

The Observation of Agricultural Policy in Japan: A Case Survey in Tokyo

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Abstract

The aims of the paper are to present a Japanese agricultural phenomenon and to describe the effect that perceptions of agricultural policy have had on agricultural phenomena. The methodology comprises a survey of farmers' agricultural practices (interviews with 40 key informants conducted from 8–18 May 2016 in Tokyo). The patterns of agriculture are 1) agricultural treatment, and 2) small farms that almost use *Kasetpranit* (elaborate agriculture). Moreover, Japan's many policies and strategies regarding agriculture are focused on using partner countries and joint ventures to make products to support the Japanese people. However, Japan has a zone for agricultural production in which it is able to control the quality of agricultural production; in this good environment, Japan produces high-quality products. By applying Japanese agricultural concepts, other countries can improve their situations.

Keywords: Agricultural subsidies policy; Farm population; Observation.



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1. Introduction

Japan is a country in East Asia with an area of about 377,873 km³ and a population of about 128 million people, and the country ranked 46th in happiness in the world [1, 2]. When we talk about Japan, first, we have an idea based on modern technology, J-Pop or fashion, food and Japanese discipline, so without the modern trend of Japanese style in the country still collecting culture and ceremony, and the livelihood of the Japanese people, the country is also beginning to be seen as one of the industrial countries of Asia [3]. However, the country has famous working systems and management systems to ensure high performance, such as in the books "The knowledge-creating company: How Japanese companies create the dynamics of innovation" written by Nonaka and Takeuchi [4], which presents management practices in organizations and the culture of management. However, in Asian history, Japan started agriculture exports with the Portuguese around 1600 [5], so before the country developed into an industrial and technological country around the 19th century, Japan was an agricultural society [6, 7]. Around 1871–1873, Japan improved its policy to support world development and new technology from the Western world such as railroad technology, central banking, etc., at the time the agriculture sector was changing to modern agriculture [8]. However, sectors of agriculture in Japan still have only a small segment compared with the industrial and technology sectors. Nevertheless, in "Embracing Defeat," Dower [9] wrote that the hunger situation in the country between 1941 and 1949 resulted in the "procurement troops" who specialized in obtaining rural produce for sale in the cities, so in 1945, the government of the country extended food quality and nutritional intake for the improved life quality of the Japanese. In the information that will be presented, the agricultural evolution in the country continues under conditions in the climate and geography influence agricultural practices and cropping systems in the country.

Japanese farmers began intensive farming around the 17th century. The country has been affected by agriculture expanding and has cash crops and monocropping, so the pattern of agriculture impacted farmers by increasing farm size, deforestation, etc., and in the 18th century, Japanese agriculture implemented new systems for agricultural production, including multi-cropping, new plant varieties, fertilizer, and new agricultural tools [10]. The system of small farmers in Japan is similar to that of *Kasetpranit* [11] because the farmers' knowledge and meticulousness, which are inputs in the process of agricultural production, are also an attraction for tourism businesses, including those in rural communities [12]. Japan's agricultural systems developed are based on modern technology, and they adapt to respond to agricultural and economic practices, using local products to produce high value. Regarding the information on developing agricultural policies, this study's research question is as follows: What is the key idea of Japan's agricultural policy?

This paper aims to present a Japanese agricultural phenomenon and to describe the how agricultural policy has affected agricultural phenomena; thus, the authors hope to share ideas about how Japan's experience with agricultural development can help adapt and improve sustainable development. The study's observations took place in Tokyo because it is a large city with a population of more than 9.2 million people; the city is also famous for its tourism, its technology and its diversity of agricultural practices.

2. Methodology

The study uses a qualitative method to focus on Japanese agricultural phenomena; the survey took place in Tokyo's urban, peri-urban and rural areas on 8–18 May 2016. This paper aims to explain Japan's agricultural policies, so almost all of its data was collected through surveys and observations of farmers' practices or from literature reviews.

