were the regulatory and economic measures taken under the “zoning” laws. These, however, were mostly trial and error cases. Any new measure or zoning was met with strong oppositions. Farmers wanted to protect their farmlands as well as have freedom of their disposal. Others insisted on imposing higher taxes on farmland to accelerate the conversion of farmland to residential use. Battle on zoning and related measures was almost over in the early 1990s. Farmland in Japan was split into three major categories: Agricultural Land Use Area; Urbanization Promotion Area (UPA); and the rest. The Ministry of Agriculture, Forestry and Fisheries (MAFF) estimates that about 1.1 million ha of farmland exist in “urban-like areas” and are producing ¥2.6 trillion worth of products. Share in national output is particularly high for vegetables and flowers, both at roughly 40%. Some farmers are still continuing agriculture even in UPA by shifting to organic farming, direct linkage with consumers, or agro-tourism. It is ironical that the voice appreciating the multiple roles of UA is mounting after the typical UA has almost disappeared from the urban center. Local governments are offering new measures to retain UA. Japan's experience may provide good lessons to other Asian countries where high economic growth, unchecked urbanization, and emergence of modern citizens are taking place are prevalent.

Key words: Japan, urban agriculture, land use policy, zoning

WHY URBAN AGRICULTURE MATTERS IN ASIA

There is no doubt that a huge number of citizens in the world now living in urban and peri-urban areas are engaged in some sort of agricultural activities – crop production, floriculture, or livestock raising – at small fields, backyards, river banks, and even rooftops. It is a natural phenomenon that human beings carry out such activities wherever possible and necessities exist. Urban agriculture (UA), whatever definition one uses, is by nature supplementary to rural agriculture and plays only a marginal role in the

development of national economy and security. Farmland prices may rise as urbanization advances but farmers can either shift to intensive farming or reap windfall profits by selling land for urban uses. Why does UA matter? Are there any reason why policy makers should be bothered?

The most common answer is that UA contributes to better livelihood of the urban poor by providing non-market access to food and offering jobs and incomes (UN ESC 2000). The importance of UA in this regard is paramount, especially in low-income developing countries. Asia is no exception. UA is also often a main source of supply for fresh products such as vegetables, fruits, and fresh

milk. Food security and health of urban families partly hinge on UA. These positive aspects of UA have only recently been recognized and drawn attention of international community.

In many parts of Asia, however, people have been paying attention to UA for other reasons. As their economies grew fast, urbanization increased and a number of UA-related problems emerged. Urban residents have witnessed land prices soaring, urbanized areas sprawling, and some farmers appropriating huge capital gains. Other farmers were concerned about disrupted irrigation systems, undermined rural community activities, and skyrocketing taxes on land. Conflicting views on UA were expressed by different circles, reflecting their diverse interests and the depth of the problems they confront.

For the policy makers in those countries, the primary reason for UA, which is food production, may be becoming less and less important. Thanks to their high economic growth and agricultural development, access to food by the urban poor has been steadily improving. The FAO food insecurity reports indicate that undernourished population in Asia declined sharply over the last two decades. On the other hand, another aspect of UA is now becoming more serious, complex, and confrontational. As unchecked urbanization advances, people are increasingly sensitive to its impact on their livelihood, own rights, and the environment. Requests for government assistance and better city planning are mounting.

The task of policy makers would be facilitated if they could have full authority to evacuate people, develop land as they wish, and reallocate the land. Meanwhile, the decision of urban farmers would be easier if they could find alternative jobs that would assure them more sustainable income than farming. Reality is of course not like that. Except for socialist economies, land has been subject to property rights. But very often, transaction of land is regulated for one reason or another. The urban poor, including small farmers, are handicapped in terms of education and job opportunities. Taxation compounds the situation. Not only fixed asset tax but also tax on capital gains and inheritance tax are imposed. Uncoordinated measures taken by the different sections of the central and local governments make things more complicated.

Japan is the typical case of high economic growth and urbanization that have caused such UA related problems. Policy makers, farmers, and urban residents have been dealing with the problems, mostly by trial and error. The experiences, though framed from a specific historical and socio-cultural mold, seem to include a lot of lessons that other Asian countries can draw.

