

## Special Farming Zones and Land-Use Planning for Reviving the Agricultural Industry\*

### Author

Kazuhito YAMASHITA  
Research Director  
Canon Institute for Global Studies

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*The opinions and remaining errors are the responsibility of the authors alone.*

### 1. Disaster-related Damage

The northeastern region of Japan is one of our country's main providers of food. Farming in the region was significantly damaged in the recent earthquake. It is estimated that a total of 24,000 hectares (59,305 acres) of farmland was damaged: 15,000 hectares (37,065 acres) in Miyagi, 6000 hectares (14,826 acres) in Fukushima, and 2000 hectares (4942 acres) in Iwate. By itself, this figure may not be large when compared to Japan's total amount of farmland, 4.59 million hectares (11.3 million acres). However, even though Japan had a population of just 70 million at the end of World War II and 5.5 million hectares (13.6 million acres) of farmland, people starved. We cannot afford to lose any more farmland than we already have, which makes the damage from the recent earthquake all the more disturbing. Moreover, in a country like Japan, where much of the farmland is sloped, most of the damaged farmland was flatland of the best productivity. In addition, it goes without saying that the damage was regionally concentrated. On average, municipalities on the Pacific coast of Miyagi prefecture suffered damage to 42 percent of their farmland.

It has been said that the salinity of farmland in the city of Sendai is nineteen times higher than that of ordinary land. Facilities in the city that irrigate and drain paddies were also heavily damaged. Since drainage facilities were destroyed, even if farmers leach salt from the land, they cannot drain the water. It will require a great deal of time and money to take all of the steps needed to restore the farmland that was seriously damaged in the recent earthquake, including debris removal, repairing waterways and pipelines, and leaching the salt from farmland that was covered by seawater.

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As of June 7, the total cost of the damage was 764.4 billion JPY (~9.5 billion USD), which breaks down as follows:

- farmland: 395.7 billion JPY (~4.9 billion USD)
- agricultural facilities: 18,000 facilities, 318 billion JPY (~3.9 billion USD)
- produce and livestock: 11.8 billion JPY (~146 million USD)
- greenhouses, stables, etc.: 38.9 billion JPY (~481 million USD)

The total cost of the damage to the fishing industry was 1.05 trillion JPY (~13 billion USD), which breaks down as follows:

- fishing vessels: 20,963 vessels, 141.7 billion JPY (~1.8 billion USD)
- fishing ports: 319 ports, 723.1 billion JPY (~8.92 billion USD)
- aquaculture facilities: 73 billion JPY (~900 million USD)
- aquaculture stock: 56.3 billion JPY (~695 million USD)
- shared-use facilities: 60.3 billion JPY (~744 million USD)

## **2. The Necessity of a Quick Decision on a Land-Use Plan for Reconstruction**

The government must rebuild the damaged region to ensure that this type of damage never occurs again. The region and its nuclear power plants were not able to cope with an earthquake and tidal wave that exceeded a certain intensity. Taking that lesson into consideration, we must rethink the use of land across the entire region. As a short-term response, it is important to build temporary residences to shelter people from the elements, but hasty reconstruction alone will not allow us to avoid catastrophic damage in the future. Therefore, we must establish a solid land-use plan and follow the plan as we work to rebuild. In particular, since agriculture is an industry that makes use of land, settling on a reliable land-use plan is a prerequisite for restoring that industry.

Recently, many commentators have referred to the work that Home Minister Gotô Shinpei did in the wake of the 1923 Kanto Earthquake, another effort to rebuild after an earthquake. However, the Second World War is a more recent historical event that reduced all of our country's major cities to scorched earth, and comparing the way that each city was rebuilt after that wartime damage provides useful suggestions that can be applied to the current reconstruction project in concrete ways.