2.1. Key Informants

The survey focused on the perceptions and expectations of people working in agriculture. The key informants were collected via accidental sampling based on the form, features and/or emotions of the target groups:

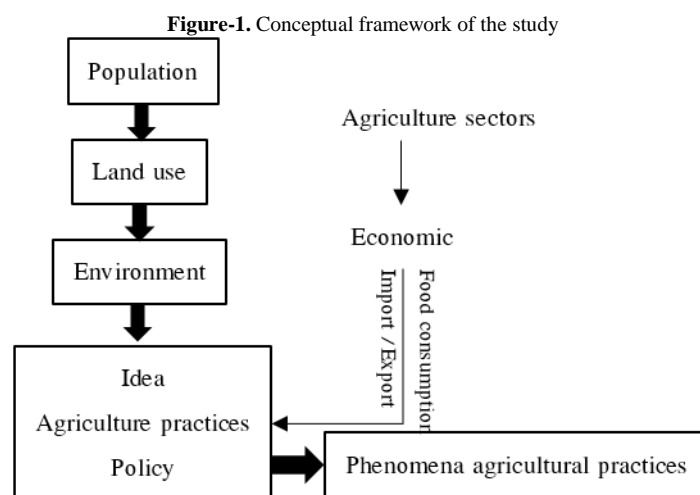
- 15 people keeping backyard gardens in the urban zone of Tokyo [Residents of the city]
- 5 people keeping backyard gardens in the rural area surrounding Tokyo [Residents of Shizuoka-ken]
- 20 farmers from around Tokyo [Residents of the peri-urban area]

2.2. Tools for Collecting Data

The research used semi-structured interviews (SSI) [13] mainly for collecting data, and used secondary data to support the information and phenomena.

2.3. Data analysis

This research used data content analysis for various information components, grouped into themes; it also used supporting secondary data. The framework for data analysis should include population, land use and environment to ensure consideration of policy details and to relate to Japan's agriculture and economy. This provides more information regarding the agricultural practices of villagers and farmers in the study area; the conceptual framework is shown in Figure 1.



3. Result and Discussion

3.1. Population in Japan

The information from the [Ministry of Internal Affairs and Communication](#) [14] reported data based on the population census in 2013, showing a population of about 127.298 million people, and statistics on householder and household member by type of household and prefecture in a 2010 report from the [Ministry of Internal Affairs and Communication](#) [15], where 1) private households had 51,842,307 and 125,545,603 household members (2.42 persons per household), 2) institutional households had 108,197 and 2,511,749 household members, 3) single persons in boarding houses or rented rooms made up about 353,839 persons and 4) single persons in company dormitories for unmarried employees made up about 648,461 peoples. Approximately 82 million people (about 64% of the Japanese population) live in urban areas (Takayuki Goto, 1999, as cited in [The Global Development Research Center](#) [16], which means that 34% of the country still lives in rural areas [17]. The number of people in rural Japan who are farmers may decrease in the future.

3.2. Land Use in Japan

Forest in the Japan data from [Matsui](#) [18] presented in FAO reported the statistic on forest area in 1976 as about 252,230 km³ or 66.75% of country area, and the forest area could be classified into types of forest, which were 1) manmade, about 93,370 km³ (37% of forest area), and [Food and Agriculture Organization of the United Nation](#) [19] reported the manmade forest in Japan as an area protection of forest plantation, 2) natural, about 144,370 km³ (57% of forest area) and 3) other, about 14,490 km³ (6% of forest area), and [World bank](#) [20] reported forest area in Japan was about 68.6% in 2012.

Agriculture area in the Japan data from Worldbank report from [Tradingeconomics \[21\]](#) the agriculture area in the country in 1990 as about 56,930 km³ or 15% of the country, and in 2000, the agricultural area decreased about 4,350km³ (remaining 52,580 km³), or 14% of the country's area.

In the information presented, Japan's forest area has increased by about 3% since 1976; on the other hand, its agricultural area has decreased by about 1% in the last ten years. It is possible that some agricultural areas have returned to forest or that farmers have stopped production.

