


## Foreword

In the Master Kong Dream Scholarship Program, students are required to participate in unique extracurricular activities besides regular courses. The core of the program is an independent self-research project, in which the students carry out research and complete an academic paper based on individual interest and problem awareness. Through workshops on academic writing and research skills, and individual conference with the instructor, the students establish their own research project. Towards completing their papers, they learn and practice various academic manners such as interim presentation, poster session and writing a peer review essay. These opportunities enable them to prepare for master's degree.

Furthermore, in order to take the full advantage of studying in Japan, the students are encouraged to understand Japanese society by not only literature review, but also field works and interviews for the project. Since Japanese language ability is not required for this program, students often struggle with the language barrier. Even so, they try to seek for the best accomplishment by using their intellectual vitality. For example, they ask cooperation for peers and others with sincere and polite attitude. The entire process as mentioned above cultivates comprehensive ability such as academic excellence, creativity, communication skill, self-management skill, mental strength, and modest but attractive personality. As a matter of the fact, those with such capacity are what this program envisions, the leaders in the age of "Global Asia."

This edited volume is the signature of the Master Kong Dream Scholarship Program. I hope author's findings will be shared among as many Chinese as possible. At the same time, let me emphasize that we Japanese also can discover and rethink our society from their investigation and analysis. I would like to express my deepest gratitude to each of the authors, and everyone who has supported them.



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# **Expanding immigration policy as a response toward labor force shortage in Japan**

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## **1. Introduction**

Japan's population began to decline in 2011 based on the data from the Statistic Bureau of Japan (JBS). This figure is expected to decrease continually. Faced with the problem of labor force shortage caused by aging demographics and shrinking population, Japan started to expand its immigration policy to admit more foreign workers. For instance, the parliament passed a new immigration law December 2018 that aimed to attract 345,000 foreign workers over the next five years in some labor force shortage severest industries like infrastructure construction, agriculture and nursing health care. But Denyer and Kashiwagi (2018) mentioned that opposition parties argued that the legislation was vague and hastily drawn up and there were also Critics claiming it failed to address the question of social inclusion and rights for foreign workers. Not like North America and Europe which have a long history of immigration, Japan does not have such experience. During the time of Japanese economic boom in the post war era, lots of foreign workers were not absorbed into Japan. Rather people from rural areas of Japan moved to industrialized areas supplied enough labor force to encourage economy development. However, not enough people can migrant from rural areas to supply labor force after decades of development. So foreign workers are needed to maintain the economy of Japan in a high level.

The main purpose of this paper is analyzing how to reduce the gap between the situation that Japan needs more foreign workers and its strict immigration policy. Although some programs have existed to absorb foreign labor force into Japan. For example, the Technical Intern Training Program was first established in 1993 to foster basic technical skills among foreign workers. This program provided a lot of workers especially for small businesses. But increasing critics claiming that rights of foreign workers cannot be assured, they are abused or work for an extreme long time. Therefore, it can be analyzed that Japan needs large amount of foreign workers concerning stances of both

sides supporting and opposing immigration but now the system is not complete. Furthermore, previous study and findings in turn raise some other questions: what are the reasons causing public opposition toward immigration and how to relieve it to make Japan gradually ready to absorb a large number of foreign workers?

The main research method used in this paper is qualitative analysis. The government wants to expand the immigration policy to admit more foreign workers, but public opposition toward expanding immigration policy is still very strong since the system to absorb a large number of immigrants and integrate them is not complete. So this paper focuses on how to relieve public opposition and make Japan gradually ready to take in lots of foreign workers. There are four factors influencing public opinion: age, education, occupation and region. In order to achieve the goal of this paper, we take qualitative analysis research method to find out the function of each factor separately. But they are not independent which means that each of these four factors will have an influence on the other. Therefore, the result with the combination of several factors could be different.

The rest of the paper is structured as follows. The second chapter is the literature review which includes the development of Japan's immigration policy and immigration integration. The third chapter presents drivers of public opposition toward immigration. The forth chapter analyzes factors that influence public opinion such as age, education, occupation and region. The fifth chapter concerns what approaches can be used to ease public opposition while expanding immigration policy in Japan.

## **2. Literature review**

### **2.1 Development of Japan's immigration policy since 1951**

Japan is one of the countries which maintain remarkably strict migration controls, not only at the border, but also during the stay (Mori, 1997). In Mori's opinion that the formulation of legislation or immigration control is constrained in two different ways. First, the system is influenced by the actual development of migration and has to meet the changing social and economic conditions. Second, the established legislative framework in Japan is historically constrained after the Second World War.

That is the situation today the government wants to change to admit more foreign workers into Japan to deal with the problem of labor force shortage.

The Immigration Control Act was enacted in 1951 as a fundamental law for immigration control under the influence of the US. Mori (1997) stated that when the Second World War ended in 1945, more than two million people inhabited Japan from Korea, Taiwan and other Japanese Empire colony areas and they were recognized as Japanese. But they lost Japanese nationality in 1952 with the restoration of Japan's independence. So large number of them went back but still over half million people remained in Japan regarded as foreigners and lost rights as Japanese citizens. Until in 1991 reforms to the Immigration Control and Refugee Recognition Act brought final settlement to their resident status. By the enforcement of the reforms, those people who had lost Japanese nationality on the basis of the Peace Treaty with Japan, including their descendants, have been granted permanent residence.

Takenoshita (2016) said that Japan did not accept immigrants in the 1960s because domestic migration from rural to urban areas fulfilled the strong demand of labor force in the manufacturing industry. While other nations which experienced fast economic growth during that time absorbed a lot of foreign workers from other countries. It can be seen that Japanese immigration policy has being strict since 1951 because of this inherent feature. Another significant change about immigration policy was introduced in 1981 that the new Immigration Control and Refugee Recognition Act was enforced, adapting the system to the International Convention relating to the Status of Refugees (Mori, 1997; Kondo, 2002). This reform provides the legislative framework for resident status, re-entry permits and special measures to stabilize long-term residents' status. In 1990, the immigration control system was reformed rather drastically in the light of the accelerated accumulation of clandestine foreign workers (Mori, 1997). Since the revision of the immigration law in 1990, there has been a dramatic influx of the Latin American, mostly Brazilian, of ethnic Japanese (Nikkeijin) working in Japan because these people are allowed to do whatever activities in Japan, including unskilled worker (Goto, 2007). Unprecedented numbers of Latin American workers of Japanese descent consequently took up residency in Japan, often concentrating in manufacturing hubs. Immigration policy has further developed in recent years with revisions to the Immigration Control Act in 2004 and 2009. These

revisions were meant to ease the process for skilled labor to enter the country and make it more difficult for unskilled labor to do so. With the 2009 revisions, the government has also implemented a point-based system for recruiting and retaining “highly skilled” foreign labor. Those who meet the government’s threshold are given preferential immigration-related benefits, such as permission to bring a parent under certain conditions, a longer period of residency for their visa, and simplified rules for establishing more long-term residency among others (Immigration Bureau of Japan, 2012; Le Bail, 2013).

## **2.2 Immigration integration**

Immigration control is strict as ever but migrant settlement is relatively easier than before. Local governments are inclined to use the term “symbiosis” (living together) with foreign residents. The term “immigration control” is often used by the national government, while the term “alien policy” is often used by officials (Sakanaka, 2001). Many local governments have also opened the doors of the civil service to permanent residents; however, managerial positions are still reserved for nationals. Many local governments establish their own international associations to advance international exchange and to provide a friendly environment for resident aliens. These international associations support foreigners and provide services such as information, Japanese language education, and international mutual understanding education. A guideline from the ministry stated: “If our community is going to accept foreigners as necessary human resources, we should make the effort to create a society where Japanese nationals and foreigners can live together smoothly by providing a stable status, good living environment and support for fixation (The Ministry of Justice, 2000).

The national government has been making inroads toward increasing the foreign population in recent years, including both skilled and unskilled laborers. Coupled with the increase in foreign residents, there have been more efforts to incorporate foreign residents into Japanese society. These efforts are typically initiated by local governments in combination with NGOs and can involve anything from providing free or low cost Japanese language courses, all the way to grant local voting rights (Chung, 2010; Fujimaki, 2013). But still, the legitimacy system to protect the rights of especially low skilled foreign workers is not complete yet. There is a long way for Japan to go.

### **3. Drivers of public opposition toward immigration**

#### **3.1 Social cultural factor**

Facchini, Margalit & Nakata (2016) stated that individuals reject immigration because foreigners represent different values and traditions, and pose a threat to the “national identity” or the traditional “way of life”. Much of the emphasis in this literature is placed on prejudice and stereotype as the source of hostility and opposition to immigration. But the truth is that foreigners actually will not put much threat to Japanese way of life, because their proportion now is less than 2% of the whole population. It is far from the number to affect the whole national identity of Japanese society. Also because of the strict immigration policy, there will not be a large number of foreign workers coming into Japan in a short period. From the perspective of foreigners staying in Japan, they indeed want to integrate into Japanese society so that they can make a living much easier in Japan from mainly two aspects. The first is working in businesses. It is necessary for workers to have a good command of Japanese because Japan is not an English speaking country. Only in this way can they communicate with investors efficiently to get finance support and also easily talk to colleagues to complete assignments and make the working atmosphere more relaxing. It is likely to become isolated and hard to make friends if one employee cannot speak Japanese, which is very bad to both mental and physical health. The second is the education of children, which is a really important issue and will always be mentioned when talking about the integration of immigrants into Japanese society. Children of immigrants have to blend in with other Japanese children in order to make friends and have a happy childhood and life. Overall situation of children in school is similar to immigrants working in businesses, but the relationship among children in school has a much stronger and more prolonged influence on the life development of an individual.

But for Japanese people, it is easy for them to have a bad impression on immigrants. For example, Japanese people do not talk loudly or make a phone call on the train because Japanese people feel it too noisy. Some foreigners still keep their previous living styles when they first came to Japan and believe that talking and having a phone call on the train is such a normal thing. Another phenomenon is that Japanese people do not eat, drink or smoke while walking because they feel it impolite or inappropriate, which is totally different from the idea of immigrants who regard these

things as normal. Even though these are small differences between Japanese and immigrants, but they will cause a huge prejudice on immigrants in Japanese people's opinion. So opposition against immigrants arises when such situations happen.

A recent public opinion survey by the Japanese Government Cabinet Office (2013) on ethnic Japanese residents from Latin America shows that while only a slim majority of respondents are even aware of their existence (52.9%), the vast majority (87%) feel that special immigration policy considerations should be continued or expanded for this group. This likely speaks to the concern over cultural difference, where most people feel if foreigners are brought into Japan, the ideal would be to have someone with a similar cultural background. Because Japanese society is much more closed compared with other developed countries in North America or Europe. Many Japanese people have a collective attachment to traditional culture. For many Japanese people, they do not have much interaction with foreigners especially in small communities or rural areas.

### **3.2 Economic consideration**

The focus of this driver is on how public opinion is shaped by individuals' concerns about competition for scarce resources and the consequent distributional effects of immigration (Facchini, Margalit et al, 2016). Especially for young people, they are concerned about job competition. Occupations in high salary areas like finance and computer are much competitive even in native Japanese people, let alone immigrants. So some people worry that they will directly compete with foreigners in the pool. Others may not, but from another stereotype of thinking which is not correct but will influence people's mind that since more and more population, the wealth will be redistributed which makes that the average income will decrease if they do not work hard to make more money.

But this factor has its own limit that it centers on self-interest as a determinant of public opinion among a large population. Such concerns tend to be contained within narrow and concentrated segments of the public, as most citizens do not face economic competition with migrants (Hainmueller, Hiscox, and Margalit 2015). Immigrants are needed to fill in the gap of labor force shortage in some areas like infrastructure construction, agriculture, ship building and health care which requires large number of low skilled workers, but not for competing with native Japanese people. From another perspective, working condition is not good in these areas and salary is not high

but people have to work very hard simultaneously. So many Japanese people do not want to work in these areas. Even for high skilled immigrants like professors and engineers, they are admitted into Japan to contribute to the technology and economy development of Japanese society. There is no such thing to say that high skilled immigrants will compete severely with Japanese people in labor market.

So some Japanese people hold this view mainly because of their imagination and over concern that there will be a lot of immigrants coming into Japan to compete with them for resources and jobs. If think about it more carefully and do not take it as given, this economic consideration of self-interest cannot stand. But the truth is individuals just act on assumptions due to stereotype and prejudice. Therefore, it is significantly important to decrease prejudice and change stereotype of Japanese public to relieve the opposition to admit more foreign workers.

#### **4. Factors that influence public opinion**

##### **4.1 Age**

According to Nakata (2017) that there is a hypothesis, younger people who are at work and are far from the pension age would regard the immigrants as their potential competitors; thus, they would be more against immigration. Pension age people or those near the pension age would see immigrants more positively, since they would make positive contributions to the pension or the health care system as well as filling the labor shortages. There is also another consideration dealing with age: collective attachment to traditional culture. Usually young Japanese people are much more open to foreign culture like Marvel studio and Disneyland, so they have much more tolerance to culture diversity and easily to have positive attitude or accept immigrants.

O'Rourke and Sinnott (2006) said if older people place a higher value on traditional social norms than the young, this might lead them to be more anti-immigrant than the young, even if they stand to gain financially from immigration. So age is a debating point depending on financial pension and cultural factor, which one weighs heavier between young people and elderly people. We attempt to deal with this by introducing separate explanatory variables measuring public opinion but, unless these completely control for all cultural factors influencing attitudes, the coefficient on age will be a reduced form picking up both inter-generational conflicts regarding pension and welfare systems and

age-specific differences in cultural attitudes, and has to be interpreted with this in mind (O'Rourke and Sinnott, 2006).

#### **4.2 Education**

Finseraas, Skorge and Strøm (2018) mentioned that more education causes higher levels of tolerance toward cultural diversity and people with high education have more liberal immigration attitudes. So public opposition toward immigration decreases when individuals get more education. Even though immigrants have different culture values and life style, Japanese people who have high level of education will accept them more easily. Because educated people are more open to cultural diversity and they do not hold strong attachment to traditional culture although they are in favor of traditional culture and will contribute to develop and enrich it while absorbing benefits from other cultures.

In addition, Japanese people with higher level of education are more aware of the problem of labor force shortage in some industries that Japan is facing. So they are willing to accept more immigrants to fill the gap of labor shortage to encourage the economy development. Also generally speaking that more educated people have more salary and they do not need to compete with foreign workers in some low salary areas. The labor market approach contends that low-educated citizens are more likely to compete with immigrants on the labor market and to experience potentially negative externalities from immigration on their workplaces, neighborhoods, and schools. These conflicts might create less tolerant immigration attitudes (Scheve and Slaughter, 2001).

#### **4.3 Occupation**

Managers working in small businesses in rural area or industries like infrastructure construction, agriculture, ship building and health care are much more welcome to immigrants. Because these areas suffer the severest labor force shortage. It is hard to find enough native Japanese people willing to work in these areas since that working condition is not that good and also not high salary. For the example of Sukumo City, which has a rich forest resource there. But not many people work there to make full use of the resource because of the aging society and labor force shortage. Sukumo has such a serious aging population even 15 years ahead of the overall Japan. More and more people are getting older but not enough young people serve as labor force to give them health care or exploit the natural resources. Young people almost want to make a living in big cities like Osaka and Tokyo



because more chance there which gives them more options to choose and also easier to raise money since the salary is higher.