DEVELOPMENT OF UA-RELATED ISSUES AND POLICY RESPONSES IN JAPAN

As in most other Asian countries, majority of Japanese people have been living in limited alluvial plains or basins and agriculture used to be the major economic activity. Towns have developed as trading centers or castle towns of feudal landlords in these areas. Except in Kyoto and Nara, no well-organized city plan has been applied in Japan. Urban areas have expanded naturally to outward agricultural and forest areas. Virtually no clear borders have been marked between towns and countryside.

Toyotomi Hideyoshi gained full control of Japan in the late 16th century and conducted a comprehensive farmland survey nationwide. Each plot of farmland in the village was registered, by which farmers were tied up with land and feudal taxes. During the Edo era (1603-1868), Tokyo (Edo) and Osaka developed as megacities with estimated population of 1 million each. However, most current urban areas of these cities were still pure rural villages producing vegetables and rice. After the Meiji Restoration, the government introduced a modern taxation system for land in 1873. They issued to the landowner a tradable land title of each plot and taxed it. Tax rate was set at 3% of land value. Farmland value was computed from the capitalized value of income from farming.

No serious confrontation occurred between agriculture and urban land until the 1930s largely because land supply was plenty as against the size of demand from urban sectors. Although the first City Planning Law was enacted in the 1919 to regulate urban buildings and structures, it had limited impact on agriculture.

Hardship and food shortages that hit postwar Japan for the first time made known to urban families the potential and importance of UA for their livelihood. Backyards, riverbank or

even schoolyards were dug and planted with food crops. This was short lived, though. The quick recovery of food production in rural Japan and food aid from the United States eased the food shortages while economic boom at the time of Korean War helped create jobs for the urban poor.

Agrarian Reform and the Agricultural Land Law

Farmland policies saw a sea of change during this period. The Agrarian Reform conducted under the supervision of the General Headquarters (occupied forces) completely reversed the scene of Japanese agriculture. The government bought all farmland owned by absentee landlords and sold it to tenant farmers at nominal prices. As a result, Japan's farmland areas, whether rural or urban, got possessed by six million small owner-cultivators whose average holding size was just over one hectare. This was the realization of the dream for which millions of tenant farmers had fought under the powerful pre-war landlord regime.

The Agricultural Land Law was enacted in 1952 to consolidate the outcome of the land reform. It prohibited farmers from acquiring more than 3 ha (12 ha for Hokkaido) of farmland. Maximum rent was set by the government although small size lease was permitted. Conversion of farmland for non-agricultural purpose was also strictly controlled even for own uses. All political parties supported this egalitarian farmland control system that indeed tremendously contributed to the social stability of postwar Japan.

The government introduced another important policy mechanism to develop and improve farmland. The Farmland Improvement Law 1949 provided the institutional framework for farmland and water development including irrigation, drainage, land reclamation, and consolidation. It allowed farmers' groups (mostly water users associations) to launch a subsidized project on their own or ask the prefecture or central governments to do it. Although farmers were asked to share construction and maintenance costs, rural infrastructure and farmland conditions in Japan have improved markedly under this mechanism. As a result, a good network of water users and water-use rights were established throughout Japan including peri-urban areas.

The high economic growth that started in the late 1950s transformed the structure of Japanese economy and society. During this period, industry and commercial sectors grew at unprecedented speed and absorbed surplus labor that persisted in rural Japan. Demand for land for industrial and residential purposes soared in and near large cities. Nationwide infrastructure development projects such as construction of bullet train lines and national highways also required massive farmland to be converted.

In the meantime, haphazard urban development or the so-called "sprawling phenomena" emerged as a serious social problem. Forest, hills, and some farmland in suburban areas were hastily developed for urban use without proper planning. In many cases, they were poorly equipped with urban infrastructure and public facilities. Both urban sectors and farmers in these areas were frustrated. Urban sectors and some farmers demanded the relaxation of tight farmland control. In response, the government announced the Agricultural Land Conservation Standard in 1959. This standard paved the way for allowing the use of farmland for other purposes in such areas bordering existing commercial districts, stations, and schools while protecting good blocks of farmland. But it had only a marginal effect on preventing urban sprawling and curtailing land prices.