3.3. The Environmental Care and Agri-Environmental Policy of Japan

Japan has been focused on quantitative targets for resource productivity increases, and the country's developing industrial, economic and technological growth continues [\[22\]](#), so more production supports the productivity of the country's base of natural resources. In a report of [Rayment, et al. \[23\]](#) with the title "*The economic benefits of environmental policy*," a case study in Japan is presented to people who are aware of the natural and environmental situation, so they can consider policies of the country such as "Japan's 3R Strategies" in 2003, so the strategies are aimed to be as efficient as possible, with waste generated as little as possible and the waste recycling rate as high as possible. However, the strategies are a small part of the country, but the context is to try to present benefits of household garbage or organization, garbage and environmental protection, so the [Ministry of the Environment \[24\]](#) explained the idea of 3R Strategies in the report titled "*Japan's experience in promotion of the 3Rs*." The content of the report presented the strategies as developing from Japan's experience because, in part, the country was developing industry and using more natural resources, which affected the industrial development of the country, which is modern and offers high income (good economy), but the side affecting the environment is waste, so from the experience, the government become aware of side effects in the garbage. However, Japan began using the term "environmentally friendly agriculture (Kankyo Hozengata Nogyo)" around the 1990s under the Ministry of Agriculture, Forestry and Fisheries (MAFF), which drove the concept, so it has many policies to put forth for farmers such as Eco - payment service, or decreasing pesticide chemicals on farms, etc. [\[25\]](#).

3.4. Agriculture Practices to Become Ecologically Friendly

The spirit of a farmer, and the word is suitable for farmers in Japan, because farmers do almost all work without employees on their farms: When going to the peri-urban or rural areas in the country, I didn't see the farmer in a field because the farmer would be managing everything from farm to market (I explained small farmers only), such as in Fuji-Kasawaguchiko. The city has a lot of tourists visiting, where we interviewed customers shopping for agricultural products in the park. The reason is, one can interview a customer about farmers' agriculture production as they take some products to sell in the local market.

An example is weed control. In Japan, the rotary weeder was developed in 1892 [\[26\]](#), and at that time the technique problem was controlling weeds, but the next time, the problem was labor shortage in the agriculture sectors. Farming's big problem was in the production systems affecting farmers using modern techniques to help in the agriculture process, and weed control is one process using high labor that affected most farmers using an herbicide chemical to control weeds. As explained in the report of [Matsunaka \[26\]](#), farmers in Japan began to use inorganic herbicide for weed control around 1950. More farmers are using inorganic herbicide, but they're learning good practices to control weeds. The report of [Kim \[27\]](#) states that Japanese farmers try decreasing inorganic herbicide by developing techniques suitable for controlling, such as biological weed control and cultural weed control or integrated weed control, so management of farming practice for control of weeds can be realized in the environment in the field [\[28\]](#). Small farmers spend significant time (about 2-3 hours per day) on controlling weeds and checking their agricultural products in the field. Most farmers don't use pesticides, but they will use pesticides if pests are destroying their agriculture products.

3.5. Backyard Gardens in Urban and Rural Areas

Everywhere never empty means that if a house has an empty unit, a person will grow a vegetable or flower for admiration and as a hobby. However, people with households around the suburban zone produce backyard gardens, so in production, a garden can separated into 2 objectives: 1) for appreciation, such as the flower or dwarf (pine tree) and 2) household consumption, such as Japanese bunching onion, sweet corn, sweet potato, watermelon, tomato and so on. These villagers typically do not use pesticides in the gardens, but some do use chemical fertilizers to provide plants with more nutrients and increase soil fertility. Nevertheless, most villagers' backyard gardens are clean and good for both human health and the environment.

3.6. Farmers in Japan

In a report of [The Economist \[29\]](#), Japan presently has about 1.5 million farmers, so 420,000 are engaged in farming full-time (28% of farmers in the country), but the number is decreasing every day. However, the report of [Food and Agriculture Organization of the United Nation \[17\]](#) explains that about 85% of rice production, out of 2.3 million farmers, is done by part-time farmers, so they are small farmers who have a paddy field average of 0.8 hectares per farm. In the statistics of farmers, this number is small, and the trend of decreasing continues, opposite to the value, value-added, quantitative and qualitative agricultural production farmers produce in the country, which are higher. The perception of farmers in Japan is that the biggest problem involves making sure that agriculture continues, as a farmer's heirs do not need to inherit the agricultural occupation.

3.7. The Paddy Field in Peri-Urban and Rural Areas

The paddy field in Japan is miniature in size and uses local irrigation and management areas in terms of geography. When I use the JR train to go to Fuji-Kawaguchiko Town, around the side line of the train will be small farmers growing rice in paddy fields. The irrigation character uses the gravity of the earth in small canals for part of the field, and a field has the pipe open for receiving and draining water to the small stream, and the end of the small stream will be connected to a stream to the river. Farmers in Japan will start growing rice in the summer, around June to August, according to the report of Kamoshita [30]. Present urban rice production systems in Tokyo, Japan, have one cropping, and after harvesting, farmers will grow another plant rotation such as sweet potato, etc. The reason farmers rotate plant growing is the environment: temperature, photoperiod of sunlight and humidity.