In the contrary, managers working in areas like finance and computer are less likely to welcome immigrants in these areas. Because these areas do not need that much labor force to fill the gap since already enough native Japanese people are working there. However, this is not contradictory to that they agree to admit more immigrants working in other areas like construction and health care which needs a lot of labor force. Because managers in finance and computer are usually high educated and they are aware of the problem of labor shortage that Japan is facing when taking education factor into consideration.

From another perspective, some Japanese people actually may not meet with many foreigners because of the strict immigration policy. So if they do not interact with foreigners, there is no chance to argue about the problem whether occupation will affect public opinion toward immigration of Japanese people further. While some other people still have an opposition feeling about immigration because of their imagination and prejudice that more immigrants will compete with them. Or more convincing point is that they have a much stronger attachment to traditional Japanese culture out of prejudice when concerning the social cultural factor.

#### **4.4 Region**

Contact hypothesis stipulates that continuous exposure to outside groups will help to reduce tensions and ultimately promote more favorable attitudes between native and immigrant groups (Escandell & Ceobanu 2009; Pettigrew 1998). In big cities like Tokyo and Oscar, people get more chance to meet foreigners. So their opposition against immigrants decreases if they continue interacting with foreigners as colleagues or classmates. But in a relatively closed community such as a rural area without many people living there, immigrants are not very welcomed. There is not much space for immigrants since residents within this community have been living together for a long time and they know each other very well. Everyone plays a role or function inside so that not much room for people coming from outside.

But this factor is related to education especially English ability. It is much more likely to have positive attitude toward immigration for some Japanese people living in big cities if they can speak

English. Thus they can make friends with foreigners easily and get to know each other very well and consequently build the relationship stronger. But for some Japanese people who do not speak English even if they live in big cities, they still get very low chance to interact with foreigners. So the influence of region on public opinion toward immigration declines.

## **5. Approaches to ease public opposition**

### **5.1 Information treatment**

Information treatment means let individuals know more about the benefits of immigration through social media including newspaper, television and Internet. The results reported so far indicate that exposing individuals to information about social and economic issues on which immigration could have a positive impact significantly reduces opposition to immigration (Facchini, Margalit & Nakata, 2016). Because stereotype and prejudice about immigrants of individuals are changed and reduced by this method. People get to think more about the benefits of immigrants like filling the gap of labor force shortage in some industries, having more workers to support elderly people as health care givers. Because fewer working age people will support a large population of elderly — from 2.3 working age individuals for each pension-aged person in 2015, by mid-century this figure is projected to decline to only 1.3 (Facchini, Margalit & Nakata, 2016).

However, this approach has a limit that it cannot exist in the long run. People will forget the benefits of expanding immigration policy or part of it if they are not exposed to such information treatment for a long time. In a short period, public opinion toward immigration can be improved remarkably especially for some people who are not very aware of the labor force shortage problem caused by aging society and decreasing population in Japan. Therefore, the effect of this approach must be measured in a long time. And based on previous analysis of factors influence public opinion (age, education, occupation, region), the effect varies among individuals.

### **5.2 Strengthening English education**

Those with higher levels of English conversation skills are significantly more favorable to having more foreign residents in their communities (Green and Kadoya, 2013). This is just the case we have discussed before in the section of education and region factor. So strengthening English language

education in primary and middle schools will work to some extent to change domestic attitudes toward more immigration. But we cannot be certainly sure that strengthening English education will decrease public opposition toward immigration a lot as it is so complicated and relevant to many factors. But this is important to consider given the aging society and shrinking population Japan is currently facing with. What's more, based on the contact hypothesis of immigration, which stipulates that as native residents have actual contact with immigrants they will become more favorably disposed to them. (Green and Kadoya, 2013). People with higher level of English ability will get more chance and be willing to communicate with foreigners. It is also helpful for Japanese people to get more familiar with foreigners. Thus it is more likely for Japanese people to welcome more foreign workers into Japan as long as relevant legitimacy to protect the rights of foreign workers is enacted completely. Likewise, if one uses English conversation ability as a substitute for actual immigrant interaction, given that immigrant numbers in Japan remain low, those with a higher ability also tend to be more favorable. (Green and Kadoya, 2013).

## **6. Conclusion**

In this paper we have studied what are the reasons causing public opposition toward immigration and how to relieve it to make Japan gradually ready to absorb more foreign workers. First from the development of immigration policy in Japan, it can be concluded that immigration policy has been strict since 1951 but it is on the way to expansion. And then we discuss the two drivers that cause opposition, which is social cultural factor and economic consideration respectively. But notably that social factor plays a much more important role since that not every native Japanese people needs to compete with foreign workers. Some of them even do not know foreigners in their daily life, let alone competing for the same job. Japan is currently facing labor force shortage caused by aging society, admitting more foreign workers into Japan is necessary to fill the gap in some areas like construction and health care. The self-interest of economic consideration mainly comes from the stereotype and prejudice that resources and wealth will be redistributed if many foreigners come to Japan. After the two drivers of public opposition toward immigration, four main factors influencing public opinion toward immigration are analyzed. The four factors: age, education, occupation and region they

separately influence people's attitudes toward immigration but also have a combination effect at the same time. And every factor will weigh differently when applying to different people, which is considerably complicated. What's more, it is hard to get an accurate public opinion since it varies from person to person who has different level of knowledge, life experience and living condition. So it is just an average statistic concept. After analyzing the factors influencing public opinion toward immigration, approaches to ease public opposition are concerned. As the purpose of this paper, some ideas about how to relieve public opposition and make Japan gradually ready to admit more immigrants are arisen here. Use information treatment to expose a large number of Japanese citizens to benefits of expanding immigration policy, like supplying more labor force and having elderly people care givers. But this approach has a limit that people will forget the benefits of such information treatment or part of it after a long time. But it still works in short time to decrease public opposition toward immigration. Another approach is strengthening English education in Japanese society, improving overall Japanese people's English communication ability which helps them touch more foreigners and then will help to reduce opposition toward immigration gradually.

Last but not least, it is important for Japan to enact relevant legitimacy to protect the rights of immigrants. Japan will definitely need more foreign workers in the future in order to deal with the problem of labor force shortage caused by aging society. From the perspective of immigrants, integration into the Japanese society plays a significantly important role as well. They are not able to work very well if cannot be integrated into the society properly. Thus it is not helpful to the economy development of Japan either.

## **7. Reference**

Chung, Erin Aeran. (2010). *Immigration & Citizenship in Japan*. New York: Cambridge University Press.

Denyer S., A. Kashiwagi. (2018). Japan passes controversial new immigration bill to attract foreign workers. *The Washington Post*.

Espenshade, T. J., & Calhoun, C. A. (1993). An analysis of public opinion toward undocumented immigration. *Population Research and Policy Review*, 12(3), 189. Retrieved from <https://search-proquest-com.ez.wul.waseda.ac.jp/docview/1308383060?accountid=14891>

Escandell, X., & Ceobanu, A. M. (2009). When contact with immigrants matters: Threat, interethnic attitudes and foreigner exclusionism in Spain's Comunidades Autónomas. *Ethnic and Racial Studies*, 32(1), 44-69.

Facchini, G., Y. Margalit. and H. Nakata. (2016). *Countering Public Opposition to Immigration: The Impact of Information Campaigns*. London, Centre for Economic Policy Research.

Fujimaki, Hideki. (2013). Can Japan Realize the Multicultural Society?: the Reportage of Nippon, the Immigrant Islands. *Nihon ha Tabunka Kyōsei Shakai o Jitsugen Dekirunoka – Imin Rettō o Shuzai Shite*. *Migration Policy Review (Imin Seikaku Kenkyū)*, Vol. 5: pp. 140-149.

Finseraas H., Ø. S. Skorge, M. Strøm. (2018). Does education affect immigration attitudes? Evidence from an education reform. *Electoral Studies*. Volume 55, Pages 131-135

Green, D., Y. Kadoya. (2013). English as a Gateway? Immigration and Public Opinion in Japan. ISER Discussion Paper No. 883. Available at SSRN: <https://ssrn.com/abstract=2320269>

Goto, Junichi. (2007). Latin Americans of Japanese Origin (Nikkeijin) Working in Japan: A Survey. Policy Research Working Paper; No. 4203. World Bank, Washington, DC. © World Bank.

Hainmueller, J., M. J. Hiscox, and Y. Margalit (2015). Do concerns about labor market competition shape attitudes toward immigration? new evidence. *Journal of International Economics* 97 (1), 193–207.

Kondo, A. (2002). The Development of Immigration Policy in Japan. *Asian and Pacific Migration Journal*, 11(4), 415–436. <https://doi.org/10.1177/011719680201100404>

Le Bail. (2013). SKILLED AND UNSKILLED CHINESE MIGRANTS IN JAPAN. French Research Institute on Japan. Les cahiers d'Ebisu. Occasional Papers No. 3, 2013, pp. 3-40

Mori, H. (1997). Immigration Policy and Foreign Workers in Japan. Palgrave Macmillan UK. 10.1057/9780230374522

NAKATA Hiroyuki. (2017). Attitudes toward Immigration in an Ageing Society: Evidence from Japan. Discussion papers 17095. Research Institute of Economy. Trade and Industry (RIETI).

O'Rourke, K. H., R. Sinnott. (2006). The determinants of individual attitudes toward immigration. *European Journal of Political Economy*. Volume 22, Issue 4, Pages 838-861. <https://doi.org/10.1016/j.ejpoleco.2005.10.005>

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, 49, 65-85. doi:10.1146/annurev.psych.49.1.65

Sakanaka, H. (2001). *Nihon no gaikokujin seisaku (Alien Policy in Japan)*. Tokyo: Nihon Kajo Shuppan.

Scheve, K., and M. Slaughter. (2001). Labor market competition and individual preferences over immigration policy. *Review of Economics and Statistics* 83(1): 133–145

Takenoshita, H. (2016). Immigration challenges in Japan: How Has Japanese society coped with immigration? In *Creating Social Cohesion in an Interdependent World: Experiences of Australia and Japan* (pp. 95-112). Palgrave Macmillan. [https://doi.org/10.1057/9781137520227\\_5](https://doi.org/10.1057/9781137520227_5)

## **8. Acknowledgement**

First of all, I want to give my appreciation to Professor Hirakawa who guided us all the time about this dream plan. Professor patiently instructed us to select the topic and then narrow it down at the very beginning. After that Professor held private meeting to check our process and gave comments about our introduction and literature review writing. Also in the usual class, Professor invited guest speakers to help us understand more about post war Japan's diplomatic policy, Japan's social situation and Japan-China relations. And professor all the way took care of us in Kochi Prefecture, Sukumo City when we had field trip there. And also, thanks Akasaka, Abe and Lida sensi a lot who helped us during this semester. Whatever the Shanghai pre-departure training, classes in Waseda, field trip in Sukumo and other stuffs, all the things are arranged perfectly. In addition, I want thank all the guest speakers who use their precious time to give us lectures and talk about Japan's diplomacy, Japan-China relations and so on. We really learned a lot and broadened our horizons. Last, sincerely thanks Master Kong and Waseda University. Master Kong provides scholarship for us and Waseda University offers us a wonderful studying and living environment for this semester. This is such a great program, I had an unforgettable life for one semester here which will be treasured for life.



WASEDA University  
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# Expanding immigration policy as a response to labor force shortage in Japan

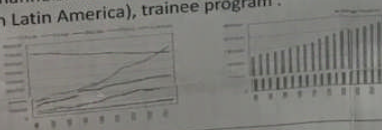
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## 1. Introduction

- Faced with the problem of labor force shortage caused by aging demographics and shrinking population, Japan started to expand its immigration policy to admit more foreign workers.
- the parliament passed a new immigration law December 2018 that aimed to attract 345,000 foreign workers over the next five years in some labor force shortage severest industries like infrastructure construction, agriculture and nursing health care.
- opposition parties argued that the legislation was vague and hastily drawn up and there were also Critics claiming it failed to address the question of social inclusion and rights for foreign workers.
- what are the reasons causing public opposition toward immigration and how to relieve it?

## 2. Development of Japan's immigration policy

- Strictly controlled immigration and emigration (1945-1951)
- strict immigration during the time of advanced economic growth (1951-1981)
- strict immigration but refugees accepted and aliens' rights are improved (1981-1990)
- rising immigration despite strict immigration controls (1990-present).
- Foreigners, specifically unskilled workers, came through various channels: as in the case of the Nikkeijin (Japanese descendants in Latin America), trainee program.



Country	1990	2000	2010	2018
Total	1,000,000	1,500,000	2,000,000	2,500,000
China	50,000	100,000	150,000	200,000
South Korea	100,000	200,000	300,000	400,000
Philippines	150,000	300,000	450,000	600,000
India	200,000	400,000	600,000	800,000
Vietnam	250,000	500,000	750,000	1,000,000
USA	300,000	600,000	900,000	1,200,000
Peru	350,000	700,000	1,050,000	1,400,000
Brazilian	400,000	800,000	1,200,000	1,600,000
Thailand	450,000	900,000	1,350,000	1,800,000
Others	1,000,000	2,000,000	3,000,000	4,000,000

## 3. Drivers of public opposition to immigration

- Social cultural factors**
  - Foreigners represent different values and traditions, and pose a threat to the "national identity" or the traditional way of life.
  - Much of the emphasis in this factor is placed on prejudice and stereotyping as the source of hostility to immigration
- Economic concerns**
  - Attitudes are shaped by individual's concern of competing for scarce resources and consequent distribution effects
  - But such concerns tend to be contained within narrow and concentrated segments of the public, as most citizens do not face economic competition with migrants

## 4. Factors that influence public opinion

- Age**
  - Young people far from pension age would regard immigrants as potential competitors, while elderly people near the pension age would be more positive about immigrants because they can make contributions to the pension system as well as fill the labor shortage.
  - Older people have much stronger attachment to collective cultural culture
- Education**
  - Higher educated people are much more positive to immigration because they know much more about the demographic pressure and labor force shortage that Japan is facing
- Occupation**
  - People who work in labor scarce industry like construction and nursing support more about expanding immigration policy
- Region**
  - People in big cities like Tokyo who can touch more foreigners support more

## 5. Approaches to ease public opposition

- Use information treatment, exposing a large number of citizens to benefits of expanding immigration policy, like supplying more labor force, elderly people care givers.
- Strengthen English education, improving overall Japanese people's English communication ability which helps them touch more foreigners and then reduce opposition.
- Promote more exchange student programs with other countries' universities

## 6. Conclusion

- Immigration policy is on its way to expansion
- Even though Japan has not substantially deviated from its traditional closed-door policies, but other forms like trainee program keeps going
- Enact legitimacy to protect the rights of low skilled workers
- Japan will definitely need more foreign workers in the future, but it is important to protect their rights at the same time

At the Diet session this month, a submission of bills on foreign workers is expected. It seems that Japan is beginning to realize that it has immigrants just like other developed countries. It was announced on Wednesday that Japan is planning to abolish the pay gap between the Japanese workers and foreign trainees by reviewing poor work conditions of cheap foreign labour. Japan is also intending to accept more skilled workers, not just manual labourers, to tackle a shortage of workers. The time has come for Japan to establish an official portfolio and a government department dedicated to immigration issues.

"Unfortunately, many who arrive in Japan with the hope to achieve the Japanese dream; are unaware of potential pitfalls: the legal system, workers' rights, and tough working conditions."

