

THE AGRO-ECOLOGICAL DILEMMA AND RURAL LAND USE REVOLUTION IN JAPAN

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As in many nations with long histories of human occupation, virtually all land in Japan has supplied natural resources of some type at some time. Even after the start of international trade from the late 19th century, Japan continued to acquire much food and natural resources domestically. The Japanese people expanded permanent fields throughout available flat land, and built terraced fields or cleared swidden fields in mountains. They scoured their landscape for water, lumber, fuel, food, fertilizer, and materials for arts and crafts. At the village level, farmers obtained most natural resources locally. Most importantly, Japanese villages did not turn all available land into fields and rice paddies. Villages maintained large water-control facilities in the form of waterways and ponds, or set-aside large areas for desirable vegetation, in the form of grasslands and woodlands.

An influential school of rural landscape ecology suggests that the agro-ecological dilemma is a key problem determining rural land use. The dilemma is that crop-lands are resource sinks and farmers must find off-field sources of organic material from the surrounding landscape to maintain soil fertility. The agro-ecological hypothesis for rural Japan is that green fertilizer was a limiting factor determining land uses. Farm communities maintained sufficient areas of grasslands and woodlands as sources of the grasses and leaves used as green fertilizer. Pasture was limited under traditional Japanese agriculture, since the Japanese are not a pastoral people. Farmers themselves gathered large quantities of green fertilizers and fodder. Through a nutrient-chemistry cycle driven by human effort, soil fertility within fields was directly linked to biotic resources in land surrounding fields and villages. Grasslands also supplied fodder for livestock. Woodlands also supplied lumber, firewood, and charcoal, not only locally, but also for urban markets. Thus, natural resource management created an unnatural but diverse and biotically rich rural landscape.

Japanese agronomists refer to the fuel and fertilizer revolution that changed rural land use in Japan, especially following the Second World War. Petroleum fuels replaced firewood and charcoal. Chemical fertilizers replaced traditional fertilizers. These led to a land use revolution, in which rural landscapes lost their role as major suppliers of natural resources. This has permitted the expansion in fields or some recovery of natural vegetation. However, rural grasslands have nearly disappeared, and woodlands grow unmanaged. Rural Japan today is being overtaken on one side by urbanization and on the other side by “abandonment.”

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