3.8. Everything Has a Value

From the agricultural history of Japan, one point of agriculture production is the value concept because in production, everything can be drawn back to sources of product and a mixed history. In the identity of the Japanese, the product will be related to livelihood systems of farmers to affect the geography of the area and seasonality of production. The more products of agriculture production the farmer will present to the processing and sources of production, in a system similar to “from farm to table,” the more the concept of agricultural production in Japan becomes that the product will be input for the history of the product, which increases the value of the product, and that method guarantees quality of production together, and packaging design is a strong point of agricultural production for increasing the price of a product. However, the government of Japan has awareness about packaging in agriculture production, so the packaging should present the identity of the product as beautiful, clean, and safe.

3.9. Agricultural Subsidies Policy

The Japan Times [31] presented a trend of the government that will be the end of farmer subsidies with limited rice production. The policy has been in place since 1970, and the policy is expected to end in 2018, with the aim of shifting the policy for keeping up rice prices, and the trend of more policy on agriculture is to reduce direct income to farmers on small farms [32] because at present, the Japanese government subsidizes a farmer in the production controlling system set at 1,400 US. (approximate 1 USD = 30 Baht) per 1 hectare of rice paddy. However, many farmers worry that the trend of this policy cannot protect a farmer from external market to competition, and the government is focused on joining the Trans-Pacific Partnership (TPP) for liberalization [33]. However, the policy with agriculture subsidy policy still has importance in the agricultural society of Japan because on small farms in rural areas, the farmer mostly sells the farm product in local markets or cooperatively. If the government does not subsidize the price of the farm production, it is possible that farmer cannot assume the costs of production to small farmers without agricultural activity in the future. Regarding subsidy policy, most small farmers explained that they are little impacted by such policy; if they increase production, they can still sell to local markets and supermarkets.

3.10. Balancing Of Food Import and Export in the Country

In a report by Nakata [34] entitled “Half of the meat products consumed in Japan are imported,” Shinnichi Shogenji, dean of the University of Tokyo’s graduate school of agricultural and life science in the agriculture faculty, is quoted as saying, “Rice is one of the few products for which we can ensure self-sufficiency.” These words presented the food situation in Japan as not ample enough to support the population in the country. If one considers land use in the country, this can be explained as, “Why can’t Japan’s food support its population?” because most of the area of the country is forest, it has an agricultural area of about 14% of the country, and food consumption of the population is increasing. The information on Japanese meat consumption is presented in Berkum [35] who reported the rate of meat consumption of the Japanese in 1990 about 8.4 kilogram per person per year (kg./pc./year), in 2005 about 8.6 kg./pc./year and 2010 increasing to 9.5 kg./pc./year, but degree of self-sufficiency in the country of meat in 1990 was 53.4% and in 2010 decreased to 42.3%. The information on a similar rate of import of pig meat and poultry is presented in Table 1.

Table-1. Present to Meat consumption and degree of self – sufficiency of Japanese in 1990 – 2010

Year	Meat				Pig				Poultry			
	*Cons	*% Self – Suf.	PNP	Margin	*Cons	*% Self – Suf.	PNP	Margin	*Cons	*% Self – Suf.	PNP	Margin
1990	8.4	53.4	4.48	3.91	15.3	82.7	12.65	2.646	13.	83.6	11.28	2.21
2005	8.6	45.9	3.94	4.65	20.8	47.1	9.796	11.00	16.	59.4	9.979	6.82
2010	9.5	42.3	4.01	5.48	18.7	54.5	10.19	8.508	13.	76.3	10.60	3.29

* The information got from Berkum [35].

Cons. = Consumption its rate form Berkum [35] present to meat consumption in Japanese unit is kilogram/person capita/year

% Self – Suf. = degree of self – sufficiency (in% as share of consumption that is product domestically) in meat.

