
**Urban Agriculture In Asia: Lessons
From Japanese Experience**

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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 between urban and rural. 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 prepared. Most notable were the regulatory and economic measures taken under the “zoning” laws. They were however in many cases trials and errors. Each time a new measure or zoning was proposed, strong oppositions came out. Farmers wanted to protect their farmland as well as freedom of its 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: one in Agricultural Land Use area, one in 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 typical UA has almost disappeared from the urban center. Local governments are offering new measure to retain UA now. 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 in parallel.

WHY URBAN AGRICULTURE MATTERS IN ASIA

It is no doubt that a huge number of world citizens 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 definitions 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 reasons 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 part of Asia, however, people have been paying attention to UA for other reasons too. As their economies grew fast, urbanization was accelerated 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 skyrocketed taxes on land. Conflicting views on UA were

expressed by different circles, reflecting their diverse interests and depth of the problems they confront.

For the policy makers in those countries, the first aspect of UA may be becoming 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 of this region declined sharply over the last two decades. On the other hand, the second aspect is 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.

Task of policy makers would be smooth if they could have full authority to evacuate people, develop land as they wish and reallocate it. Decision of urban farmers would be easy if they could find alternative jobs that assure more sustainable income than farming. Reality is of course not. 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 further complicated.

Japan is the typical case that high economic growth and urbanization have caused such UA related problems. Policy makers, farmers and urban residents have been tackling the problems, mostly by trial and errors. The experiences, though framed from its 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 plans have 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 mega cities with estimated population of 1 million each. However, most of 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 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 the 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

Cry for taking more fundamental measures for city planning and land price control culminated in the late 1960s 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 his 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 had 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, contained sticks as well as carrots to achieve goals. 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 few ten thousands 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 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 percent 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 turned into the 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 mega-city 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 sixty. Their children will not be able to pay inheritance tax but sell their land.

Agricultural Promotion Law and UCA

What happened to the 1 million ha of farmland in the urbanization control areas (UCA)? It has been protected fairly well, thanks to the strict control by the Agricultural Land Law. But we can not overlook the strong impact of the Agriculture Promotion Law 1969 as well. This Law, acted only one year after the new City Planning Law, was armed with the zoning clauses for agriculture. It was originally planned to protect agricultural “territory” but quickly evolved as the powerful means to promote comprehensive rural development. The Law prescribes both policy assistance to facilitate agricultural development and zoning regulations to protect excellent land for agricultural use. Government assistance for irrigation, food marketing or agricultural loans would be offered only to farmers in the Agriculture Use Area (AUA).

There is no contradiction that AUA overlaps with UCA defined by the City Planning Law. In 1999, AUA covered 850,000 ha of farmland in the UCA. The farmers in this area have committed themselves to agriculture and keep receiving equally favorable services as farmers in the rural areas. As we will see later, these farmers are more productive than others on average by taking advantage of geo-economical conditions.

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

Agriculture in Urban-Like Areas

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

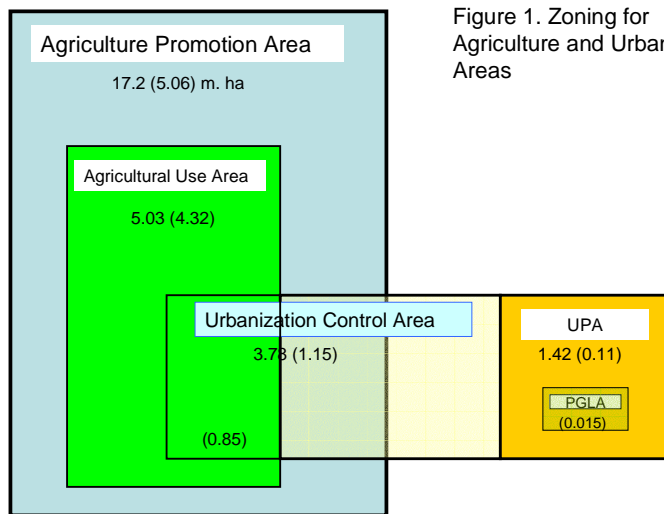


Figure 1. Zoning for Agriculture and Urban Areas

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

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

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.

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

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 having 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 the 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, we may conclude that peri-urban agriculture can be sustained and has potential to grow further if appropriate set of policies is taken.