Even before the end of the war, the Home Ministry, which was in charge of urban planning, was already thinking of the catastrophic war damage as an opportunity to realize its vision for urban design, and it began working up a plan for rebuilding cities damaged in the war. Immediately after

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the war was over, the ministry unofficially notified the key cities and prefectures of its basic postwar reconstruction plan. Moreover, when the time came to settle on specific urban plans, the Home Ministry sent its staff members to core provincial cities and put them in charge of the planning process. However, Kobayashi Ichizô, who was a well known businessman and appointed president of the War Damage Recovery Institute, valued regional autonomy and insisted that regional governments, rather than the national government, should carry out postwar reconstruction. As a result, reconstruction took place in different ways from city to city depending on the enthusiasm of each city's leaders.

The aerial bombings that occurred during World War II reduced Tokyo, Japan's capital city, to ashes, but the city had a bold postwar reconstruction plan that involved the construction of eight 100-meter-wide boulevards. However, while the government was hesitating to carry out that plan, barracks were built to provide temporary housing. The barracks needed to be removed before the large-scale reconstruction could take place, but those living in the barracks were expected to object to their removal. Tokyo's governor, concerned about the effect such a decision would have on his own re-election chances, refused to go through with the grand reconstruction plan. By prioritizing short-term reconstruction, Tokyo's leaders missed an opportunity to build a new city as beautiful as Paris.

By way of contrast, the central district of Nagoya, which was still an old town with narrow alleys and streets, was completely destroyed in the war, which gave the government an opportunity to carry out a large-scale urban reform. Although the plan involved drastic solutions such as the forced relocation of roughly 280 temples and their cemeteries to one part of the city, it resulted in a city with an orderly appearance, including the development of two 100-meter-wide boulevards. At the time, Nagoya's mayor showed strong leadership abilities, and immediately after the war ended a former technical officer from the Home Ministry was appointed as Nagoya's chief engineer. In addition to being put in charge of administering all construction projects, the next year, 1946, he put together the basic principles for a postwar reconstruction plan that he carried out swiftly and vigorously.

One vision for urban design is what is called the "compact city," an efficient, sustainable approach to city planning that aims to check urban sprawl and create a highly livable city with all the necessities for everyday life—medicine, education, shopping, housing—concentrated within walking distance in a central district. In a compact city, the elderly can have themselves examined at nearby hospitals. Compact cities also help keep down the number of cars on the streets, helping curb emissions of greenhouse gases. Designing our cities in line with that vision in response to the recent earthquake would involve developing wide boulevards, concentrating residential areas in places that

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are not threatened by tidal waves, and constructing sturdy, earthquake-resistant buildings (built inland on high ground along the northeastern coast). Afterwards, fixed and large-scale farming zones without any housing would have to be built in the spaces between residential areas. Doing so would contribute to disaster preparedness, provide secure access to food, and create beautiful, bucolic scenery. We should aim to accomplish similar objectives by building compact fishing regions as well, which would involve concentrating fishing ports in specific areas centered on small-scale ports, with related industries such as processing plants and distribution facilities all concentrated in the same areas. Doing so will also force us to reevaluate individual landownership. One option is joint land acquisition, in which landowners create land for shared use by contributing their own plots of land according to a common burden ratio. Land exchanges are another option.

However, in spite of the fact that three months have passed since the earthquake struck, not only is the national reconstruction plan delayed, but even in the disaster region decisions related to this type of land-use planning are being made at a snail's pace. The reason behind the delay is probably that there are many places where the number of municipal staff members was reduced by the disaster, while those who remain are overwhelmed with all of the stopgap measures they have had to take after the earthquake hit. If that is the case, the government should do what the Home Ministry did at the end of World War II: the ministries in charge of land-use planning (Land, Infrastructure, and Transport; Agriculture, Forestry, and Fisheries) should dispatch officials to reside in several key municipalities and quickly settle on a land-use plan. Once those officials have created their draft plans, they should decide on a final plan while listening to the opinions of local residents. There is no need for them to wait until the national government has settled on its reconstruction plan. We can anticipate the list of projects the national government will arrange for: projects to develop the agricultural infrastructure, such as road development, leaching salt from farmland, and rezoning; as well as development of fishing ports. After the municipalities settle on their plans, all they have to do is apply to the national government for the necessary funding.