Zoning between Urbanization Promotion Area and Urbanization Control Area

In the late 1960s, there was a strong call for more fundamental measures for city planning and land price control, and the Ministry of Construction lost no time in responding. The Ministry proposed the amendment of City Planning Law and drawing lines between urbanization promotion area (UPA) and urbanization control area (UCA) within the territory of City Planning. Farmland owners in the UPA would be allowed to convert or sell their farmland for non-farm uses without recourse to the permissions under the Agricultural Land Law. This proposal was a Japanese version of "zoning" for better city planning which proved successful in some western countries. It was expected to contribute to orderly urban development,

concentration of public investment in priority areas, and stability of land prices.

The new City Planning Law was approved in 1968. Prefecture governments started line-drawing (zoning) the following year in consultation with municipal governments and completed it by the end of 1973, leaving some controversial areas “blank”. This was a time-consuming and painful task for the local governments. They had to consult with various parties including water users associations and rural communities. After tough negotiations and hard work, they eventually identified 1.2 million hectares of UPA in Japan, of which nearly 30% were farmland. Many local governments incorporated the vast areas of farmland or forest in the UPA, claiming that these would be converted into residential areas within 10 years. It should be noted that not only urban sectors but also many farmers wished their farmland to be included in UPA. Incentives offered by the newly promulgated Agriculture Promotion Law appeared less attractive for many small-scale farmers in urbanizing areas.

Battle on Taxation

The City Planning Law, however, has advantages and disadvantages. Owners of farmland within UPA were requested to pay the taxes “equivalent to residential land”. Fixed asset tax on farmland (local tax) used to be imposed on the basis of capitalized value of agricultural return and was normally a few ten thousand yen per ha. The fixed asset tax on urban residential land was 100-500 times more. Worse, it would affect inheritance tax in the same magnitude as well. It was obvious that if the proposed taxation had been applied straightforward, many urban farmers would have had no choice but stop farming. This was a natural consequence of zoning for city planning because UPA was defined as the area to be urbanized in ten years time. Indeed many farmers chose their land to remain in UCA in order to continue their farming.

Farmer groups launched strong petitions against it. They were rewarded in the form of suspension of new tax or tax refund by local governments in the 1970s. Notable in this period was the establishment of the Productive Green Land Law in 1974. This law acknowledged for the first time the multiple roles of farmland in UPA and authorized the special treatment

of productive green land in the city plan. But this treatment was not appreciated by farmers due to its strict conditionality and existence of other means to get tax reduction. Only 600 ha of farmland were registered as productive green land at that time. Creation of new tax suspension for the “long term farming operations land (LFOL)” followed in the early 1980s. Under this system, a farmer could get tax refund every five years for the land that he pledged continuation of farming operations for ten years. If he discontinued farming in the middle of this period, the residential land rate would apply for the remaining period. Nearly 80% of eligible farmers chose this option.

Productive Green Land Area in UPA

Tide changed again when Japan entered into the “bubble economy” in the mid-1980s. Excessive money supply and liquidity generated speculation in the property market. Between 1985 and 1990, average prices of residential land in Tokyo Metropolitan Area shot up by 300%. Farmland left in UPA and generous tax treatment for it became prime target of social criticism. Urban workers got furious and demanded social justice. Even US negotiators suggested that it was one of the “structural impediments”.

The government decided to abolish the tax suspension for LFOL and amended the Productive Green Land Law in 1991. Now, tax suspension would apply only for those farmers in the UPA of three megacity zones who would continue farming for more than 30 years. They will have to sell it to the local government after that period. Farmers were forced to choose either paying higher tax in return for retaining freedom of farmland disposal or accepting duty of farming for such a long period. Only one third of farmers took the latter in the end. Its total acreage was as meager as 15,000 ha. Major battle on farmland tax was virtually over. Farmland in UPA declined sharply from 150,000 ha in the early 1990s to 90,000 ha in 2004. A silver lining is that areas of productive green land have been unchanged at 15,000 ha for the same period, showing the strong commitment of urban farmers.