Ratio of Japanese supporting more foreign workers in labor shortage



Ratio of supporting indefinite stay within those supporting more foreign workers





**Japan-US Trade Friction and its Practical Significance:  
Inspiration from Beef friction in Agriculture Trade**

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**1. Introduction**

Currently, China and the United States are locked in an ongoing trade friction as each country has introduced tariffs on goods traded with the other. The relations between the world's two largest economies are now at a crossroads, beset by the escalating trade conflict. The current U.S.-China frictions has significant similarities to the trade frictions between Japan and the United States in the 1980s and 1990s: First, both conflicts occurred after the rapid economic development of Japan and China. Secondly, both conflicts have arisen from complaints about the surge of imports from China now and Japan in the past to the US market. Thirdly, both Japan and China have relatively large government intervention in the economy. In the process of coping with the trade friction, the performance of Japanese government and enterprises would be of great reference significance for China. It can also reflect the evolution of the role of the countries in foreign economic and trade relations.

With the development of Japan in the postwar period, economies transitioned from low-or-middle income to high-income status. Trade conflicts with the United States began with Japan's trade surplus of Japanese cotton textiles in the middle of the 1960s. The United States government asked Japan to restrict its exports, and the compromise resulted in Japanese voluntary export restraints. In Japan domestic position, protectionism gradually grew in response to complaints from the industry and labor unions.

Besides, trade restrictions on agricultural commodities had been a major source of this economic friction between the U.S. and Japan. Agriculture can be viewed as the only part which has significant tariffs or quotas in Japan. The coping strategies of the Japanese

government to resolve trade friction not only affected Japan's financial and investment fields, but also changed the basic direction of Japan's agricultural policy.

The purpose of this study is to clarify the nature of the trade dispute between Japan and the United States, using the conflict over beef in the agriculture parts as a case study. Three questions are posed. First, why Japan is so protective in domestic market and how did the trade policies in beef work? The second question is, what did the U.S. demand for the beef trade? The third one is, therefore, how did US-Japan negotiate with each other, especially the way that Japan responded to US demands for increased access to the beef parts markets?

This paper traces the whole process of the trade conflict, examines the reasoning behind the policies and looks at why US trade policy shifted from to favor talks on improving access to Japanese markets. The openness of the Japanese agriculture markets is quantified. The methodology of estimating agricultural protections and incentives is based on the research from Anderson and Hayami(1988) and Anderson (2008a, 2008b). Both focused on nominal rates of assistance (NRAs). The paper then considers the important shift that occurred in the nature of Japan–US trade conflicts in the 1980s to 1990s. In the series of bilateral negotiations, Japan's attitudes and response to US trade policy, which have been both harmonious and antagonistic, are examined.

The paper is structured as follows. The first section of this paper presents an overview of the political economy in US-Japan trade conflicts, with the emphasis on the agriculture sector. This section summarized and analyzed the historical events of Japan and the United States in the historical environment. The second section analyses on Japanese and American domestic agricultural condition. Of particular concern are evaluation of the degree of agricultural protection in Japan with America and the impact of agricultural protection during the postwar period. The third section focuses on the trade conflict in the specific type of agricultural product, the beef, and the U.S. attempts to reduce the bilateral imbalances through targeted trade policies and to slow the growth of U.S. imports or increase the growth of U.S. exports. This section deals specifically with Japan's response and the implementation of the beef accord. Attention is given to how liberalization has advanced processes of globalization in the

beef commodity chain and their implications for the conclusions of the conflict. The forth section gives several enlightenments.

## **2. Literature review**

The U.S.–Japan frictions that started in the 1960s and peaked in the mid-1980s. Trade restrictions on agricultural commodities had been a major source of this economic friction between the U.S. and Japan. Agricultural issues had nearly blocked the conclusion of successive trade rounds and generated half of all GATT trade disputes over the period 1960-1989 (Hudec1993, 327). According to Davis (2001), historically, agriculture also has stood out as part of the government's stubborn defense of its domestic interests. Regarding to the beef case, IMF reports (1985) found that beef is the only commodity to have prompted farmer protests in the same time period in Japan, United States, and Australia. In relation to total trade, beef is a minor commodity in U.S.- Japan trade. Yet in the minds of many, beef has become a symbol of trade policy. In 1980s to 1990s, Japanese traditional meat trade of cooperatives and meat merchants was gradually replaced by modern production systems and meat marketing methods, giving a new outlook on beef trade.

For Japan agriculture, in the period from 1960s to 1990s, Theodore Schultz (1978) established that as economies advance from low to high income status, policies tend to shift from taxation to subsidization. Honma and Hayami (2008) showed how Japan agricultural distortions change over different stages of economic development in other countries. Bale and Greenshields (1978) showed that Japanese producer support prices, input subsidies, government monopoly middleman activities, a plethora of ties agricultural trade restrictions, and imposition of the so-called "administrative guidance" are common examples. As a result, producer and consumer prices for agricultural products are considerably above world levels.

For the American side, Chad P.Bown (2009) described U.S. efforts to restore the reciprocal GATT/WTO market-access bargain in the face of such large imbalances and the significant spillovers to the international trading system. described the character of the food regime of America, including its internal tensions, between 1947 and 1973.

### **3. Review of the Japan-US trade conflict**

This section briefly reviews the background, general situation and characteristics of Japan-US trade friction and summarizes the major economic events before and after the peak period of the friction. Therefore, enlightenment can be drawn to alleviate and resolve the Sino-US trade friction nowadays.

#### **3.1 The initial stages of trade friction (mid 1960s -- early 1970s)**

With the rapid growth of Japanese economy in the postwar period, especially the completion of domestic industrial structure upgrading and the change of export trade structure, trade conflicts between Japan and the United States began to emerge in 1950s for a surge in imports of Japanese cotton textiles. Japan's foreign trade structure gradually formed: imports were industrial raw materials, fuel and agricultural products and other primary products, exports were industrial processing products. What exported to the United States were mainly manufactured goods centered on steel, electrical appliances and machinery (accounting for more than fifty percent of total exports to the United States), and they were all high-grade goods. The United States exported to Japan mainly agricultural products and industrial raw materials and other primary products (accounting for more than sixty percent of exports to Japan) and a small number of high-tech equipment. This structure of trade between Japan and the United States was clearly beneficial to Japan when there were price differentials in primary and processed products on world markets. During this period, conflict goods were focusing on labor-intensive export commodities like textiles and capital-intensive export commodities dominated by heavy chemical products.

#### **3.2 The full development stage of trade friction (mid-70s -- mid-80s)**

In the 1970s, as the Japanese and American economies entered a period of low growth and turbulence represented by two oil crises, acute market problems made it unlikely to solve trade frictions through the rapid development of domestic economy. With the deepening of trade liberalization, bilateral competition also had been exacerbated with the development of bilateral trade relations. The main focus was the processing and assembly industry (color TV, automobile).

Most of the conflict stemmed from complaints about the huge American trade deficit with Japan. As shown in *Figure 1*, trade deficit was growing rapidly. Under the pressure of the U.S., Japan began a long period of voluntary export restraints (VERs). Anti-dumping (AD) was another second policy tool that the U.S. has used to slow the expansion of Japanese exports into the U.S. market. In the Tokyo Round of negotiations under the GATT that started in 1973, agreements were finally reached in 1979 on trade in services and in agriculture, as well as the procedures for resolving disputes. Besides, Japan increased its direct investment in the United States, thus increasing domestic employment and demand there, and worked to open and expand the Japanese market for imports. Despite this, Japan's trade surplus to the United States continued to rise.

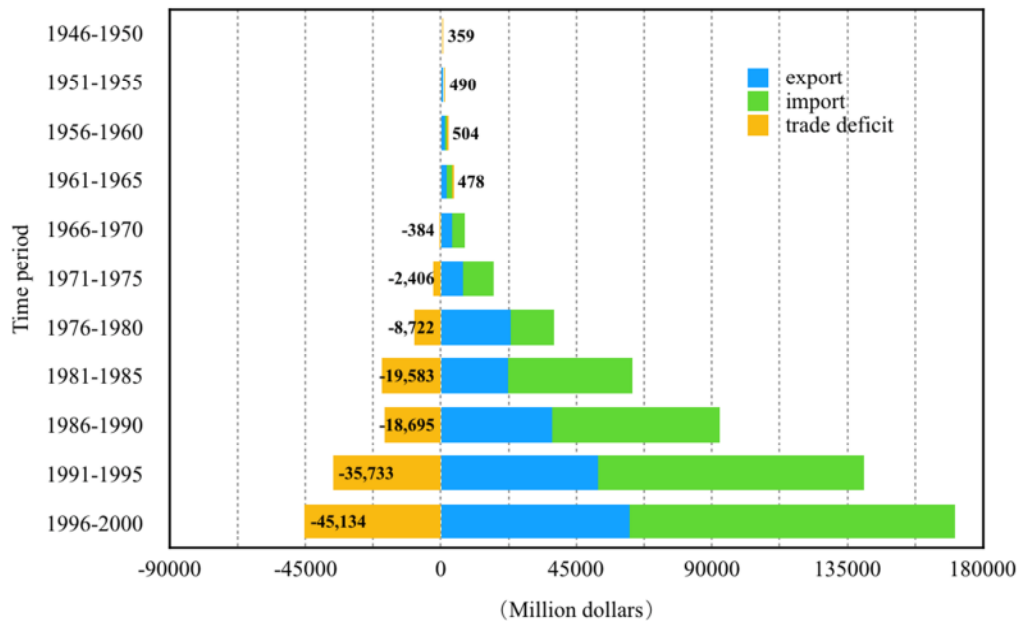


Figure 1. Postwar Japan's export, import and trade balance with the United States

Source: Bank of Japan, Economics, Statistic Japan

In the first two stage of the trade friction, bilateral economic problems were centered on individual goods, with Japan agreeing to exercise self-restraint. However, far from slowing Japan's growth, the two countries' trade deficits widened. In the 1980s of the Japan-US trade friction development period, Japanese independent limit and direct investment did not eliminate dissatisfaction. According to an opinion poll taken in 1980s, 69 percent of

Americans saw Japanese trade practices as unfair. The protectionist pressure in the United States seemed to be growing, not dissipating.

### 3.3 The peak and final stages of trade friction (mid-80s -- mid-90s)

In the late 1980s, trade friction had shifted to macroeconomic policies, such as the exchange rate and economic structures. The focus of trade friction moved from the torrent of Japanese goods to the lack of access to the Japanese market. As a later capitalist country, Japan, in order to protect its economic development, had set up much higher tariff barriers than the U.S. and Europe. In addition, it had also established various non-tariff barriers and complicated customs entry procedures and circulation system, which hindered American goods into Japan. In a succession of bilateral negotiations since 1985, the U.S. government threatened retaliation and demanded Japanese concessions in favor of US exporters. Japan had to open its domestic market through voluntary import expansion (VIEs). Beneficiaries of this policy include US semiconductor, beef, orange, wood products, insurance, telecommunications, automotive parts and other products exporters.

On the other hand, after the 1985 Plaza Accord, Japan started continuous substantial appreciation of Japanese yen and the corresponding depreciation of the U.S. dollar in an effort to deter protectionism. The details are shown in Figure 2.

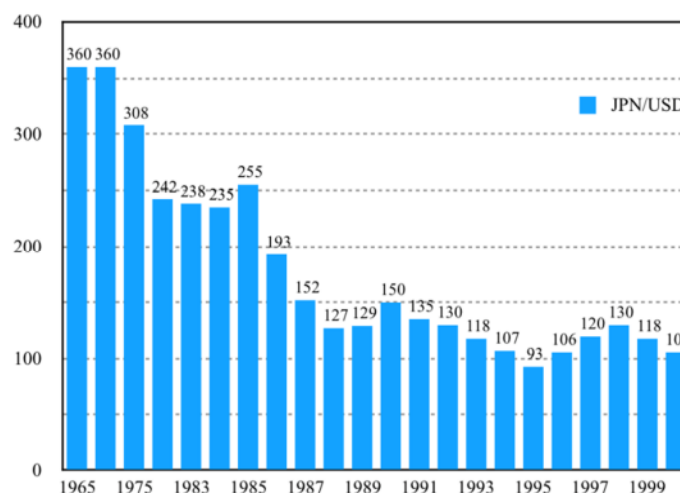


Figure 2. The postwar nominal exchange rate between Japan and the United States  
(1965-2000)

Source: Bank of Japan

However, the intention to coordinate policies with intervening in the currency exchange market in finance did not go well on both sides. Nor was a solution found with regard to the problematic U.S. budget deficit. Since the export-driven growth model under trade frictions cannot be sustained, which forced Japan to accelerate industrial upgrading and overseas direct investment and achieve remarkable results. As the 1980s began, Japan was called a “country that has ten percent of the world’s GNP”, by the end of the decade, Japan’s economic share had risen to an astonishing fifteen percent. However, it also led to the risk of industrial hollowing out. And the lack of financial supervision further pushed up the macro leverage ratio, which contributed to the bubble economy.

The United States introduced a new form of negotiation specifically aimed at opening up industries that were considered to be closed to competition, including Market-Oriented, Sector-Specific (MOSS) talks, Structural Impediments Initiative (SII) and the US–Japan Framework for a New Economic Partnership (Framework Talks).

Specifically, the Omnibus Trade and Competitiveness Act was drafted in 1988 for the American interest. This law sought to protect U.S. industries through the strengthening of measures against foreign countries in commerce and finance, while increasing exports and strengthening America’s competitive strength simultaneously. In particular, the Super 301 Clause, the focus of the law, required that the USTR office identify and report unfair trading practices abroad to Congress and, if a solution was not found within one year’s time, to implement retaliatory measures. The United States no longer waited for Japan to take measures on its own but instead adopted a radical approach to threats of retaliation. Japan expressed opposition and also asked the United States to reduce the deficit, improve the investment and promote exports.

However, following the collapse of the “bubble economy” in 1992, trade friction between the two countries dwindled. Besides, the emergence of international cooperation system has made it possible for the post-Cold War world to better resolve trade disputes. In the MITI investigation about the international trading rules of the GATT and WTO, the unfairness of the demands for bilateral numerical targets was eventually acknowledged by the

United States. The resolution reached in the summer of 1995 declared the end of the long era of Japan–U.S. trade friction. The table below summarizes the major events happened in the trade friction.