### **3. Reviving the Agricultural Industry**

Much of the farmland that was damaged by the tidal wave has lost even the ridges that used to separate one field from the next, so it will probably be difficult to restore the individual plots of land that were there previously. Elderly farmers will also have a hard time buying new machinery and starting their farming operations again. However, this is a big opportunity to replace inefficient ways of farming the land with more efficient methods. There are already elderly farmers who have applied to rent farmland to full-time farmers. Since there are various regulations in the farmland system that have traditionally stood in the way of modernizing and improving the efficiency of Japanese

agriculture, “special farming zones” should be designated in the recovery areas to enable the farming revival to take place without restrictions.

The Japanese agricultural sector faces a problem of small, dispersed, multiple-owner plots. This is a situation in which the farmland owned by a given family is scattered in a variety of locations. The system was devised in order to disperse the risk that all of a family’s land would be damaged in a disaster if it was all located in one place, and it also grew out of farmers’ insights about how to use river water fairly by dispersing each family’s paddies along both the upper and lower reaches of a river. Nevertheless, those insights, which were well suited to an earlier age, present a serious obstacle to the modernization and rationalization of agriculture. Currently, relatively large-scale farmers expand the scale of their operations by renting dispersed farmland, which means that their arable land is scattered. According to a 2006 survey of 202 farming operations conducted by the Ministry of Agriculture, Forestry, and Fisheries, the average area of operations was 14.8 hectares (36.57 acres), divided into 28.5 plots averaging 0.52 hectares (1.28 acres) in area. The greatest distance between plots was 3.7 kilometers (2.3 miles).

When plots of land are dispersed, it takes a great amount of time to move farm machinery from one plot to the next. Not only does this increase labor costs, but in the case of farming, in which there is only a short period of suitable time for tasks like sowing seeds, planting rice fields, and harvesting, the necessity of moving equipment reduces the amount of time farmers can spend working, which in turn prevents them from expanding their operations. Furthermore, labor time and costs increase when farmers have to operate machinery in small, narrow plots. The efficiency of fields is determined by the number of corners. Even with the same total area of farmland, the smaller the number of corners—that is, the bigger the scale of each plot and the smaller the number of corners—the less labor time and cost is required. Comparing two 3-hectare (~7.4-acre) farms, one with ten 0.3-hectare (~0.74-acre) plots and the other with one 3-hectare plot, the latter produces much more efficiently with less labor time because it is easy to use machinery on such a farm. The average area of farmland in agricultural communities in Japan (excluding Hokkaido) is 28 hectares (~69.2 acres), and the mode or the largest category of farmland in agricultural communities consists of those with less than 10 hectares (~24.7 acres) of land. Therefore, if small-scale farmers ceased operations and the majority of land was consolidated to large-scale full time farmers, the problem of small, dispersed, mixed-ownership land would be resolved, and the cost of rice production would fall below the costs that were recorded in the most recent survey of production costs.

Currently, the standard size of plots for the purposes of farmland development is 0.3 hectares (~0.74 acres). If we gathered up the land owned by farmers who can no longer farm their land because of their advanced age, concentrated farmland by conducting land exchanges with other

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districts, and increased the standard size of a plot to 2 hectares (~4.9 acres), in addition to increased efficiency, we would be able to replace the old method of raising seedlings to plant in paddies with the new method of sowing seeds in paddies directly. Costs would fall even more, and farming profits would increase. This project for developing the region's agricultural infrastructure should be carried out as an emergency measure with a five-year time limit. The needed percentage of farm owners in the region who must agree to the land improvement project would be lowered from two-thirds to one-half, but at the same time, the project would be fully funded by grants and would not entail any costs for the farmers. Those conditions would be put in place exclusively as an emergency reconstruction measure to be carried out in a concentrated manner within five years; applications to carry out similar measures after the five-year period lapses should not be approved. These steps would make it possible to quickly build an agricultural infrastructure in a short period of time.

Here in Japan, land owned by a number of farmers in Fukui prefecture was consolidated, and now they are growing rice using the direct-planting method in 2-hectare plots.