It is a bit ironical that the bubble burst soon and land prices in urban areas have now returned to the level of mid-1980s, when the

second round of UA “bashing” began. It is more ironical that voices appreciating UA are gaining momentum after farmers and farmland have almost disappeared in the UPA. Many municipalities now encourage farmers in UPA to retain their productive green land as it is. They believe that farmland in UPA offers to urban citizens a shelter in times of natural disaster and a breathing space in the “jungle of buildings”. Some researches indicate that peri-urban paddy land mitigate flood. But farmland in UPA would disappear soon because most of farmers are now over 60 years old.

CURRENT STATUS OF URBAN AND PERI-URBAN AGRICULTURE AND RELATED POLICIES IN JAPAN

Agriculture in Urban-Like Areas

As in other countries, agriculture in Japan is under the jurisdiction of the Ministry of Agriculture, Forestry and Fisheries (MAFF), so are the agricultural statistics. Despite the heated arguments on drawing the line between UPA and UCA, no official agricultural statistics exist for these categories. The Ministry of Land and Transportation does not collect information on agriculture. But rough acreage data are available from various sources as illustrated in Fig. 1.

In 1999, Japan had 4.8 million ha of farmland in its 37 million ha of total national

land areas. Only 110,000 ha of farmland were included in the UPA while 1.15 million ha of farmland still remained in the UCA. From hindsight, we can conclude that zoning worked effectively for preserving farmland in the City Plan Area. Of these 1.15 million ha, MAFF identified 850,000 ha as good farmland and incorporated in the Agricultural Use Area (AUA) for which government assistance for agriculture would be concentrated. The rest of 300,000 ha fell in the gray category of “suburban farmland”. This “blank” farmland area from agricultural zoning is considered as the land waiting for the chance of being incorporated in the UPA.

For agricultural purposes, MAFF uses a different area classification system composed of four major categories: Hill agriculture area, intermediate agriculture area, plain agriculture area and urban-like area (ULA). The ULA is defined as the areas of old or current local municipality: (i) whose percentage share of Densely Inhabited District (DID) in the total inhabitable land is more than 5% and population density is more than 500 or total population is more than 20,000, or (ii) whose percentage share of residential land in the total inhabitable area is more than 60% and population density is more than 500. In 2003, MAFF reported 1.1 million ha of farmland in the ULA which accounted for 24 % of the total national farmland. In this area, about 750,000 farm households were carrying out farming activities but the one third (33%) of

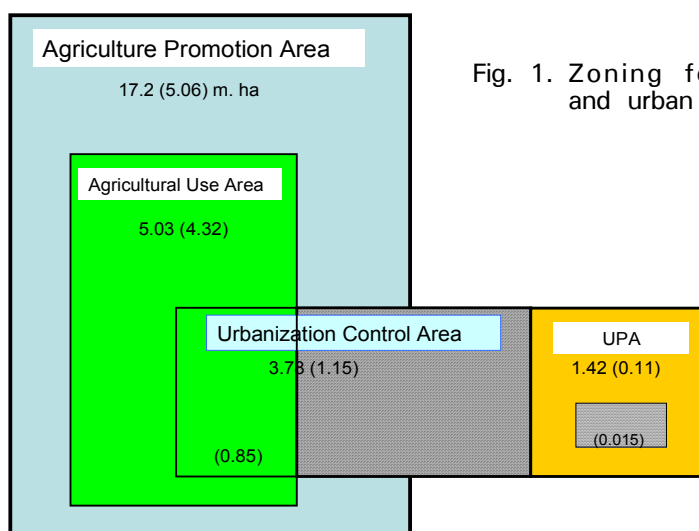


Fig. 1. Zoning for agriculture and urban areas.

them, 250,000 households, are engaged in agriculture mainly for their own consumption. This ratio is eight-percentage point higher than the national average.

It is surprising to know that this area alone produced 2.6 trillion yen (about 10 billion US dollars) worth of agricultural products, or 29% of the national gross agricultural outputs. Major products were vegetables, rice, livestock, fruits, and flowers (Table 1). It should be noted that the percentage share of ULA in the total national output is particularly high for perishable products such as flowers (40%) and vegetables (38%), as shown in Table 2. Agriculture in the ULA is exploiting its geo-economic comparative advantage well. The output value per ha was 2.3 million yen in ULA, which is 20% more than the national average.