Table 1 Summary for Japan-U.S. Economic relationship history, 1970-1995

<b>Year</b>	<b>Japan-U.S. Economic relationship history</b>
1970	Japan-US textile negotiation began
1972	Japan-US textile agreement signed Japan Secondary Steel Independent Export Control (January 1972 - December 1974)
1973	GATT · Tokyo Round negotiations started
1977	Japan-US color television OMA (Market Order Maintenance) Agreement concluded
1978	Beef · Orange negotiation settlement (to expand import frame)
1979	GATT · Tokyo Round negotiations concluded
1980	Formulation of NTT procurement arrangement (expired in 1999)
1981	Japan voluntary automobile export regulations to the United States (81.4 - 84.3)
1985	Nakasone · Reagan agreement, MOSS agreement (Market-Oriented, Sector-Selective) started Appeal to Article 301(semiconductors industry, close of semiconductor market in Japan etc.) Plaza Agreement
1986	MOSS agreement settlement (electronics, telecommunications, medical equipment, forest products, transportation equipment) GATT · Uruguay · round negotiations started Japan-US semiconductor agreement concluded
1987	Japan, voluntary export control of machine tools to the US (1987 - October 1993)
1988	Final settlement of beef and orange negotiations (to eliminate import quota)
1989	Mobile phone negotiation settled The US-Japan Structural Conference (SII: Structural Impediments Initiative)
1990	SII final report
1991	New Japan-US semiconductor agreement concluded (due date as of July 1996)
1992	Final settlement of Japan-US machine tool negotiations
1993	Miyazawa and Clinton agree to start Japan-US comprehensive economic consultation
1994	Mobile phone (1989 agreement violation) settled GATT · Uruguay Round concluded
1995	WTO established

Source: Ministry of Foreign Affairs of Japan



### **3.4 Enlightenment for trade liberalization**

The trade conflict between Japan and the United States was neither a one-day affair nor an immediate one. In these decades, it has sometimes intensified and moderated. The content of friction has developed from light industrial products such as fiber and steel to high value-added products such as color TV sets and automobiles, and then to cutting-edge technology such as integrated circuits. From the above discussion, we can get the following enlightenment:

1. Trade frictions between rapidly rising later-developing countries and smoothly developing rich countries are a natural trend of historical development. When later-developing countries absorb international advanced technology and carry out innovation, their comparative advantages would be adjusted dynamically along with the upgrading of industrial structure, so as to obtain greater benefits. Such a rapid rise is bound to influence the developed countries at the stage of stable development. Especially when the rising economies account for a large proportion of the world economy, the economic frictions between the two sides will be inevitable, which are mainly reflected in the fields of trade and investment.
2. Trade frictions tend to intensify and escalate when the country's economy is in a downturn, such as rising unemployment, when its pillar industries are hit, and when political and military factors are unstable. For instance, the two oil shocks worsened the trade balance of oil-importing countries, prompting Japan and the U.S. to expand exports to make up the deficit.
3. Facing up actively to disputes and engaging in dialogue are effective solutions. In history, Japanese government has long responded passively to American accusations. In the short term it can reduce losses and settle disputes. But in the long run, this lack of substantive measures and perfunctory behavior has only fueled stronger opposition from the U.S. government and public.
4. Some positive measures can be a salutary lesson. Japan's approach to resolving disputes has been gradually adjusted: From VER to outward foreign direct investment (OFDI) to VIE to domestic market competition environment improvement. The first and third would provoke

domestic complaints, compared with the second one. according to Japan's experience in avoiding trade frictions through OFDI, we can combine investment with the reform and promotion of domestic industrial structure, at the same time, not only reforming the financial system, but also providing preferential policies for domestic enterprises.

#### 4. Agricultural trade between Japan and the United States

##### 4.1 Japanese agriculture condition

With the scarcity of land and natural resources, Japan's agriculture is based on the small-scale peasant economy. Postwar Japan protected agriculture through various channels and formed a systematic agricultural protection policy. The basic of the policy was to establish a high degree of protection for agriculture under closed conditions and relied on tariff barriers to avoid the impact of foreign agricultural products on the domestic market. There are four main protection methods, namely food management, price support, production subsidies and frontier protection. Figure 3 quantifies the degree of agricultural protectionism in Japan and the comparison with the target countries using the Nominal Rates of Agricultural Protection as the indicator.

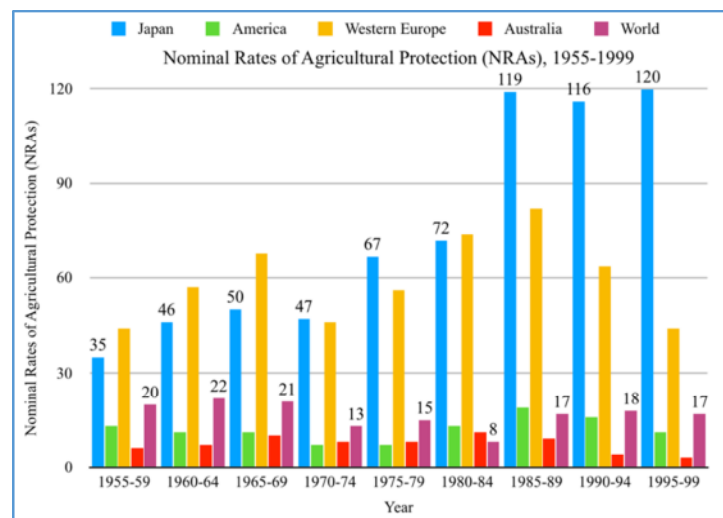


Figure 3. Nominal Rates of Agricultural Protection (NRAs), Target Countries, 1955-1999

Data Source: Honma and Hayami(1986), Anderson and Valenzuela (2008)

With regard to Japan position, Japanese agricultural industry had the highest cost in the world. A large number of farmers were entitled to export subsidies and would not survive

without them. The post-war protective policies brought low efficiency, low competitiveness, high cost and high price disadvantages to Japanese agriculture, which were fully exposed in the 1980s when the comparative advantage of the industrial sector expanded rapidly and that of the agricultural sector declined sharply. Japanese economists argued that the country's conservative agriculture market had become a barrier to industrial exports. As a representative of trade protectionism, the food management law was amended in 1981 and finally abolished. Japan's agricultural policy gradually moved toward liberalization from high protection and was deeply affected by the trade friction between Japan and the United States.

#### **4.2 American agricultural condition**

The United States is the world's largest producer and exporter of agricultural products, which has superior production conditions, advanced agricultural technology and low production cost. Two-fifths of America's arable land produces food for export. One-third of the income of agriculture relies on export. The U.S. regards the agricultural products exports, as a powerful area to improve its balance of international payments and dollar defense, the same as the cutting-edge products such as aviation aircraft.

The domestic agricultural policies of the U.S. are mainly agricultural subsidies, to enhance the agricultural products market price advantage and reasonable optimization of agricultural structure: On the one hand, through subsidies of limited production, mandatory or restrictive price constraints can be imposed on the seriously surplus agricultural products, so as to reduce and limit their production. On the other hand, encouraging subsidies are used to stimulate and support the production of agricultural products in short supply in the market so as to alleviate the contradiction between supply and demand. The agricultural trade measures of the U.S. are mainly to promote the export and trade, so as to solve the problems of overproduction of its own agriculture and guarantee the production efficiency and output of agriculture. The main characteristic of maintaining agricultural competitiveness through trade protection is to flexibly adjust the degree of protection according to the strength of agricultural competitiveness.

#### **4.3 Japan-US agricultural trade**

Over the long term, the U.S. was Japan's largest market for industrial exports and Japan was the largest buyer of surplus agricultural products from the U.S. For the trade deficit, all of the deficit came from non-agricultural trade. This deficit can be attributed to the tariffs, duties, and quotas which govern the importation of many products into Japan. The United States realized that the international competitiveness of the domestic industrial sector was weakened, so it turned to its own comparative advantage sector especially agriculture and demanded Japan to further open its import market.

In 1981, the U.S. demanded full liberalization of agricultural imports to Japan, calling for the elimination of tariffs and simplification of import procedures such as animal and plant quarantine. In 1983, the U.S. complained to GATT that Japan's import restrictions on the remaining 13 agricultural products violated free trade principles. And GATT ruled that Japan's import restrictions on 10 agricultural products violated GATT's principles. Japan was forced to lift the import volume restrictions in 1987. These series of events marked the beginning of a free trade in agricultural products which was highly protected by Japan border measures before.

In each round of negotiations, Japan sought concessions on non-essential issues, such as the expansion of the import ratio of pork blends. However, it took a long time and difficult negotiation to reach an agreement on substantive issues such as market opening of beef and citrus.

In fact, the main offensive of the U.S. against Japan's agricultural exports focused on two goods: beef and citrus, which includes fruit juice and other products. Beef is a high value-added agricultural export. One ton of beef is equivalent to six tons of grain. With the development of the beef cattle industry, it can promote the development of the processing industry related to fattening and breeding. Citrus is the same as beef. There is bigger price difference between the United States and Japan. And the main producing area of orange is in Pacific coast, closer to Japan, so exports need to be strengthened. These two agricultural products had become a symbol of Japanese attitudes and directives towards protectionist policies.

## **5. Case Study: Beef Trade between U.S. and Japan**

The United States is the world's largest producer of beef and, at the same time, the largest importer of beef. In terms of U.S. beef supply and demand, the supply of beef for the general population is insufficient, relying on imports from countries such as Australia, while the high-grade beef (feed grain fed beef) used for steak is exported in large quantities. In the 1980s, the United States produced about 50,000 tons of high-grade beef meat annually and sold nearly 30,000 tons of it to Japan. The large market of Japan has played a great role in regulating the supply and demand of high-grade beef in the United States. In 1988, Japan contributes to seventy percent of all U.S. beef exports. First, a review of the beef industry from a historical perspective was used to lay a foundation for understanding the role of beef in Japanese society. Second, an evaluation of government policy as it pertained to Japanese agriculture was accomplished. Final analysis of the beef and cattle trade issue between the U.S. and Japan was involved.

### **5.1 Japanese domestic beef condition**

Traditionally, Japanese diet was rice based and supplemented by soybean and vegetables, especially little upon animal protein. These was caused by the Buddhist religion and unfavorable geography condition to livestock raising. However, Japanese diet began to undergo transformation after the WWII during the national recovery from the food programs initiated by the Occupation Forces. Another reason is the rapid economic growth. The proportion of animal protein increased a lot and vegetable protein relatively decreased. Especially, there was a rapid increase in the consumption of livestock products. Beef became one of the most important meat in the Japanese daily life.

The domestic industry itself is comprised of two sectors. These are the traditional (Wagyu) cattle sector and the dairy beef sector. Almost all commercial beef production, besides dairy calves and cull cows, utilize Wagyu beef herds with high prices. The marketing structure is shown as below.

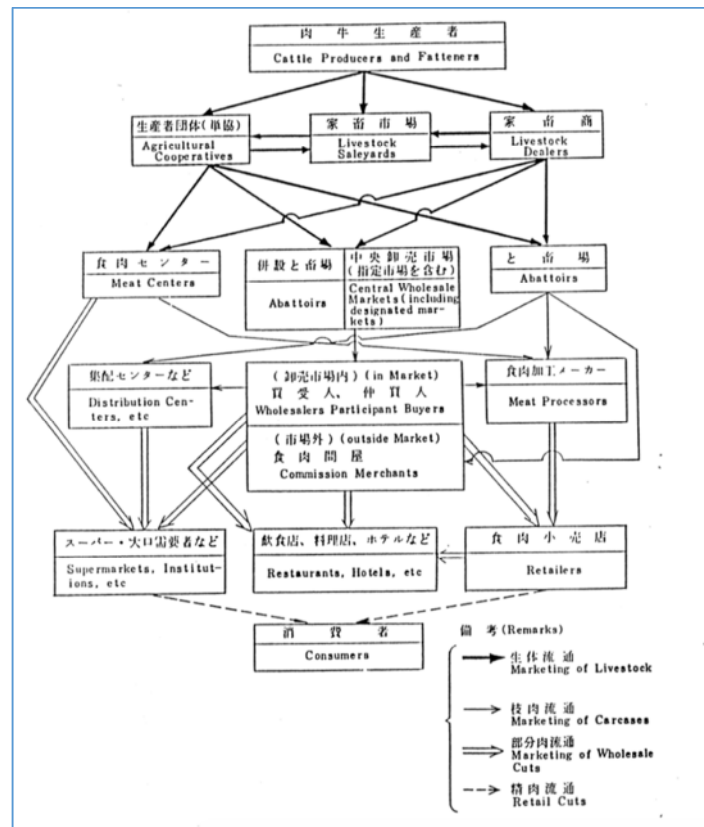


Figure 6. Japanese Beef Marketing Channels

Source: Livestock Industry Promotion Corporation, Tokyo, Japan

The Japanese beef industry is protected by the import quota system and is supported by price stabilization programs. Market access has been inhibited by a system of import quotas, tariffs and sanitary/health restrictions. The role of the Japanese government in beef imports of American beef was really important. Powerful political interest groups take effect in the Japanese livestock and beef import protectionist policies, like Livestock Industry Promotion Corporation (LIPC). Protecting domestic producers from international competition stems from effective lobbying by a well organized livestock group. Given strong political power by the new democratic government, rural beef cooperatives in Japan act as both agents and merchants of local beef. These producers owned federations, through the use of collective bargaining, are able to keep prices high through regulated supply and high government support prices. Lobby support arises from real concerns by Japanese citizens for food security, self sufficiency, and preservation of the nation's small agricultural base. However, the

administration of the LIPC emphasizes assisting the producer while overlooking consumer needs. All this has led to a rise in beef prices. While inflated beef prices appear to help producers, artificially high prices through subsidies and support could create problems for beef producers and the entire Japanese beef industry in the long term.

## 5.2 Analysis on Japan and US beef trade

Throughout 1960s, Japan's beef imports mainly came from Australia and New Zealand. In the mid-1970s, the United States began exporting beef to Japan and gradually gained market share. By the late 1980s, nearly half of Japan's beef imports were supplied by the United States. Since the late 1970s, countries like the U.S. pressured Japan to liberalize the beef import policies. The following chart summarized the whole negotiation process with regard to quota.

Table 2 Summary for Japan-US Beef Negotiations

Year	Japan-US beef Negotiations and Agreements
1977	First negotiation (request for quantity expansion)
1978	Quantity agreement (In FY1983, expand beef: 30 thousand tons)
1983	Second negotiation (request for quantity expansion)
1984	Quantity agreement (In FY1988, increase by 6,900 tons per year for high-quality beef)
1988	Third negotiation (withdrawing import quota, tariff, lowering the tax rate)
1988	Final agreement: (An import quota removal agreement) Beef: 70% in FY 1991, 60% in FY 1992, 50% in FY 1993 (in the case of a rapid increase: + 25%),
1991	The import quota system for beef and citrus was abolished.

Source: Ministry of Foreign Affairs of Japan

Japan regulates its beef imports with completed quota system including a general quota and four special quotas. Significant trade barriers remained, as Japan's potential as an increased market for U.S. beef and cattle continues.

Japan resisted liberalization initially, maintaining that it would be too damaging to the domestic beef industry. However, following a series of bilateral negotiations Japan agreed to open markets. The Import Quota Removal Agreement (IQRA) covered the gradual

dismantling of the import quota system. Despite these protectionist policies Japan's beef import market has diversified and grown since the early 1960s. The quantities and values of U.S. beef and beef products exported to Japan have increased dramatically. Despite this, Japan still had the potential to be an even greater market for U.S. beef and cattle. In anticipation of liberalization, Japanese companies invested in every stage of the US beef industry - from ranching to feedlot, to packaging plants. Of particular relevance is the purchase of Japanese transnationals that previously participated as licensed importers under the quota system. Through foreign direct investment, the U.S. beef industry is subject to changes related to Japan's global agro-food capital accumulation strategy.

To sum up, the first is the situation in Japan. Japanese consumers' acceptance of beef has continued to rise, while Japanese and domestic producers have lacked the ability to keep pace. Both factors have helped raise quotas on U.S. beef imports. Second the condition is subject to change in light of policy changes, world economic conditions and consumer attitudes. Third is the Japanese government played a huge role in beef imports, from import quotas to tariff systems to the development of the domestic beef industry. Government policies should be adjusted in line with the current situation of domestic producers and consumer demand.