Elderly farmers who retired from farming can earn income by renting their land. Moreover, by distributing the large, efficient plots that are created using this method among young farmers, we could make a successful transition from one generation to the next. When young farmers want to buy new machines, the national government should subsidize those purchases. Why not think of ways to help young farmers revitalize agriculture, as the French land agency called SAFER does when it gives young farmers land that other farmers have left behind?

In special farming zones:

- The existing National Association of Agricultural Land Holding Rationalization would be reorganized into an agency like France's SAFER (Société d'aménagement foncier et d'établissement rural; Agency for Land Improvement and Rural Development). The new agency would be allowed to exercise the right of preemption—the currently prohibited right to buy farmland before others are given the opportunity to buy it—and would, in turn, give young farmers the right to buy the agency's land before others.
- Agricultural production corporations would be allowed to play the same leading role that JA (Japan Agricultural) cooperatives play in projects designed to facilitate integrated land use. In connection with the projects that are currently underway, subsidies (20,000 JPY per decare; ~248 USD per 1000 m<sup>2</sup>) are only given to those who contribute plots of land when JA cooperatives are in charge of consolidating farmland. This prevents agricultural production corporations that are independent of JA cooperatives from buying land.

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- Raising funds through capital subscriptions is a less risky way of starting a business than borrowing capital. However, despite the fact that the influence natural conditions have on productivity makes farming a high-risk industry, the Agricultural Land Law does not allow people to accept contributions from friends and relatives to start a joint-stock company, buy up land, and begin farming unless the investors have some connection to the company, such as being involved in the company's farming activities or selling its produce. In order to make it easier for young people and venture firms to enter the agricultural industry, farming businesses with less than a certain amount of capital would be allowed to purchase farmland.
- Ordinary corporations like trust banks and trust companies would be given the right to manage farmland trusts, which only certain corporations like JA collectives are allowed to manage currently. The trust companies would establish agriculture funds that would be partially funded by the government, and those funds would be used to provide financing to help young farmers work land included in the farmland trust that they cannot afford to purchase.

These are just some of the bold measures that would be adopted in special farming zones. I am not talking about rebuilding the agricultural sector as it used to be. I am talking about creating an entirely new way of farming.

The entire nation needs to devote its attention to the recovery effort. The national government's subsidies for individual households, which apply to all farms that produce for the market, have been endlessly criticized as pork-barrel politics. In order to reinvent the agricultural industry, that policy should be redesigned so that it applies only to full-time farms that exceed a certain size, which would help raise funding for the agricultural revival. Full-time farmers receive about four-tenths of the roughly 400 billion JPY (~5 billion USD) in rice subsidies, so redesigning the subsidy policy in this way could potentially raise 240 billion JPY (~3 billion USD) to fund the revival. Giving subsidies to affluent part-time farmers while others are struggling after losing their families, their jobs, their homes, and all of their assets is completely inappropriate. Moreover, revising the subsidy policy would help put more farmland in the hands of full-time farms, and the resulting increase in farming efficiency would help reinvent Japanese agriculture as a whole.

Moving in these directions is also an important part of adapting to globalization. The rest of the world is not going to wait for us to finish recovering from the earthquake. Japan's domestic market has been protected by high tariffs in the past, but as the Japanese population ages and decreases in size, the domestic market is shrinking. In order to stimulate, or even maintain, our

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country's agricultural industry, we are going to have to develop our export market. As we do so, we will have to take part in earnest in free-trade negotiations if we want to increase our exports and remove the tariffs and non-tariff barriers in countries we wish to export to. The need for disaster recovery is not an acceptable reason or excuse not to participate in the TPP and WTO negotiations.

**4. Conclusion**

Northeastern Japan's farming industry should not merely be restored to its former conditions. It should be rebuilt so that it is many times more productive than it was before. All Japanese, including those from the region who did not suffer any damage, should pay the cost that this project will require. If we support the project, someday northeastern Japan will provide all of us with beautiful, bucolic landscapes and rich agricultural produce. Moreover, the measures described above will lead to a revival of farming throughout Japan. What better way is there to comfort the souls of the thousands who died in the recent disaster?