PNP= Performant to Nation Production, use formulate form $PNP = Cons. * (\%Self - Suf. / 100)$, unit is kilogram/person capita/year

Margin = its searching from $Margin = Cons. - PNP$, unit is kilogram/person capita/year

Table 1 presents the margin of meat production consumption imported from foreign countries; the example considers a report of the U.S. Meat Export Federation [36] informing on the rate of exporting meat to Japan increasing about 3% in volume (241123 metrictons) and a value of 1.58 billion USD. Berkum [35] wrote a report

titled “EU meat export opportunities in the Far East,” showing the degree of meat import from foreign countries to Japan as presented in [Table 2](#).

Table-2. Major Supply’s meat import of Japan 2008 – 2010

Meat type	Bovine meat, fresh/		Bovine meat, frozen		Meat of sheep and goats, fresh/chilled		Edible offal of bovine animal, swine, sheep, etc.	
	Bovine chilled							
Country and percentage of import	Australia	85%	Australia	67%	Australia	68%	Australia	38%
	USA.	13%	USA.	16%	New Zealand	31%	USA.	36%
	New Zealand	3%	New Zealand	9%			Canada	10%
			Mexico	4%			New Zealand	8%
Value (mill. USD.)	1229		912		122		366	

Source; Berkum [35].

However, in [Table 2](#), Australia is a major country for Japanese import, which presents the Japanese with a solution to the problem of food production. There is not an increasing agriculture area in the country, but using the import policy and the type of route to solve food consumption, three levels are as follows:

Product to export

The agricultural production of Japan exports only 0.3% (average between 1975-2005) of total export value, so the main agricultural production exports are confectionary (9.7%), wheat flour (4.0%), etc. [37], so the agriculture production exports are mostly agriproducts proceeding for prices greater than those of agriculture product. However, agriculture production in Japan, trying to develop local products for premium production such as Kobe meat, has a way to increase the value of production, similar to Wagyu meat, with its high price and worldwide export.

Imported management

However, Japan has low self-sufficiency of food production in the country, but the country has more policies in place as solutions to the problem, such as The Japan Australia Economic Partnership Agreement (signed July 8th, 2014). The agreement has the purpose of receiving preferential access or entering duty-free [38]. The data of [Organization for economic co-operation and development](#) [37] present value imports and export of agriculture goods of Japan as more than 210% of agricultural goods exported.

Distribution space to produce

The Japan use policy for managing food product to support the Japanese, such as free trade agreements or moving the base of agricultural production in Trans-Pacific Partnership (TPP) etc., and the major partners of trade in 2004-2006 were the United States (30.9%), the European Union (13.5) and China (12.8%) [37]. However, more companies in Japan have many contracts in the Asian countries and African countries for product agriculture production support of the Japanese.

4. Conclusion

In the survey on agricultural Japan, this route of survey can classify agriculture in Japan as having 2 patterns, which are 1) agricultural treatment; this pattern will be found in the urban area, and the agricultural treatment is a pattern with the purpose of producing for activity, relaxation and support of people in the urban area, so this situation might be evident in a backyard garden, growing plants in flowerpots, etc., 2) small farmers, mostly farmers who farm near home and make a *Kasetpranit* (Elaborate Agriculture). The combination of increased agricultural production, government freezes or decreases in subsidies for some products, and farmers’ production of clean and high-value products (which small farmers sell mostly in local markets) means that, although Japan can use agricultural production to support its people, this is not enough, so more food products must be imported from another country. However, in Japanese agriculture, farmers produce high-quality, high-value exports. Nevertheless, in Japan, the focus is on policy, and there is environmental support for more activity, such as increasing forest area, providing more agricultural land, or selling more Japanese products overseas (in places such as Africa). Moreover, Japan’s many policies and strategies regarding agriculture are focused on using partner countries and joint ventures to make products to support.

4.1. Recommendations for Survey in the Future

In the future, researchers should do broad and in-depth studies using these concepts because this study only surveyed people to compare their responses with secondary data. A better study on the government side could bring concepts together.

4.2 Recommendation for development.

Japan has a zone for agriculture production, but the country can’t control the farmers who make agricultural products. The main differences between Japan’s and Thailand’s agricultural production involve the processing and production of high-value agricultural products—including brands, packaging, taste and so on. As such, it is very important to develop these types of products. Japan has realized the importance of environmental topics in production, particularly the need to find innovations to support, restore and protect the environment.