## **6. Conclusion**

Looking back at the history of the trade war between Japan and the United States, we can see that the course is very tortuous. Agriculture, in particular, is closely connected with people's daily life. So it often takes the lead in trade conflicts. The struggle for agricultural trade liberalization reflects the tension between the protection of existing agricultural forms and national regulatory structures and the establishment of structures that promote the accumulation and globalization of the global agricultural food system.

The findings are listed below. First is about agriculture industry.

1. Promoting agriculture with a strong export-oriented industry is a wise choice. The development of Japanese agriculture was inseparable from industry. Japan's status as an industrial giant has often shaped the relationship between Japanese industry and agriculture,



with an increasing number of Japanese producers working off-farm. In 1984, 86.5 percent of rural households were part-time workers who split their work between farming and other jobs. The first is developing rural education and agricultural technology with strong capital and fiscal revenue accumulated by industry. Then it can provide mechanized equipment for agriculture. And the modern big industry has absorbed the surplus labor of agriculture in time. These provide excellent external conditions for the reorganization of agricultural production factors, the realization of agricultural mechanization, and the improvement of farmers' income.

2. The strong role of Japanese producer groups or cooperatives in local, county (state) and national governments was also highlighted. This strong voice of producers has led to many protectionist policies regarding international agricultural trade and to large subsidies for producers.

3. The historical sketch also documents changes in Japanese diet. It shows a direct link between increased economic activity and changes in dietary patterns. Specifically, these changes occurred in the reduction of starch consumption and increased protein intake. This shift or adaptation to more western cooking styles could play an important role in consumers' future food policy decisions.

4. Efforts to liberalize agricultural trade are central to the development of a new international division of labor in agriculture. Building a supply network for Japan's massive beef consumption has led to investments by Japanese multinationals in the United States. In international trade, a complex and highly differentiated global beef commodity chain is gradually formed.

5. The protection of domestic agriculture, first of all, in the aspect of border measures, export support and import protection policies should be adopted simultaneously. Under the pressure of substantial tariff reduction, new trade support policies should be established, such as the establishment of agricultural export support policies with export organization measures as the main measures. Secondly, in terms of domestic measures, a comprehensive domestic support policy system should be established. However, high subsidies for agriculture need to

be determined on a case-by-case basis, and excessive subsidies may reduce agricultural competitiveness.

Second is about agricultural bilateral trade:

1. If there is to be any freeing-up of the world food economy in the foreseeable future, much more concerted efforts in international forums such as the GATT will be necessary to help counter domestic political pressure for increases in agricultural protection.
2. Like Japan in the history, China faces foreign pressure to cut agricultural tariffs. After China joined the WTO, it agreed to cut tariffs on U.S. priority agricultural products by more than half under a 1999 bilateral agreement between the two countries. By 2004, the tariff on chilled beef will be cut from 45 percent to 12 percent, and on fresh/cold beef from 45 percent to 25 percent. In view of strategic export part of key agricultural products for differentiated development and the agricultural part adaptation to the change of national food consumption structure for the United States, more concern needs to be emphasized.
3. Trade protection needs to flexibly adjust according to the actual situation of agricultural situation. High subsidies for agriculture need to be determined on a case-by-case basis, since excessive subsidies may reduce agricultural competitiveness. In the short term, trade protection will improve terms of trade. In the long run, trade protection requires huge economic costs and suffers large losses.

## **7. References**

- Anderson, K. (1983). Growth of agricultural protection in east asia. *Food Policy*, 8(4), 327-336.
- Anderson, K. (2009). Distortions to agricultural incentives: A global perspective, 1955-2007  
The World Bank.
- Anderson, K. (2009). Distortions to agricultural incentives: A global perspective, 1955-2007  
The World Bank.
- Anderson, K., Kurzweil, M., Martin, W., Sandri, D., & Valenzuela, E. (2008). Measuring distortions to agricultural incentives, revisited. *World Trade Review*, 7(4), 675-704.

- Anderson, K., & Valenzuela, E. (2008). Estimates of global distortions to agricultural incentives, 1955 to 2007. World Bank, Washington, DC,
- Bale, M. D., & Greenshields, B. L. (1978). Japanese agricultural distortions and their welfare value. *American Journal of Agricultural Economics*, , 59-64.
- Bale, M. D., & Greenshields, B. L. (1978). Japanese agricultural distortions and their welfare value. *American Journal of Agricultural Economics*, , 59-64.
- Bown, C. P., & McCulloch, R. (2009). U.S.–Japan and U.S.–China trade conflict: Export growth, reciprocity, and the international trading system  
doi: <https://doi.org/10.1016/j.asieco.2009.09.009>
- Cooper, W. H. (2010). (2010). US-japan economic relations: Significance, prospects, and policy options. Paper presented at the
- Davis, C. L. (2004). International institutions and issue linkage: Building support for agricultural trade liberalization. *American Political Science Review*, 98(1), 153-169.
- Flath, D. (1998). A perspective on japanese trade policy and japan-US trade friction.
- Friedmann, H. (1993). The political economy of food: A global crisis. *New Left Review*, (197), 29-57.
- Hayami, Y., & Anderson, K. (1986). The political economy of agricultural protection: East asia in international perspective. London and Sydney: Allen and Unwin,
- Heldt, G. L. (1990). An analysis of japanese beef demand: Implications of the 1988 import quota removal agreement for the united states.
- Honma, M., & Hayami, Y. (1986). Structure of agricultural protection in industrial countries. *Journal of International Economics*, 20(1-2), 115-129.
- Hudec, R. E. (1993). Enforcing international trade law: The evolution of the modern GATT legal system MICHIE.
- Kym, A., Marianne, K., Will, M., Damiano, S., & Ernesto, V. (2008). Methodology for measuring distortions to agricultural incentives.
- McKinnon, R. I., & Ohno, K. (1997). Dollar and yen: Resolving economic conflict between the united states and japan MIT press.

- Noland, M. (1995). US - Japan trade friction and its dilemmas for US policy. *World Economy*, 18(2), 237-267.
- Ufkes, F. M. (1993). Trade liberalization, agro-food politics and the globalization of agriculture doi: [https://doi.org/10.1016/0962-6298\(93\)90054-B](https://doi.org/10.1016/0962-6298(93)90054-B)
- Wadsworth, B. H. (1988). The political economy of agricultural protection: East asia in an international perspective: Kym anderson and yujiro hayami. allen and Unwin/Australia-japan research centre, australian national university, London/Sydney/Boston, 185 pp. *Agricultural Economics*, 2(1), 89-94.
- Wagner, A. L. (1988). *Economic Analysis of Beef and Cattle Exports to Japan*,
- 小宮隆太郎. (1975). 現代日本経済研究 東京大学出版会.
- 小島彰. (1988). 日米経済摩擦と日本農業: 食糧生産の現状と前川レポート. 一橋論叢, 99(6), 825-841.
- 田代洋一. (2003). 農業問題入門 大月書店.

# Japan-US Trade Friction and its Practical Significance

## —Inspiration from Beef Friction in Agriculture Trade

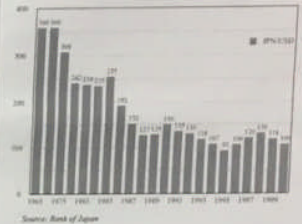
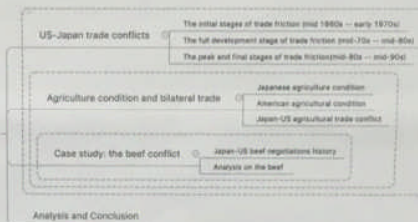
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1. Overview of the US-Japan trade conflicts
2. Japanese and American domestic agriculture condition and correlation
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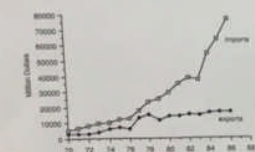
### Review of Japan-US Trade Conflict

All of the deficit came from non-agricultural trade. Agriculture was the only part that the U.S. had trade surplus with Japan.

### Japan and US agriculture conditions and bilateral trade

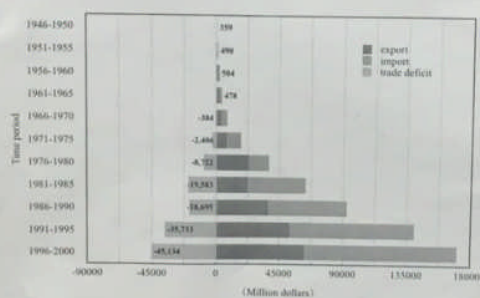


Source: U.S. Foreign Trade Statistics Report  
Figure 1. United States Agricultural Trade with Japan from 1970-1998



Source: U.S. Foreign Trade Statistics Report  
Figure 2. United States Non-Agricultural Trade with Japan from 1970-1998

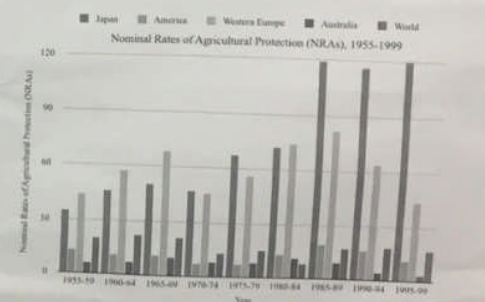
Figure 1. Postwar Japan's export, import and trade balance with the United States



Source: Bank of Japan, Economics, Statistics Japan

Table 1. Nominal Rates of Agricultural Protection (NRAs), Target Countries, 1955-1999

	1955-59	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99
Japan	35	46	50	47	67	72	118	116	120
America	13	11	11	7	7	13	19	16	11
Western Europe	44	37	68	46	56	74	82	64	44
Australia	6	7	10	8	8	11	9	4	3
World	20	22	21	13	15	8	17	18	17



Postwar Japan protected agriculture through various channels and formed a systematic agricultural protection policy. The basic of the policy was to establish a high degree of protection for agriculture under closed conditions and relied on tariff barriers to avoid the impact of foreign agricultural products on the domestic market. Through the methodology of estimating agricultural protections and incentives through nominal rates of assistance, we can quantify the openness of the Japanese agricultural markets.

1. The initial stages of trade friction (mid 1960s -- early 1970s)  
Conflict focus: Cotton textiles (1950s); Heavy chemical products (1960s) --- Labor or capital-intensive export commodities
2. The full development stage of trade friction (mid-70s -- mid-80s)  
Conflict focus: Individual goods: television, automobile etc. Japan response: Voluntary export restraints (VERs) Japanese direct investment in the U.S
3. The peak and final stages of trade friction (mid-80s -- mid-90s)  
Conflict focus: Macroeconomic policies: Exchange rate and economic structures Japan response: voluntary import expansion (VIEs) & appreciation of Japanese yen



### Case study: beef conflict

Year	Japan-US Beef Negotiations
1977	First negotiation started for quantity expansion
1978	Quantity agreement in FY1980, required beef 30 thousand tons
1980	Second negotiation request for quantity expansion
1984	Quantity agreement in FY1986, increased by 8,000 tons per year for beef
1986	Third negotiation withdrawing import quota, tariff lowering for the 1st time
1989	Final agreement: Beef 700 in FY 1991, 800 in FY 1992, 900 in FY 1993 in the case of a rapid increase in 20%

Year	Agricultural trade dispute between Japan and the United States
1978	Beef - Citrus negotiation settlement (An import frame expansion agreement)
1981	The U.S. demanded full liberalization of agricultural imports to Japan.
1982	In the Uruguay round of negotiations in Tokyo, negotiations on agricultural products began.
1983	The U.S. complained to GATT that Japan's import restrictions on the remaining 13 agricultural products violated free trade principles.
1984	An agreement about increasing exports of high-quality meat to an annual average of 6000 tons and oranges to 1100 tons was signed.
1987	GATT ruled that Japan's import restrictions on 10 agricultural products violated GATT's principles. Japan was forced to lift the import volume restrictions.
1988	Final settlement of beef and citrus negotiations (An import quota removal agreement)
1990	The import quota system for eight kinds of agricultural products was abolished.
1991	The import quota system for beef and citrus was abolished.

**Research on Japanese Agricultural Transformation:  
Challenges and Opportunities**

**YU Yi**

**Shanghai Jiao Tong University**

**1. Introduction**

Agriculture was the key development in the rise of sedentary human civilization, carrying close relation with national security and people's life. Japan has a long tradition of agriculture. However, the low productivity and competitiveness of Japanese agriculture compared with other major countries has been widely debated for decades.

Agriculture played a decisive role in Japanese economy for more than 1,000 years in spite of the disadvantageous geography and it occupied a vital position in the Japanese economy until the 1940s, although Japan had completed its industrialization through the Meiji Restoration. Along with the economic booming that began in the 1950s, the importance of agriculture in the national economy continued its rapid decline.

According to the data in 2013 from World Bank, agriculture accounts for approximately 1% of output of gross domestic production, similar with other major countries. While the employment by agriculture in Japan is 4% (the figure is lower than 2% in other major countries generally). That implies the low productivity and high production cost of agriculture in Japan because Japan has to spend more labor force which is precious to Japan to produce value in agricultural field. Besides, low productivity means that Japanese agricultural commodities are less competitive than foreign and Japan obliges to expend extra cost to ensure its food self-sufficiency.

According to statistic from OCED in 2017, Japan is the sixth largest producer of

rice, the main staple food of major Japanese, among its members. Japan has a large population to be fed on so it is of vital importance to keep the stable food supply. And that is the reason why Japan have to attach enough importance to the low agricultural productivity.

Japan has a series of conservative agricultural policies to protect domestic agriculture from external and internal competition. However, those policies weakened the productivity and competitiveness of Japanese agriculture even further and increased the barriers of transformation. Most of those policies have been abandoned for various reasons.

Japanese government has adopted new policies including promotion of large scale agriculture and introduction of technology since the early nineties while further measures are required as the situation changes. Japan's mountainous geography was identified as one of the most crucial handicaps of agricultural development. While increasing severe aging population and foreign competition brought new challenges for Japanese agriculture in a rut of routine. Further reform is essential to guarantee Japan's agricultural development and food security.

The purpose of this paper is to research about the history and current situation of Japanese agriculture. To investigate the original reasons of low productivity of Japanese agriculture and figure out its heading direction. To explore the coping ways of Japanese agriculture in new era and Japanese case could provide experience for other countries facing the similar situation including China.

The rest of this paper is organized as follows. The second chapter introduces the long history of Japanese agriculture, especially focusing on the post-war age to find out its distinctive feature including highly intensified agriculture with other major countries. The third chapter explains the disadvantages of Japanese agriculture in two sides. The fourth chapter accounts for the challenges of Japanese agriculture from three aspects,

the natural barriers, aging society and external competitions. The fifth chapter analyses the feasible measures and future opportunities of Japanese agriculture. The sixth chapter will be conclusion.

## **2. Literature Review**

There are already a number of documentaries focusing on the predicament of Japanese agriculture and feasible reforms.

Japan is a volcanic archipelago suffered from frequent natural disasters including hurricane, earthquake and tsunami. Besides, three quarters of its land are mountainous and forested therefore it is unsuitable for agricultural use. In fact, only 12.5% of Japanese land is used for agriculture. Despite all disadvantageous geography, Gowland and Semple (1912) argued that agriculture still furnished the chief productive power of the Japanese people from immemorial time and Japanese agricultural development was accompanied with land consolidation.