Agriculture in Urbanized Area

We can get some detailed information on the 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-year 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 tree (11%), fruits (10%), and lawns (8%). Of the vegetables, cabbage alone accounted for 28 %.
- They sold the products at 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 that:

- 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 the 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 farmers were over 60 years 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%), joint-sale shops (12%). One third of farm households commercialized no products.
- Local residents fully supported the existing UA with only 5 % of respondents demanded the conversion of farmland to residential land.

The case of Osaka-Kobe presented somewhat different pictures.

- 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 has entailed a high percentage share (60%) of the farm household producing for 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 the claims 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 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, declining speed 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 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 his 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 plots). 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 states that urbanization has reached the final stage. Only a small number of but 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 farmer themselves who wished to be included in the UPA.

Views of municipalities are not necessarily the same as the 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. Typical case is the Nerima ward of Tokyo city. Its Agricultural Promotion Plan lists up 55 activities to promote agriculture. Among them are:

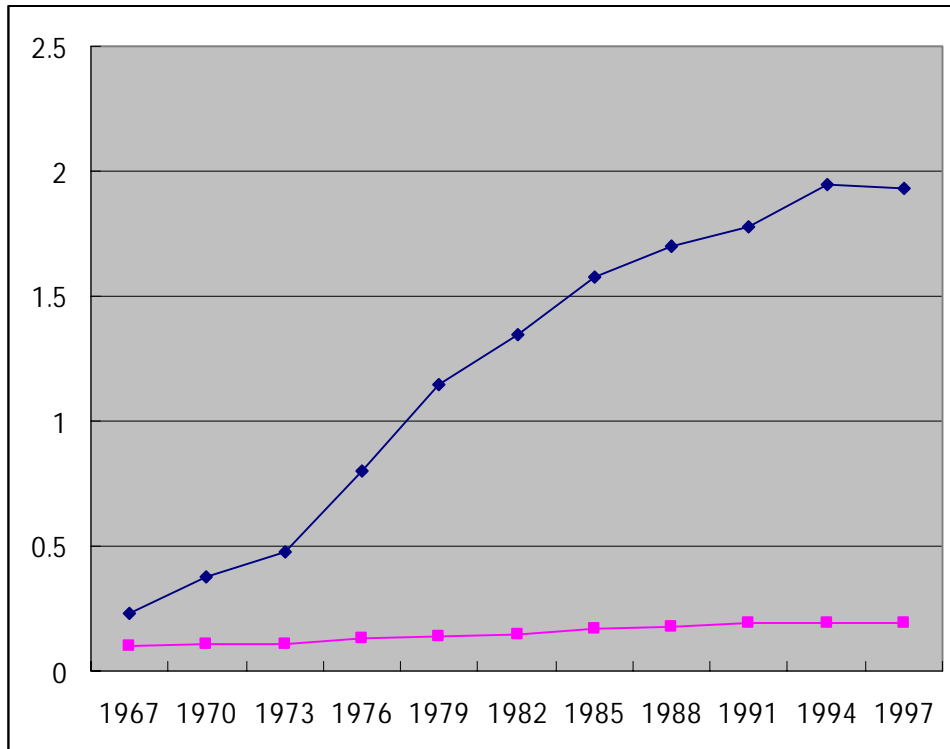
- support to joint or independent direct-sale facilities including subsidies, preparation of location maps, mediation for renting spaces,
- increase in use of locally produced vegetables for school lunch,
- subsidies to greenhouses
- support to "citizen's farms" through small subsidies, good offices,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

The central government has also changed their attitudes recently. The Basic Law for Food, Agriculture and Rural Villages 1999 request that *the government provides to 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, such a generous assistance may not be given to UA in other countries. Most of urban citizens would pay little attentions to UA which is part of their own life in many countries.

Nonetheless, we can find some generic elements in Japanese experience. First and most notable is the widening disparity between capitalized value of farmland and its opportunity price for urban use. Figure 2 demonstrates how quickly the price gap between farmland and residential land has been widening. This is the 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. He can cultivate large areas or reduce input costs. But he cannot stand land tax if it is imposed on the basis of prevailing residential land prices.



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

Unit: million yen per 1000 m²

Source: Asset Evaluation System Center

Figure 2. Changes in Farmland Prices and Estimated Capitalized Value for Taxation

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 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 others. It makes collective actions by farmers more difficult. Water users association, agricultural cooperative, rural youth societies are all undermined. Unless municipalities help, UA and its positive externality would soon cease to exist.

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

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, soon or later, many of the problems that Japanese counterparts did. Japanese experience, irrespective of being positive or negative, should provide useful lessons.

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