References

- [1] The Japan Times, 2015. "Switzerland tops 2015 World Happiness Report; Japan is ranked in 46th place." Available: <http://www.japantimes.co.jp/news/2015/04/24/world/offbeat-world/top-world-happy-index-switzerland-scandinavia/#.Vb3xsvmqpBc>
- [2] Helliwell, J., Layard, R., and Sachs, J., 2015. "World happiness report 2015." Available: <http://worldhappiness.report/wp-content/uploads/sites/2/2015/04/WHR15-Apr29-update.pdf>
- [3] Arrighi, G., 1994. *The long twentieth century: money, power and the origins of our times*. New York: Verso.
- [4] Nonaka, I. and Takeuchi, H., 1995. *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York: Oxford University Press.
- [5] Mason, R. H. P. and Caiger, J. G., 1997. *A history of japan, revised edition*. Tokyo: Tuttle Publishing, and imprint of Periplus Editions (HK) Ltd. and by special arrangement with Cassell Australia Ltd., North Melbourne.
- [6] Nakane, C., 1973. *Japanese society: A practice guide to understanding the Japanese mindset and culture*. Tokyo: Tuttle Publishing, and imprint of Periplus Editions (HK).
- [7] Valentini, G., 2013. "China and Japan's responses to the West in the 19th century." Available: <http://www.e-ir.info/2013/11/04/chinese-and-japanese-responses-to-the-west-during-the-19th-century/>
- [8] Murphy, T., 2014. *Japan and the shackles of the past*. New York: Oxford university press.
- [9] Dower, W. J., 1999. *Embracing defeat: Japan in the wake of world war II*. New York: W.W. Norton & Company, The New Press.
- [10] Ohno, K., 2005. *The economic development of Japan: The path traveled by Japan as a development country*. Tokyo: Yuhikaku Publishing.
- [11] Kroeksakul, P. and Simaraks, S., 2013. "A guideline for developing intensive agriculture or Kasetpranit (Elaborate Agriculture) indicators: Case perception of farmers in a rural area in Khon Kaen Province." *Kasetsart J. (Soc. Sci)*, vol. 34, pp. 543-549.
- [12] Arahi, Y., 2007. "Rural tourism in Japan: the regeneration of rural community." Available: http://www.ftc.agnet.org/htmlarea_file/library/20110726130209/eb457.pdf
- [13] Simaraks, S. and Subhadhira, S., 1987. *Rapid Rural Appraisal Manual*. Khon Kean: Framing Project.
- [14] Ministry of Internal Affairs and Communication, 2015a. "Population by agE (1920--2013): Data are based on the Population Census. For 2013, however, based on the Population Estimates. As of October 1. Statistical Survey Department, Statistics Bureau, Ministry of Internal Affairs and Communications." Available: <http://www.stat.go.jp/english/data/nenkan/1431-02.htm>
- [15] Ministry of Internal Affairs and Communication, 2015b. "Population by agE (1920--2013): Households and household member by type of household and prefecture (2010), Data are based on the Population Census. As of October 1. Statistical Survey Department, Statistics Bureau, Ministry of Internal Affairs and Communications." Available: <http://www.stat.go.jp/english/data/nenkan/1431-02.htm>
- [16] The Global Development Research Center, 2011. "Land use control regulation in Japan." Available: <http://www.gdrc.org/uem/observatory/land-regulation.html>
- [17] Food and Agriculture Organization of the United Nation, 2004. "Rice is life; International year of rice 2004. Japan." Available: <http://www.fao.org/rice2004/en/p8.htm>
- [18] Matsui, M., 1980. "Japan's forest resources. Unasylva No.128 Coexistenceforestry and farming Japan, forest resources." Available: <http://www.fao.org/docrep/n8595e/n8595e04.htm>
- [19] Food and Agriculture Organization of the United Nation, 2007. *State of the world's forests 2007*. Rome, Italy: Electronic Publishing Policy and Support Branch Communication Division FAO.
- [20] World bank, 2015. "Forest area (% of land area)." Available: <http://data.worldbank.org/indicator/AG.LND.FRST.ZS>
- [21] Tradingeconomics, 2015. "Forest area (% of land area) in Japan." Available: <http://www.tradingeconomics.com/japan/forestareapercentoflandareawbdata.html>
- [22] Giljum, S., Behrens, A., Hinterberger, F., Lutz, C., and Meyer, B., 2008. "Modelling scenarios towards a sustainable use of natural resources in Europe." *Environmental Science & Policy*, vol. 11, pp. 204-216.
- [23] Rayment, M., Pirgmaier, E., Ceuster, D. G., Hinterberger, F., Kuik, O., Gower, L. H., Polzin, C., and Varma, A., 2009. *Final project: The economic benefits of environmental policy, A project under the Framework contract for economic analysis*. Netherlands: Institute for Environmental Studies, Vrije Universiteit De Boelelaan 1087.
- [24] Ministry of the Environment, 2005. "Japan's experience in promotion of the 3Rs: For the establishment of a sound material – cycle society." Available: <http://www.env.go.jp/recycle/3r/en/approach/02.pdf>
- [25] Nishizawa, E., 2015. "Agri-environmental policies of Japan and Shiga Prefecture." *Journal of International Economic Studies*, vol. 29, pp. 23-34.
- [26] Matsunaka, S., 1981. *Evolution of rice weed control practices and research: World perspective*. In S. M. Swaminathan (Ed.), *Proceeding The Conference on Weed Control in Rice, held at Los Baños, Philippines, 31 August to 4 September 1981*. Philippines: International Rice Research Institute and the International Weed Science Society. pp. 5–18.
- [27] Kim, U. K., 1981. *Control of perennial weed in rice in temperate zone*. In S. M. Swaminathan (Ed.), *Proceeding The Conference on Weed Control in Rice, held at Los Baños, Philippines, 31 August to 4*