These amazing figures certainly reflect the current status of UA in Japan. Urban areas have stretched over substantial part of alluvial plains. Development of fast and efficient transportation systems has enabled local people to commute to the urban center from the areas that once have been pure rural villages. There is no doubt that the scope of ULA has expanded and resulted in relatively high shares in the national outputs. Reduction in agriculture in the core cities can be compensated by the intensified agriculture in the expanded ULA. Agriculture in ULA is as productive as that in other agricultural areas because:

- Almost 80% of the farmland in this area is receiving similar support to that in rural areas.

- 97% of their villages are located within 30 minutes distance from the DID cities.
- Farmers can launch diverse activities directly targeting urban consumers or residents.

In other words, it can be concluded that peri-urban agriculture can be sustained and has the potential to grow further if appropriate set of policies is taken.

Agriculture in Urbanized Area

We can get some detailed information on farming in urbanized areas mainly from the sporadic documents produced by municipal governments or local agricultural organizations. For instance, Nerima ward in Tokyo reported its agriculture as follows:

- Total agricultural land in 2002 was 314 ha (10% of total area), of which two-third was registered as the green productive land.
- The number of farm households slightly declined from 746 to 681 from 1996 to 2002.
- In 2002, 53% of the farmers were over 60 years of age.
- But the percentage share of commercial farm households increased from 82% to 90% for the same period.
- Two-third of farmers sold less than 1 million yen of agricultural products per year while 2.5% of them sold more than 10 million yen.
- Major products were vegetables (about 70%), followed by seedlings and garden

Table 1. Composition of agricultural outputs in the urban-like areas of Japan (2003)

Item	Vegetables	Rice	Livestock	Fruits	Flowers	Others
% Share	30.7	25.8	18.3	9.3	6.5	9.4

Source: MAFF, Japan

Table 2. Share of urban-like areas in the national output by commodity

Item	Vegetables	Rice	Livestock	Fruits	Flowers	Total
% in National Total	38	29	19	34	40	29

tree (11%), fruits (10%), and lawns (8%). Of the vegetables, cabbage alone accounted for 28%.

- They sold the products from their own houses and unmanned sale spots (45%) or joint sales store (13%), rather than wholesale markets (18%). Some sold the products directly to schools for lunch program.

Quoting various surveys, E. Tsutaya documented the recent situation of UA in Fuchu city (Tokyo Metropolitan area) and the suburban areas in Osaka-Kobe. For Fuchu, he found the following trends:

- Farmland declined sharply from 1200 ha (40% of city's total land area) in 1954 to 174 ha (6%) in 2003.
- About two-third of farmland was registered as productive green land in 2004.
- The number of farm households has steadily declined from 1,340 in 1955 to 475 in 2004.
- 80% were small farm households having less than 0.5 ha of farmland and its share was edging up in 2004. Only 2% were full-time farm households.
- More than half of the farmers were over 60 years of age.
- Nevertheless, most farmers wished to continue farming or even expanding it.
- Inheritance tax, worsening environment, low profitability and lack of successors were among the biggest obstacles to continue agriculture.
- Main products were vegetables, fruits, garden trees and flowers. Livestock production almost disappeared.
- Farmers marketed their products through direct sales (35%), wholesale markets (24%), and joint-sale shops (12%). One-third of farm households commercialized no products.
- Local residents fully supported the existing UA with only 5% of respondents demanding the conversion of farmland to residential land.

The case of Osaka-Kobe presented somewhat a different picture, with the following trends:

- Farmland area shrank by nearly 80% since 1960 with its peak in the 1960s. The trend is still continuing.

- The number of commercial farm households also declined by more than 80% for the same period.
- The share of small-scale, part-time farm household has increased, which entailed a high percentage share (60%) of the farm household producing for their own consumption.
- Major commodities were vegetables (55%), rice (15%), garden trees and seedlings (14%), and livestock products (11%) in 2000. Farmers were shifting from livestock to other products due to complaints from urban residents on odor, noise and water pollution.
- More than half of these products were sold through wholesale markets (68%), to nearby people or restaurants (12%), and at direct sale shops (10%). The agricultural cooperative (JA Hyogo Rokko) played a central role in marketing.
- Income from agriculture accounted for only 7.4% in the total family income while that from real estate and off-farm salaries made up 40% and 34%, respectively.
- But most of the farm households wished to continue farming even if they would have to sell part of land for paying tax.