Moriguchi (1990) considered the contradiction between food supply and demand intensified by population growth from industrialization peaked in 1945, and the postwar lean years created a desire for self-sufficiency in rice production. Guaranteeing the balance between food supply and demand was the most urgent problem at that time. Besides, Ohkawa (1961) claimed that the per-head income gap between farmers and the working population in the nonagricultural sector was another problem required considering. Although the man-land ratio in Japan worsened continuously, starvation crisis was relieved thanks to land reform dominated by government and technical progress.

Although Japan has achieved self-sufficiency in major staple food, the productivity of Japanese agriculture is still lower than other major countries. Japan has a larger proportion of agricultural population, while agriculture creates no excess devotion to



gross domestic product. Taniuchi (2014) argued that low productivity in agriculture reflects the chronic lack of competition in the sector due to both tight government regulations to protect farmers from potential domestic competitors and high trade barriers to protect farmers from foreign competition. Intensive farming is an important feature of traditional Japanese agriculture, which means a farmer just cultivate acres of land. Kuroda (1987) stated that rapid economic growth in Japan during the postwar years resulted into a sizable labor transfer from agriculture to the nonagricultural sectors. The newest data provided by the Ministry of Agriculture, Forestry and Fisheries indicated that the transfer still exists. And increasing aging population intensifies the lack of agricultural work force. Japan protects its domestic agriculture with high tariff especially on rice. But the situation changed after the sign of Comprehensive and Progressive Agreement for Trans-Pacific Partnership. (CPTPP) The agreement required its member to take further measures for regional trade liberalization. That means Japan also need to reform its tariff policy about agriculture commodities, exposing its domestic agriculture to drastic foreign competition.

### **3. Brief of Japanese Agricultural History**

The agricultural production in Japan dates back to Jomon Period. And then agriculture played a dominant role in Japanese economy until the Meiji Restoration. Agriculture in ancient Japan mainly focused on cereal production for the natural limitation and religious impacts. Rice is the most important staple food of Japan. It was introduced from continent and cultivated in the late Jomon Period.

Agriculture in Japan was slow to develop until the Taika Reform. Japan reformed its agricultural system with experience learned from ancient China and introduced iron tool and irrigation techniques.

Japan achieved its modernization after the Meiji Restoration, transforming itself

into an advanced industrial country from a traditional agricultural country. However, the growth of the urban economy and urbanization weakened the agricultural production. Japan started its agricultural mechanization. During the World War II, Japanese government strengthened its control to agricultural production as a part of wartime economy. The policies were dissolved after World War II.

Japanese government implemented agricultural reform under the direction from US as occupying power. Cultivated land in landowners' hand were purchased by government and redistributed among ordinary farmers.

The rapid economic recovery and growth in Japan resulted into a considerable transfer of labor from agriculture to the nonagricultural sectors. The total number of workers gainfully employed in agriculture declined from 15.6 million in 1952 to 5.7 million in 1982.

In 1992, Ministry of Agriculture, Forestry and Fisheries framed New Policy emphasizing the upbringing of large scale farming, the development of sustainable agriculture and the improvement of rural infrastructure as reply to the shortage of labor force and severer international competition.

#### **4. Disadvantages of Japanese Agriculture**

The disadvantages of Japanese agriculture would be explained in two aspects.

##### **4.1 Low Productivity**

*Table 1 Structure of Output in Major Countries (percentage of gross domestic production)*

	Agriculture	Industry	(Manufacturing)	Services
Japan	1	29	21	68.8
United Kingdom	1	19	9	70.1

Germany	1	28	21	61.9
France	2	17	10	70.2
United States	1	19	12	77.0

Source: World Development Indicators, The World Bank

Notes: (i) The data are for 2017. (ii) “Agriculture” includes forestry, fishery, and livestock production. (iii) Besides manufacturing, “industry” includes mining, construction, and public utilities such as electricity.

*Table 2 Employment by Agriculture in Major Countries (percentage of total employment)*

	Agriculture
Japan	3.490
United Kingdom	1.111
Germany	1.285
France	2.874
United States	1.663

Source: World Development Indicators, The World Bank

Note: (i) The data are for 2017.

According to the data in 2017 from World Development Indicators, agriculture accounts for approximately 1% of output of gross domestic production, similar with other major countries.

While the employment by agriculture in Japan is approximately 3.5% (the figure is lower than other major countries generally). That implies the low productivity and high production cost of agriculture in Japan. Compared with other major countries, Japan’s agriculture is less productive since a large share of workers is engaged in agriculture while producing an equally small share of gross domestic production. Meaning that

Japan has to spend more labor force which is precious to Japan to product value in agricultural field than other major countries.

#### 4.2 Low Competitiveness

*Table 3 Japan Food Products Exports and Imports*

	Export (US\$ thousand)	Import (US\$ thousand)	Revealed Comparative Advantage
Food Production	3,616,421.84	25,642,809.17	0.14
Agricultural Raw Materials	2,628,735.44	10,907,575.38	

Source: Trade Stats from World Integrated Trade Solution

Note: (i) The data are for 2017.

According to the data from World Integrated Trade Solution, Japan exported food production for about 3.6 billion dollars while the number of import was 25.6 billion dollars. The same gap also emerged in agricultural raw materials trade. In fact, Japan is one of the biggest net incomers of food production. The considerable passive trade balance reflects the low competitiveness of Japanese agricultural products in global market.

The revealed comparative advantage is an index used in international economics for calculating the relative advantage or disadvantage of a certain country in a certain class of goods or services as evidenced by trade flows and assessing a country's export potential. If RCA is less than unity, the country is said to have a comparative disadvantage in the commodity or industry. While the revealed comparative advantage of Japanese food production was just 0.14.

One more thing is that Japan has a population of 140 million to feed so it is of vital

importance to keep the stable food supply. The large population need a mass of food supply which cannot simply rely on import. And that is the reason to the significance of low agricultural productivity.

## **5. Challenges of Japanese Agriculture**

### **5.1 Challenge from natural barriers**

Japan is an island country in East Asia. Japan is a composite volcanic archipelago consisting of about 6,852 islands. Japan's territory is approximately 380,000 km<sup>2</sup>. However, three quarters of it are mountainous and forested therefore it is unsuitable for agricultural use. In fact, only 12.5% of Japanese land is used for agriculture. Besides, this island country suffered from frequent natural disasters including hurricane, earthquake and tsunami. Subtropical monsoon climate brings sustainable rainfall to Japan, while the rainwater flows quickly into ocean because of the mountainous landform. The topography also divides cultivated area into many small plots of land.

The parochial cultivated area and dense population led to the traditional small-scale peasant economy accompanied with drastic land consolidation. Agricultural production was launched in family unit and a family only had a small quantity of plough as a rule. Japan implemented agriculture reform after World War II. Landowners' cultivated land were redistributed among farmers. While the fact of limited number of cultivated did not change.

The negative influences from natural disasters are alleviated with the development of agricultural techniques. Today's Japan has highest level of agricultural technology all over the world. Advanced irrigation system is able to make full use of plentiful rainfall brought by the subtropical monsoon climate. And efficient disaster forewarning system is able to prevent damage from hurricane or blizzard. While the small-scale agricultural production still restricts the promotion of large-scale farming vehicles.

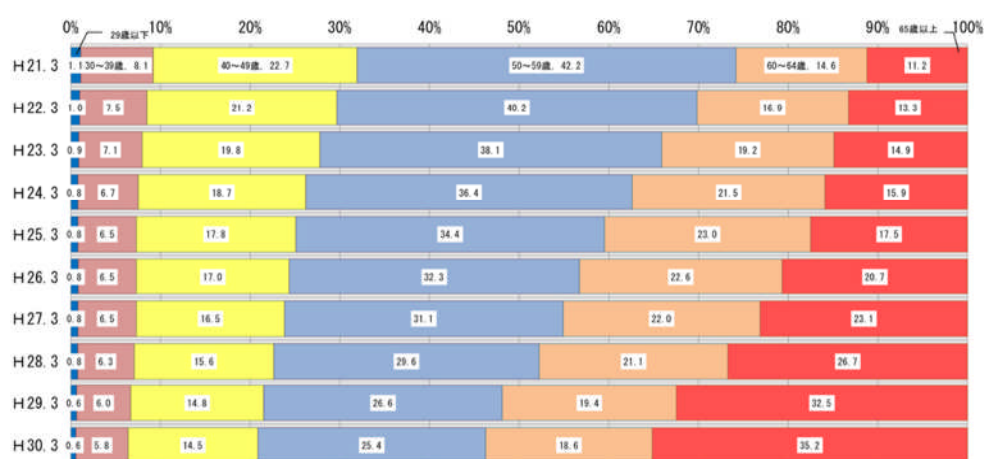
## 5.2 Challenge from Aging Society

Aging society, called as ‘koureikashakai’ in Japanese, has become a global issue these years not only take place in Japan. Aging society is defined that the proportion of the old over the 65 outweighs the original level. It has taken effect in the majority of developed countries and some developing countries like China.

Although being honored for average longevity, the cruel fact is that Japan is experiencing the severest aging society all over the world, disturbed by shortage of labor force and other troubles brought by aging population.

The aging of Japan outweighs all other countries. The number of Japanese people aged 65 years and above nearly quadrupled in the last forty years, to 33 million in 2014, accounting for 26% of Japan's population. In the same period, the number of children (aged 14 and younger) decreased from 24.3% of the population in 1975 to 12.8% in 2014. In addition, the situation in rural area, the main agricultural production area of Japan, might be worse.

*Figure 1 The Process of Age Structure of Certificated Farmers*



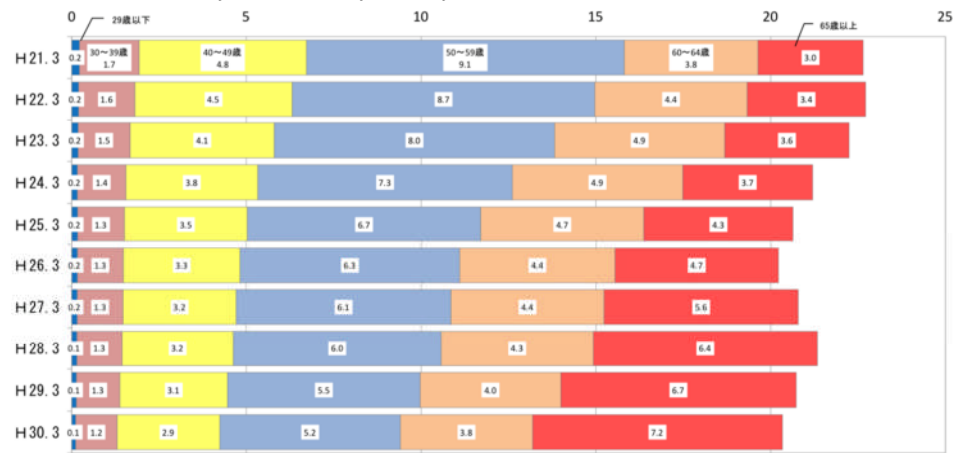
Source: Ministry of Agriculture, Forestry and Fisheries

Note: (i) The data are for 2009.3-2018.3.

During the past ten years, the number of certified farmer below 49 years old is declining while the number of certified farmer over 60 years old is increasing. Japanese

agriculture has experienced a rapid aging process. Besides, the portion of certified farmer over 65 years old has become the majority of certified farmer, arriving at 35%, even though they have reach the statutory retirement age. This level is higher than the portion of people over 65 years old in all population and the portion of employees over 65 years old in other industry. And the age structure of certified farmer is continuously worsening.

Figure 2 The Process of Number of Certificated Farmers

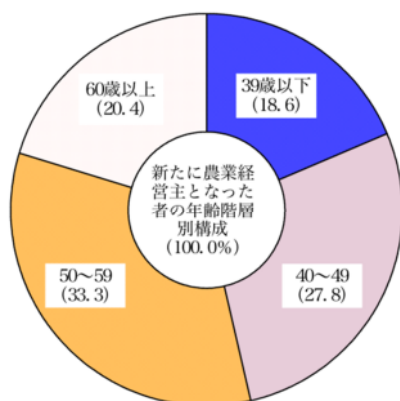


Source: Ministry of Agriculture, Forestry and Fisheries

Note: (i) The data are for 2009.3-2018.3.

Accompanied by the aging structure, the number of certified farmer appeared to have decreased in last decade. If no effective measures are taken, the trend would keep itself in predictable future. Another reason for the decreasing number is the increasing demand for labor force in other sectors. Shortage of labor force brought by the serious aging society has a significant impact not only on the agricultural sector.

As mentioned, Japanese agriculture needs more labor force than other major countries relatively. The continuous decreasing quantity of labor force will weaken the productivity and competitiveness of Japanese agriculture even further.



*Figure 3 The Age Structure of New Farmers during 2000-2005*

Source: Ministry of Agriculture, Forestry and Fisheries

Note: (i) The data are for 2005-2010

The majority of new labor force in agriculture were people over 40 years old. Which accounts for the rapid aging trend of age structure of Japanese agriculture. According to investigation from Ministry of Agriculture, Forestry and Fisheries, the main threshold for new farmers are difficulty to master agriculture and high cost for land and agricultural machine. Therefore, it is tough for young people without too much accumulation to enter to this field.

### **5.3 Challenge from External Competition**

Japan has maintained a high level of agricultural protection for a long time. In the agricultural negotiations of General Agreement on Tariffs and Trade Uruguay Round, Japan resisted tariffication and resorted to special treatment for rice, the sacrosanct product in Japanese agricultural politics, with a larger tariff quota than in the case of tariffication. Similar episode repeated again in the agricultural negotiations of the World Trade Organization Doha Round.