- September 1981. Philippines: International Rice Research Institute and the International Weed Science Society. pp. 245-254.
- [28] Yamada, S., Okubo, S., Kitagawa, Y., and Takeuchi, K., 2007. "Restoration of weed communities in abandoned rice paddy fields in the Tama Hills, central Japan." *Agriculture Ecosystems & Environment*, vol. 119, pp. 88-102.
- [29] The Economist, 2013. "Farming in Japan Field work: With fewer, bigger plots and fewer part-time farmers, agriculture could compete." Available: <http://www.economist.com/news/asia/21576154-fewer-bigger-plots-and-fewer-part-time-farmers-agriculture-could-compete-field-work>
- [30] Kamoshita, A., 2007. "Historical changes in urban rice production systems in Tokyo, Japan." *Plant Prod. Sci.*, vol. 10, pp. 245-269.
- [31] The Japan Times, 2013. "A shift in rice production policy." Available: <https://www.japantimes.co.jp/opinion/2013/12/01/editorials/a-shift-in-rice-production-policy/#.WdI76WiCyUk>
- [32] Mulgan, G. A., 2011. "Japan's new agricultural policy plan neglects trade liberalization." Available: www.eastasiaforum.org/2011/11/02/japan-s-news-agricultural-policy-plan-neglects-trade-liberalisation-print/
- [33] Yamazawa, I., 2010. "Three reasons why Japan should join the TPP. East Asia Forum." Available: <http://www.eastasiaforum.org/2010/12/22/three-reasons-why-japan-should-join-the-tpp/>
- [34] Nakata, K., 2008. "Food self – sufficiency: Japan needs imports to keep itself fed. The Japan Times News." Available: <http://www.japantimes.co.jp/news/2008/02/26/reference/japan-needs-imports-to-keep-itself-fed/#.ViGi6H4rKUK>
- [35] Berkum, S., 2012. "EU meat export opportunities in the Far East." Available: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2022964
- [36] U.S. Meat Export Federation, 2014. "Strong U.S. Red meat exports in november – beef sets new value mark." Available: <https://www.usmef.org/news-statistics/press-releases/strong-u-s-red-meat-exports-in-november-beef-sets-new-value-mark/>
- [37] Organization for economic co-operation and development, 2009. "Evaluation of Agricultural Policy Reforms in Japan." Available: <https://www.oecd.org/japan/42791674.pdf>
- [38] State Government of Victoria, 2015. "Export to Japan: Discover how to tap into Japan's knowledge intensive sectors." Available: <http://www.business.vic.gov.au/export/export-markets/japan>