

Title: Agroforestry as a Tool for Sustainable Rural Development in Brazil

Profile: Masaaki YAMADA, Senior Assistant Professor, Tokyo University of Agriculture and Technology (TUAT). After graduation from the University of Tokyo, the speaker joined the Japanese NGO Center for International Cooperation (JANIC) and organized symposia and training programs on appropriate technology for sustainable rural development, where he learned about agroforestry from foreign counterparts. He went on to the University of Florida and studied successional agroforestry developed by the Japanese immigrants in the Brazilian Amazon, and earned Ph.D. in Forest Resources and Conservation with Focus on Agroforestry. In 2008 commemorating centenary of Japanese immigration to Brazil, he coordinated symposia in São Paulo and Tokyo with focus on Japanese contributions to Brazilian rural development in collaboration with TUAT's traditional sister school São Paulo State University (UNESP). Since then, he has been working for agroforestry technology dissemination to small farmers in Brazil and its neighbors, supported by the Tomé-Açu Multipurpose Agricultural Cooperative (CAMTA) of Pará State and the Japan International Cooperation Agency (JICA).

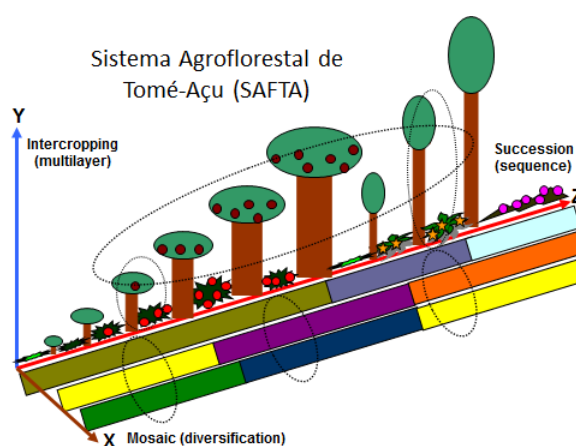
Presentation Summary: In 1908, when Gentleman's Agreement became effective between the United States and Japan and Japan eyed Brazil as the last resort for immigration, *Kasato-maru* docked at Santos with the contract laborers of Paulista coffee plantations, and the first Japanese immigrants to the Amazon reached the borders of Rondônia from Bolivia, who had escaped from slavery at the haciendas in Peru. However, it took two more decades in the Brazilian Amazon before full-scale Japanese immigration projects started in the concessions provided by the Pará and Amazonas governments, which totaled to 2,500,000 hectares of forested lands.

Thus in 1929, Acará (later Tomé-Açu) settlement was founded in a tropical rainforest about 200 kilometers south of Belém do Pará. Their project had a goal to establish cacao (*Theobroma cacao*) plantations. However, neither the colonization company nor the immigrant farmers had sufficient knowledge and experience in tropical agriculture, and the young cacao trees in Japanese clean culture system under the full sun perished before producing seeds. Besides, endemic diseases killed impoverished immigrant farmers and many evacuated to large cities. Before the World War II broke out, only one tenth of original two thousand people remained in the interior settlement engaged in slash and burn for upland rice production and horticulture.

When WWII ended, eruption of independence wars in tropical Asia caused price hike of black pepper (*Piper nigrum*) in the global market, and Tomé-Açu settlement in early 1960s, with less than five hundred Japanese families including those arrived after the War, contributed to more than five percent of the world pepper production. Thus

induced monoculture of black pepper became susceptible to fluctuation of the global pepper market and plant disease outbreak in the following decades. In early 1970s, Tomé-Açu farmers under coordination of their multipurpose agricultural cooperative CAMTA and with technical guidance provided by the Japan Emigration Service (JEMIS, a predecessor of Japan International Cooperation Agency = JICA) began orchestrated search for new crop species alternative to black pepper. At first farmers planted various economic or potential plant species in the fertilized and vacant pit of dead black pepper, next to still producing live pepper plants, and witnessed that most of them, including passionfruit (*Passiflora edulis*), cacao and multipurpose tall tree species (MPTs) grew fast and produced well. Gradually, farmers developed successional agroforestry systems, starting with black pepper and/or passionfruit plus annual intercrops, and ending with cacao plus MPT shading (see Figure).

In mid 1980s, JICA recommended to CAMTA farm diversification with tropical fruit species, and constructed an experimental juice factory with 50 metric tons of freezer storage. Since then the cooperative enlarged the factory and its storage capacity to more than 2,000 tons today. From mid 1990s during the hyperinflation of Brazilian economy,



public safety of Tomé-Açu as well as other regions all over the country became severely deteriorated. Farms and other local businesses were repeatedly assaulted by bandits, and many people including nikkei farmers were murdered or injured while this speaker stayed there for two-year field survey. Young leaders of CAMTA judged that stable economy of small farmers in the region should be the key to public peace, and started informal extension of agroforestry technics to rural communities surrounding the nikkei farm settlement. In the following decades, with effective dissemination of economically viable agroforestry practices, they became well-known and invited to various parts of Brazil and neighboring countries for technical assistance. Every year since 2010, CAMTA has been honored with national-level awards for their contributions to rural development, and Tomé-Açu Agroforestry Systems (SAFTA) was officially recognized as a 'social technology.' Tokyo University of Agriculture and Technology (TUAT) with its scientific and educational facilities has been working with CAMTA since 2011 for a grassroot technical cooperation financed by JICA, to disseminate SAFTA to technically and socioeconomically challenged rural communities of northeastern Pará.