Figure 4 The Process of Food Self-Sufficiency Rates

		(単位: %)															
		昭 和	50	60	平 成	12	17	22	23	24	25	26	27	28			
		40年度			7年度									(標準)			
米	うち主食用	95	110	107	104	95	95	97	96	96	96	97	98	97			
	小売	28	4	14	7	11	14	9	11	12	12	13	15	12			
大麦・はだか麦	いも類	73	10	15	8	8	8	8	8	8	8	9	9	9			
	かんしょ	100	99	96	87	83	81	76	75	75	76	78	76	74			
品	ばれいしょ	100	100	100	100	99	93	93	93	93	93	94	94	94			
	豆類	100	99	95	83	78	77	71	70	71	71	73	71	69			
日	大豆	25	9	8	5	7	7	8	9	10	9	10	9	8			
	野菜	11	4	5	2	5	5	6	7	8	7	7	7	7			
別	果実	100	99	95	85	81	79	81	79	78	79	79	80	80			
	みかん	90	84	77	49	44	41	38	38	38	40	42	41	41			
自	りんご	109	102	106	102	94	103	95	105	103	103	104	100	100			
	肉類(鶏肉を除く)	102	100	97	62	59	52	58	52	55	55	56	59	60			
給	牛肉	90	77	81	57	52	54	56	54	55	55	55	54	53			
	豚肉	(42)	(16)	(13)	(5)	(7)	(8)	(7)	(8)	(8)	(8)	(9)	(9)	(8)			
率	鶏肉	95	81	72	39	34	43	42	40	42	41	42	40	38			
	魚介類	(84)	(43)	(28)	(11)	(9)	(12)	(11)	(10)	(11)	(11)	(12)	(12)	(11)			
牛・乳製品	うち食用	100	86	86	62	57	50	53	52	53	54	51	51	50			
	砂糖類	(31)	(12)	(9)	(7)	(6)	(6)	(6)	(6)	(6)	(6)	(7)	(7)	(7)			
油類	油類	97	97	92	69	64	67	68	66	66	66	67	66	65			
	きのこ類	(30)	(13)	(10)	(7)	(7)	(8)	(7)	(8)	(8)	(8)	(9)	(9)	(9)			
飼料用を含む穀物全体の自給率	うち食用	100	97	96	96	95	94	96	95	96	95	96	96	97			
	海産類	(31)	(13)	(10)	(10)	(11)	(11)	(10)	(11)	(11)	(11)	(13)	(13)	(13)			
主食用穀物自給率	砂糖類	86	81	85	72	68	68	67	65	65	64	63	62	62			
	油類	(63)	(44)	(43)	(32)	(30)	(29)	(28)	(28)	(27)	(27)	(27)	(27)	(27)			
供給熱量ベースの総合食料自給率	きのこ類	100	99	93	57	53	51	55	52	52	55	55	55	53			
	うち食用	110	100	86	59	53	57	62	58	57	60	60	59	56			
生産額ベースの総合食料自給率	海産類	88	86	74	68	63	65	70	62	68	69	67	70	69			
	砂糖類	31	15	33	31	29	34	26	26	28	29	31	33	28			
飼料自給率	油類	31	23	32	15	14	13	13	13	13	13	13	12	12			
	きのこ類	115	110	102	78	74	79	86	87	86	87	88	88	88			
飼料用を含む穀物全体の自給率		62	40	31	30	28	28	27	28	27	28	29	29	28			
主食用穀物自給率		80	69	69	65	60	61	59	59	59	59	60	61	59			
供給熱量ベースの総合食料自給率		73	54	53	43	40	40	39	39	39	39	39	39	38			
生産額ベースの総合食料自給率		86	83	82	74	71	69	69	67	67	65	64	66	68			
飼料自給率		55	34	27	26	26	25	25	26	26	26	27	28	27			

Source: Ministry of Agriculture, Forestry and Fisheries

Note: (i) The data are for 1965-2016

Japan's agricultural policy, including border protection, direct supports on farm product prices and subsidies on agricultural production inputs, focuses mainly on protecting domestic agriculture, especially the rice production.

Although Japan implemented resolute agricultural protections to keep its food security, the food self-sufficient rate (as shown in figure 4) has descended continuously. In fact, Japan is one of the largest net importers of agricultural productions all over the world. Farmers benefit from the agricultural protection, preventing from international competition and enjoying allowance from government. The protective policies were the result of Japanese agriculture's comparative disadvantage to overseas agriculture. However, they fail to develop domestic agriculture. In contrast, they weaken the ability of Japanese agriculture to participate into the global competition. The agricultural protection results into high food price. Ordinary customers have to pay for it.

One of the most important reasons for agricultural protection is to guarantee farmer's income. Post-war Japan used to experience a transfer of labor force from agriculture to the nonagricultural sectors. Japanese government decided to keep farmers' income high to persuade them to stay in field. In an attempt to prevent the rural-urban income gap from widening, the Agricultural Basic Law, a national charter for agriculture, was enacted in 1961. The law declared that it was the government's responsibility to raise agricultural productivity and thereby close the gap in income and welfare between farm and nonfarm people. Besides, the farming community is a attractive voting group to be desired by politicians. That also explained the government's motivation of agriculture protection.

Japan has been on the way of reducing agricultural protection. In the process of agricultural negotiation in GATT and WTO, Japan has proposed prohibiting a certain amount of agricultural protection including a series of import restrictions and special treatment of rice. The Food Control Law of 1942 and the Agricultural Basic Law of 1961 was two institutional bases of Japanese agricultural policies. While those institutions have lost their power. Japan joined CPTPP, an agreement aiming to liberalize and facilitate trade and investment in the Asia-Pacific region in 2018, meaning that more protective policies would be readjusted. Rice acreage reduction policy was implemented in 1970s to control the rice production, avoiding drastic fluctuation of rice price originally. It also abandoned in 2018 to reply the agreement. It is a principle that participants in the CPTPP agreement should make effort to eliminate the tariffs on agricultural products. Without excessive agricultural protection, Japanese agriculture has to be exposed to international competition now.

A throes of losing protection for Japanese agriculture is predictable. While the chance of development is accompanied with it. Efforts to improve the productivity and competitiveness of the Japanese agricultural sector make no use so long as the sector is

under the excessive protection.

## **6. Opportunities of Japanese Agriculture**

Japanese agriculture is at a critical turning point, facing the puzzling troubles especially from shortage of labor force and passive exposure to international competition. Although Japanese government has attempted to protect and develop its agriculture for all time, there is an increasing number of new challenges. While some feasible measures can help Japanese agriculture achieve the transformation.

### **6.1 Large-scale Agriculture**

Large-scale agriculture, as a type of intensive farming, has higher levels of input and output per cubic unit of agricultural land area.

As mentioned in section 3, Japanese government started its attempt to promote the large scale agriculture in the end of last century. The New Policy of 1992 framed by Ministry of Agriculture, Forestry and Fisheries mainly focused on the upbringing of large scale agriculture. However, the majority of Japan's farmland remains operated as inefficient small scale farms.

Although the agricultural productivity and profitability of small scale agriculture is much lower than large scale agriculture, the small scale farmers are still able to expect a lucrative income even exceeding that of urban workers. On the one hand, government offers sizable subsidy as the excessive agricultural protection. On the other hand, nowadays many farmers in Japan are workers enjoying a stable non-agriculture salary at the same time. As a matter of fact, a considerable number of people operate own farmland as a side business for advantage of farmland regulation. As a result, they lose the motivation to consolidation. With the advanced agricultural techniques, a small scale farmer can spend merely a small quantity of energy to tend a plot.

From this point of view, shortage of labor force provides an opportunity to

consolidate the tiny plots owned by different farmers. Although the quantity of Japanese cultivated land has no remarkable change, the decreasing number of labor force has a positive impact on the people-land ratio. Meanwhile, the traditional small scale farming is difficult to continue. Small scale farming needs higher level of input of labor force in per unit of cultivated land. While the Japanese society cannot provide enough labor force any longer. Without effective action to the decreasing number of labor force, there will be an increasing number of idle farm land.

Compared with other major developed countries including the United States and France with vast and fertile plain, it is more difficult to introduce the large scale farming and agricultural machines in traditional thoughts. While those concerns can be dispelled with new agricultural technology.

As opposed to traditional family-owned farm, the consolidation can be expected to be completed by new fashioned agricultural corporation. The corporation owns land and employs workers. The threshold for young people to enter to agriculture will be lower because they can accept professional training with no financial pressure on land and equipment.

To assist to the transformation, Japanese government has to commit itself to a more open and dynamic land markets. The barriers to land transaction and consolidation should be eliminated. Moderate support policy to large scale farming is acceptable on the early stage.

## **6.2 Precision Agriculture**

Precision agriculture is a farming management concept. It tries to optimizing returns on inputs while economize the resources with observing, measuring and responding to specific variability of plants.

Human civilization has experienced two waves of modern agricultural revolutions. The first one was the agriculture mechanization in early 20<sup>th</sup> century. The second one

was the utilization of new methods of genetic modification in late 20<sup>th</sup> century. Precision agriculture is regarded as a pivotal component of the third wave of modern agricultural revolution happening right now.

The main element of precision agriculture is to observe the spatial variability in specific environment.

Japanese agriculture has a tradition of “precision agriculture”. Of the traditional Japanese agriculture, each farmer only owns and cultivate limited farmland. The very small size of fields allows them to vary treatment manually. However, it takes too much labor force which Japan cannot afford any longer.

In other major countries, precision agriculture is applied to accommodate the large scale farming. After the two waves of modern agriculture revolution with the enlargement of farm scale. Each farmer in developed countries has to cultivated a large piece of field. Although the majority of work has been done by the large scale farming vehicles owing to the mechanization, there is an increasingly difficulty to give consideration to with-in field variability. The purpose of precision agriculture is to respond to the variability on large scale farming with the emergence and convergence of several new technologies including the Global Positioning System (GPS), geographic information system (GIS), miniaturized computer components, automatic control, in-field and remote sensing, mobile computing, advanced information processing, and telecommunications. Agricultural industry is now capable of gathering more comprehensive data on production variability in both space and time.

Precision agriculture can relieve the shortage of labor force in agriculture greatly. The agricultural productivity and profitability also benefit from the precision agriculture. The preservation of resources also results in sustainable agriculture.

Japan has enough motivation to introduce the precision agriculture considering its trend of labor force in agricultural sector. And Japan’s technology accumulation in

robots and information techniques provides the feasibility to promote the precision agriculture.

One potential concern of promotion of precision agriculture in Japan is the age structure of labor force in agricultural sector in Japan. As mentioned, the majority of Japanese labor force in agricultural sector is over 50 years old. It is more difficult for elderly to study new things especially the new high technology used in precision agriculture than young people. Another key problem is the process of Japan's transformation to large scale farming. If Japan succeed in the transformation, the promotion of precision agriculture would be more efficiency.

### **6.3 Agritourism**

Agritourism is a form of niche tourism that is considered a growth industry in many parts of the world. Agritourism tries attract visitors to a farm or ranch usually in rural area with involvement of agricultural operation. Agritourism has broad definition and covers a wide range of various activities including picking crops, feeding animals and buying produce direct from a farm stand.

The agritourism can help to tighten the connection between rural and urban areas. Farmers can raise revenue through tourism while keeping their job. Japanese government's purpose to reduce the gap between agricultural labor and non-agricultural labor also benefits from the agritourism.

One more important thing is that agritourism is less affected by the increasingly severe external agricultural competition compared with traditional system of agricultural management. As mentioned, Japanese government is on its way to eliminate the excessive agricultural protection gradually, meaning that Japanese agriculture has to make preparation for the coming international competition. Agritourism can assist them adapt to the new situation at the beginning.

Agritourism is a cross-integrated industry involved agriculture, entertainment,

ecology and tourism, requiring a high level of comprehensive cooperation in multi-field. On the one hand, tourism is an advantage industry of today's Japan. Japan has rich experience in operating the tourism. On the other hand, Japan has an unique association called Agricultural Cooperative, which can provide guidance for local farmers and gather them together to exert a synergy effect. Therefore, Japanese agriculture is capable to offer tourism products in high quality.

## **7. Conclusion**

In this research, the history of Japanese agriculture, the current problem and challenges would occur in not distant future, the feasible measures and seizable opportunities are discussed. Through this research, we can see an overview of Japanese agriculture.

Despite of the limited natural condition, Japan has a long history of developing agriculture and modifying nature. Japan has experienced several reforms in agricultural sector. Today, Japanese agriculture is at a critical turning point once again.

On the one hand, there are two main extremely urgent challenges of Japanese agriculture besides primary natural barriers. One is the shortage and aging structure of labor force in agricultural sector. The major reason for the shortage and aging structure is aging society. A sizable transfer of labor force from agriculture to the nonagricultural sectors and high entry threshold of agricultural industry also account for it. Another is the increasing severer external competition. Japanese agricultural has been protected by government for too long time. Japanese government makes use of high tariffs and import limitation to prevent its agriculture from international competition. At the same time, strict control of agricultural production and considerate allowance are used to eliminate the income difference of domestic citizens in agricultural sector and non-agricultural sector. Although Japanese government attempted to ensure the revenues

from agriculture are approximately the same as from non-agricultural sectors, its policies made a dent in the productivity and competitiveness of Japanese agriculture actually. With the process of participation in CPTPP agreement, previous protective policies have to be abandoned. The disadvantaged Japanese agriculture is going to be exposed to the drastic global competition.

On the other hand, there is an opportunity for Japanese agriculture to improve. Shortage of labor force provides an opportunity to consolidate the tiny plots owned by different farmers in traditional management system. Losing the protection of policies gives Japanese agriculture motivation to introduce new management philosophy including the precision agriculture and agritourism. If Japanese agriculture can achieve the transformation, its productivity would be liberated and developed greatly. The competitiveness in global market would also also improved.

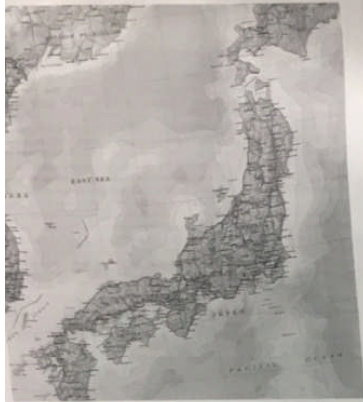
Overall, Japanese agriculture is at an extremely crucial turning point nowadays. In spite of hard and tough situation, Japanese agriculture can arrive at a bright future by seizing the precious opportunities. Japan owns almost all necessity to success so long as it possesses enough decision.

## **Reference**

- Godo, Y., & Takahashi, D. (2012, August). Evaluation of Japanese agricultural policy reforms under the WTO agreement on agriculture. In *Poster Prepared for Presentation at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguaçu, Brazil*.
- Gowland, W., Lyde, L. W., & Semple, E. C. (1912). Influence of Geographical Conditions upon Japanese Agriculture: Discussion. *The Geographical Journal*, 40(6), 603-607.



- Honma, M. (1993). Japan's Agricultural Policy and Protection Growth. In *Trade and Protectionism, NBER-EASE Volume 2* (pp. 95-114). University of Chicago Press.
- Kaner, S., & Yano, K. (2015). Early agriculture in Japan. In G. Barker & C. Goucher (Eds.), *The Cambridge World History* (The Cambridge World History, pp. 353-386). Cambridge: Cambridge University Press. doi:10.1017/CBO9780511978807.015
- Kuroda, Y. (1987). The production structure and demand for labor in postwar Japanese agriculture, 1952–82. *American Journal of Agricultural Economics*, 69(2), 328-337.
- Moriguchi, C. (1990). Rice and Melons: Japanese Agriculture in the Showa Era. *Daedalus*, 131-140.
- Ohkawa, K. (1961). Significant changes in Japanese Agriculture since 1945. *Journal of Farm Economics*, 43(5), 1103-1108.
- Organisation for Economic Co-operation and Development. (2009). *Evaluation of Agricultural Policy Reforms in Japan*. OECD Publishing.
- Taniuchi, M. (2014). *The Japanese Economy: Then, Now, and Beyond*. Cengage Learning Asia Pte Limited
- Yamashita, K. (2015). Japanese agricultural trade policy and sustainable development. *Agriculture*, 56, 1-42.
- Zhang, N., Wang, M., & Wang, N. (2002). Precision agriculture—a worldwide overview. *Computers and electronics in agriculture*, 36(2-3), 113-132.
- 中島征夫. (1993). 地域農業をめぐる諸問題と新政策. *農林業問題研究*, 29(4), 143-149.



### JAPAN NATURAL CONDITION

A Mountainous Subtropical Hurricane  
Composite And Monsoon Earthquake  
Volcanic Forested Climate Tsunami  
Archipelago

## HISTORY OF JAPANESE AGRICULTURE



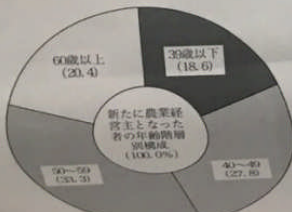
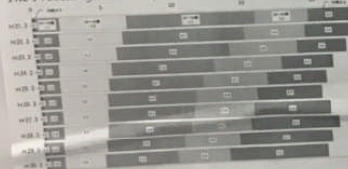
Land in Japan has distinctive characteristics which make it suitable for organic produce. Because of this, agriculture has been the basis of most economic activity over the last 2,000 years. Historically, Japan was predominantly agricultural, but with the remarkably rapid growth of its economy after the Second World War, the country has been transformed into a heavily industrialized society.