These three examples illustrate a changing pattern of Japanese urban agriculture. First, farmland acreages decline while the proportion of part-time farmers goes up. Then, decline in the number of farm households follows with some time lag. Once they dropped to very low levels, the decline rate slows down. Second, production shifts from ordinary mix of rice and other products to specialized production of vegetables, gardening trees, and plants. In the final stage, livestock disappears while various "green services" emerge as the main farm outputs. Third, marketing channel also changes. Sales through wholesale market are high in the early stage but move to more local places such as joint-sale shops, nearby restaurants or schools. Farmers also start selling at unmanned sale spots in their vicinity. Fourth, income from farming as a percentage of total family income declines sharply and is replaced with salaries and income from real estate (e.g. rent from apartments or parking lots). Fifth, the less UA remains, the more urban residents appreciate it. Municipalities offer more assistance to UA,

appreciating its multiple functions and externalities.

The case of Kobe-Osaka is considered as the peak stage of UA transformation. A considerable number of farm households are still operating small-scale agriculture for home consumption or sales. Agricultural cooperatives are active especially in marketing. The cases of Nerima-ward and Fuchu-city represent the state that urbanization has reached the final stage. Only a small number of committed farmers continue agriculture largely on the productive green land. They are supported by urban residents who appreciate the supply of hands-on fresh vegetables as well as the multiple externalities of UA. Products are sold more individually through unmanned spots or joint-sale shops. There is a risk, however, that farmland would disappear in 10-20 years time due to fixed asset tax, inheritance tax and expiration of tax suspension.

Policies Taken for UA

For the central government, there are no particular reasons to favor or disfavor UA in their agricultural policies. Wherever conducted, agriculture contributes to national food security, economic development, and preserving national land. If some subsidies or taxes apply to agriculture in other areas, they should do so for UA. This principle, however, did not apply to the UPA as seen in the previous section. If a farmer's land was included in the UPA, MAFF offered no investment, subsidies or loans for agriculture because UPA is to be urbanized in 10 years. This is sensible in light of effective use of limited fund for national agricultural development. Zoning was implemented in a democratic manner and in many cases it was the farmers themselves who wished to be included in the UPA.

Views of municipalities are not necessarily the same as that of central government, though. They have felt the need of maintaining some farmland in the urbanized areas. They have recognized that farmland provides open green spaces that are badly required at a time of emergency. It is also too costly and troublesome for them to procure all the farmland, convert to parks, and maintain it. Existing residents do not wish adjacent green spaces turning into tall buildings or noisy

factories. It is no wonder that many municipal authorities are extending helping hands to UA now. A typical case is the Nerima ward of Tokyo city. Its Agricultural Promotion Plan lists 55 activities to promote agriculture. Among them are:

- Support to joint or independent direct-sale facilities including subsidies, preparation of location maps, mediation for renting spaces;
- Increase in use of locally produced vegetables for school lunch;
- Subsidies to greenhouses;
- Support to "citizen's farms" through small subsidies, good offices, and PR;
- Subsidies for organic fertilizers and pesticides or good seeds;
- Promotion of local products especially Nerima radish; and
- Training of farming operation helpers.

The central government has also changed their attitudes recently. The Basic Law for Food, Agriculture and Rural Villages 1999 stipulates that *the government must provide agriculture in cities and its vicinity with necessary measures to promote agricultural production for meeting the needs of urban citizens*. MAFF is now providing grants to municipalities for direct sale facilities, citizen's farms, preservation of rural landscape, etc.

LESSONS FROM JAPANESE EXPERIENCE

We cannot conclude that the above-mentioned experience in Japan would have a universal value and could be applied to other Asian countries. Japan has a long history of detailed farmland survey, enforcement of effective land tax, land title, and modern property right. The egalitarian land control system established under the postwar land reform and the Agricultural Land Law may be unique to Japan. Time consuming democratic process for zoning would be hardly applied to some countries. Because of budget constraints, generous assistance may not be given to UA in other countries. Most urban citizens would pay little attention to UA which is part of their own life in many countries.

Nonetheless, we can find some generic elements in the Japanese experience. First and most notable is the widening disparity between capitalized value of farmland and its

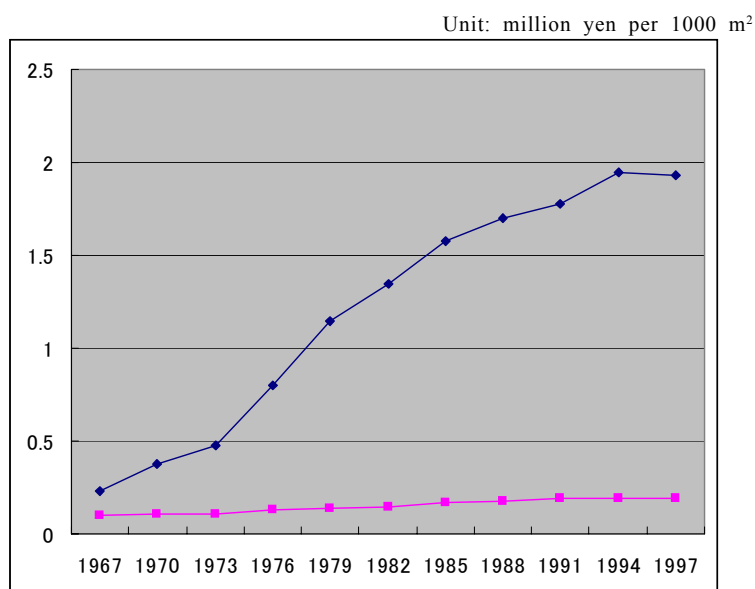
opportunity price for urban use. Fig. 2 illustrates how quickly the price gap between farmland and residential land has been widening. This is a reflection of very low, and slow growth of, land productivity in agriculture compared with that in urban sectors. Farmers try to shift their production to more intensive farming such as leafy vegetable in greenhouse but in many cases they cannot compete with urban uses, especially residential one. The widening gap in turn induces the problem of taxation. Farmers can continue farming even if land productivity is low. They can cultivate large areas or reduce input costs. But they cannot stand land tax if it is imposed on the basis of prevailing residential land prices.

Second is the sprawling phenomenon. Urbanization does not radiate as smooth as concentric circles. Areas that happened to be acquired by developers are converted to residential areas one after another, drawing a mosaic urban pattern in peri-urban areas. This poses unwanted extra burdens on local communities because developers normally do not pay for its negative externalities: water pollution, road congestion, disruption of irrigation channels, undermining community

forces, etc. It is the local government and rural community that bear these social costs eventually. And of course, new residents pay the costs in the form of poor urban infrastructure and long commuting time.

Third is the individualization of UA. As the number of full-time farm households decline in the communities, each farm household and farmland get separated from the others. It makes collective actions by farmers more difficult. Water users association, agricultural cooperative, and rural youth societies are all undermined. Unless municipalities help, UA and its positive externality would soon cease to exist.

The Japanese UA experience may be comparable to those in the Republic of Korea and Taiwan ROC where similar rural structure developed and the economy has grown fast. Information available suggests that some other countries such as the Philippines, Indonesia, Vietnam, and Nepal are also facing similar UA problems. Pradhan and Perera indicates the need for zoning restructuring in Kathmandu for sustainable UA, which is exactly the case that Japanese UA has been struggling with.



◆: farmland prices, ■: estimated capitalized value for taxation

Fig. 2. Changes in farmland prices and estimated capitalized value for taxation.

Source: Asset Evaluation System Center

Many Asian countries are now catching up with advanced countries. They are experiencing economic growth, transformation of economy, and urbanization at much higher speed. People's attitude and concerns are no exception. They are more sensitive to legal rights, democratic process, economic impact, social justice, and the environment. All these factors indicate that policy makers in Asian countries will encounter, sooner or later, many of the problems that the Japanese did. Japanese experience, irrespective of being positive or negative, should provide useful lessons.

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