JOMON PERIOD  
TAIKA REFORM  
MEIJI RESTORATION  
POST-WAR REFORM

### The Process of Age Structure of Certified Farmers



### The Process of Number of Certified Farmers



During the past ten years, the number of certified farmer has been increasing. Japanese agriculture has experienced a rapid aging process.

Accompanied by the aging structure, the number of certified farmer appeared to have decreased in last decade.

The majority of new labor force in agriculture were people over 40 years old. That accounts for the rapid aging trend of age structure of Japanese agriculture.

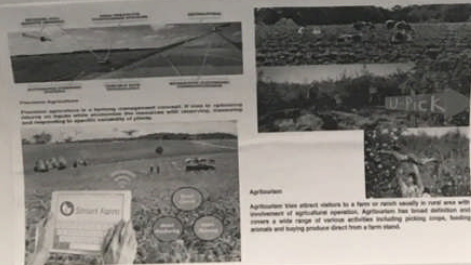


## External Competition

Japan has taken a defensive position in previous rounds of the General Agreement on Tariffs and Trade (GATT) or the World Trade Organization (WTO). In the agricultural negotiations of the GATT Uruguay Round, Japan resisted tariffication (conversion from non-tariff measures such as import quantity restriction to a tariff-only system with a tariff on free import) and resorted to special treatment for rice, a sensitive product in Japanese agricultural politics, with a larger tariff quota than in the case of tariffication.

In the agricultural negotiations of the WTO Doha Round, it strongly resisted 100% tariff cap and made a great effort to treat as many products as possible as what were called "sensitive products", which were exempt from deeper tariff cuts in exchange for increases in the size of tariff quotas.

In relation to the Trans-Pacific Partnership (TPP) negotiations, the agricultural ministers of the Japanese Diet have adopted resolutions urging the government to leave the negotiating table if it cannot have Japan's rice, wheat, beef and pork, dairy products and sugar exempted from the tariff elimination in the TPP agreement. The value of agricultural production protected by high tariffs is around 4 trillion yen, only a twelfth of the Japanese automobile industry, and yet it is agriculture that is dominating Japan's TPP negotiations.



## LOW PRODUCTIVITY

Table 1 Structures of Output in Major Countries

	Agriculture	Industry	Service
Japan	1	38	61
United States	1	28	71
Germany	2	33	65
France	1	20	79
United Kingdom	1	20	79

Table 2 Employment by Sector in Major Countries

	Agriculture	Industry	Service
Japan	1	38	61
United States	1	28	71
Germany	2	33	65
France	1	20	79
United Kingdom	1	20	79

	2000	2005	2010
Japan (100%)	100.0	100.0	100.0
United States (100%)	1.0	1.0	1.0
Germany (100%)	2.0	2.0	2.0
France (100%)	1.0	1.0	1.0
United Kingdom (100%)	1.0	1.0	1.0

## LOW COMPETITIVENESS

## Large-Scale Agriculture

Large-scale agriculture, as a type of intensive farming, has higher levels of input and output per cubic unit of agricultural land area.

Improving Productivity and Competitiveness  
Relieving Shortage of Labor Force  
Promoting Large-Scale Farming Vehicles

Additional agriculture is a very necessary  
because of the aging trend of the labor force.

Selecting the appropriate agricultural  
machines is a very important.

# **Analysis of the Common Interests of Japan and Countries of Central Asia from the perspective of Belt and Road Initiative**

**ZHAMILYA Tyulemissova**

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## **Introduction**

With the collapse of the Soviet Union in 1991, Central Asia and Japan established diplomatic relations, and during the following two decades the partnership began to increase. (Mangi 2011)

The main reason why Central Asia has drawn considerable attention of Japanese policy-makers is that of the region's economic and geopolitical importance. Tokyo recognized Central Asia as one budding economic zone with multiple opportunities for investment in different sectors.

With the declaration of the Central Asia Plus Japan Dialogue in 2004, both regions showed common views on fundamental principles and values of peace, stability and democracy. This dialogue established a solid foundation for future cooperation and mutual development. With the activation of Japan's foreign policies during the second administration of Prime Minister Abe at the end of 2012, the relation between Central Asia and Japan was expected to make some grand progress. (Kim, & Tomsk, 2017) However, with the announcement of the Silk Road Economic Belt in Kazakhstan in September 2013, Central Asia and China increased cooperation on international projects. While Japan, at the same time, remained skeptical on the matter of attending Belt One Road Initiative (BRI) due to the concern of the increase of China's influence on the participating countries of BRI. This move drastically reduced the cooperation between two regions as they shared different opinions on the Belt and Road initiative. Now, as BRI entered their 5th year and showed its credibility, Japan decided to voice their

support for the project and showed their interest in participating. With this move, CA and Japan's relations are expected to come back to the previous norms and even achieve higher goals. Now with Japan's potential engagement in One Belt One Road initiative, BRI can serve as a great platform to help Japan and Central Asian partnership enter a new era and thus benefit both regions.

The paper attempts to study region relations of Central Asia and Japan and their potential way of cooperating under the Belt and Road initiative. In consideration of Russia's lasting influence in Central Asia and the current development of BRI, the research wants to probe the future for Japan-Central Asia relationship and the feasible way for future cooperation. The questions that are to be addressed in the research are as follow:

Why is the cooperation between Japan and Central Asian Countries significant for both parts and how can it be optimized under the current circumstances?

- What are the obstructions that impede the development of Japan-Central Asia relationship?
- What kind of new ways of cooperation can be established under the Belt & Road Initiative?

The research explores in depth the history, current situation and the possible future of Japan-Central Asia cooperation by collecting detailed information using a variety of data collection procedures on a sustainable period. The primary data collection from being used is the qualitative documents data collection such as newspapers, public policies and journals.

This research is structured in five parts. First, it will conceptualize the history of Japan and CA's relations. The second part will describe what Japan and CA have in common and what are the expectations of their cooperation. The fourth part will discuss the influencing factors in the CA region including Russia as well as China's BRI project. In the fifth part, the author will discuss the engagement of Japan and CA in BRI and how can they cooperate under this framework. It will not

go into the details of the SCO and Eurasian Economic Community initiatives, as they have already been discussed extensively elsewhere.

### **One Belt One Road Initiative**

President Xi Jinping first announced the idea of a Silk Road Economic Belt during his visit to Kazakhstan in September 2013. Then in October, President Xi announced the 21st-Century Maritime Silk Road in Indonesia. These two components, the land-based “Silk Road Economic Belt” (SREB) and oceangoing “Maritime Silk Road” (MSR), comprise the One Belt One Road (BRI) Initiative (Du 2016). The land-based One Belt connects 65 countries across Central Asia, Middle East, Russia and Europe. While oceangoing One Road links the South China Sea to the Indian Ocean, East Africa, the Red Sea and the Mediterranean ((Sarker et al. 2018). Both routes were aimed to create the amalgam of projects (roads, railroads and ports) to boost the regional economy and connectivity. Covering two-thirds of the global population and three-fourths of the energy resources, One Belt One Road is considered as a mega project that aspires to put Asia, Middle East, Europe and Africa on a new peak of growth (Sarker et al. 2018). While many Asian countries like Bangladesh, Brunei, Singapore, Sri Lanka, Cambodia, Myanmar, Maldives, Nepal, Sudan and Pakistan showed their eagerness in the participation, scholars and ministries of India, Japan and US showed their concerns due to the increase of China’s influence on the BRI countries. China denied these kinds of allegations as they claim the nature of BRI initiative being the interdependence of countries and cooperation.

The Peripheral Diplomacy Work Conference held in October 2013 aimed to set up China’s peripheral diplomatic work in the next five to ten years. In November 2014, The Chinese government created new Silk Road fund (40\$) at the Asia-Pacific Economic Cooperation (APEC) meeting held in Beijing. The concept of One Belt One Road was officially announced by the National Development and

Reform Commission, the Ministry of Foreign Affairs, and the Ministry of Commerce in March 2015.

### **Definitions and Borders of Central Asia**

Central Asia (CA) was first defined as a distinct region of the world by the German geographer Alexander von Humboldt in the mid-nineteenth century. (Barisitz 2017) At the end of the nineteenth century, another geographer Ferdinand von Richthofen provided a physical geographic conception of CA including territories surrounding the Caspian Sea, as well as Turanian Plain to the south and the Kazakh Uplands (Saryarka) to the north. Apart from Richthofen's definition of CA, there are also politico-cultural definitions. The most often used definition narrows the territory of CA to the five former Soviet republics of Kazakhstan, Kyrgyzstan (the Kyrgyz Republic), Tajikistan, Turkmenistan (Turkmenia), and Uzbekistan, which are now independent nations. (Machatschek 1928) In this research, the author adopted the Machatschek's definition, referring to CA as a joint territory of five "Stans" (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan). This territorial frame was chosen specifically to coordinate with the Central Asian countries that participate in the "Central Asia Plus Japan Dialogue," since extending the definition to include more regions will more likely go beyond researcher's capacity and will obscure the goal of this research.

### **History of Japan-CA relations**

Post-Soviet Socialist Republics Union (USSR) Central Asia and Japan's relation remain a rather poorly studied aspect of the modern history of international relations of Central Asia. Despite the seemingly low amount of interactions between two regions right now, the relations between Japan and CA was regarded as promising cooperation at one time which by now should have already become fruitful with satisfying results. In order to understand the current

situation of Japan and CA, one must understand its past. Japan was one of the first countries who recognized CA republic's independence in 1991 and has shown a great interest in the cooperation. They aided the region in various aspects like education, economic and technological assistance and also the investment in infrastructure which was done in the form of Official Development Assistance (ODA). Total assistance between then and Fiscal Year 2005 has come to some 280 billion yen (approximately 2.5 billion US dollars). Japanese ODA comprises roughly 30% of all the ODA given to Central Asia by the member countries of the Development Assistance Committee of the Organization for Economic Co-operation and Development (OECD). The amount of ODA provided continued to grow with the time. Economic relations have also progressed significantly, and the total trade figures of 2007 stand at seven times what they were 15 years ago. (Yagi, 2007)

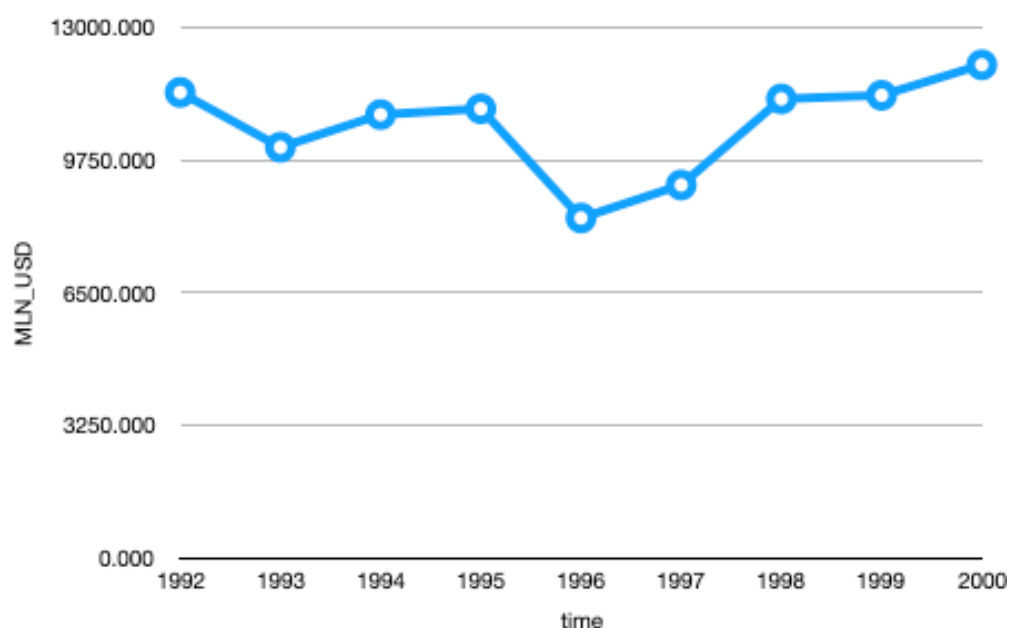
In July 1997, the Prime Minister of Japan, R. Hashimoto, announced Tokyo's intention to begin active "Eurasian diplomacy," envisaging the expansion of ties with Russia, China and the "Silk Road region" that encompasses Central Asian states.

Moreover, the Caucasus. Speaking about the "Silk Road region," Hashimoto singled out three directions of Japanese policy: "Political dialogue for deepening trust and mutual understanding," "Economic cooperation and cooperation in the development of natural resources" and "Achieving peace in the region through non-proliferation of nuclear weapons, democratization and stabilization." (MOFA: Press Conference by the Press Secretary July 25, 1997 n.d.)

In practice, however, the emergence of the concept of "Eurasian diplomacy," whose implementation efforts focused primarily on attempts to "unfreeze" relations with Russia, has not been transformed into activation of Tokyo's policy in the Central Asian direction. As Japanese diplomats themselves later acknowledged, "Eurasian diplomacy," about Central Asia and the South Caucasus,

"had no concrete content" and was nothing more than "an expression of intent to indicate the presence of Japan in the former Soviet republics."

In the 1990s, Japan provided significant economic assistance to the countries of Central Asia. 1992-2000 its volume amounted to 1.007 billion dollars; of this amount, Uzbekistan received 396 million, Kazakhstan - 306 million, Kyrgyzstan - 290 million (Official development assistance (ODA) - Distribution of net ODA - OECD Data n.d.). Kazakhstan, Kyrgyzstan and Uzbekistan were provided preferential loans for the modernization of transport infrastructure. Tokyo contributed to the inclusion of the Organization of Economic Cooperation and Development of Central Asian States among the developing countries and the accession of Kazakhstan, Kyrgyzstan and Uzbekistan to the Asian Development Bank. At the same time, economic assistance was not considered by Japan as a tool of influence in the region. Tokyo showed generosity towards the countries of Central Asia primarily because the allocation of funds did not entail a "political burden," while the provision of large-scale assistance from Russia, to which Japan was called upon by the partners in the G7, was politically unacceptable from the Japanese perspective.



*Fig.1. Distribution of net ODA.Japan.*



In 2004, Tokyo offered the Central Asian countries to complement bilateral relations with a multilateral format, called the “Central Asia plus Japan Dialogue.” The initiative of Japan received the support of all states of the region, except Turkmenistan, and in August 2004, after consultations held by the Minister of Foreign Affairs of Japan, Y. Kawaguchi in the capitals of the countries of the region, in Astana, the first meeting of the new forum at the level of heads of foreign affairs agencies took place. According to the concept of Japanese diplomacy, the multilateral dialogue was intended primarily to promote the development of intraregional cooperation in Central Asia according to the model implemented by the countries of South-East Asia(MOFA: Policy Speech by Ms. Yoriko Kawaguchi, Minister for Foreign Affairs of Japan At the University of World Economy and Diplomacy, Tashkent, Uzbekistan on August 26, 2004 “Adding a New Dimension: Central Asia plus Japan” n.d.); at the same time, Tokyo underlined that Japan does not pursue “selfish goals” in the region and focuses on long-term, 10–20 years achievable over the long term, results.

The dialogue “Central Asia plus Japan” was held during a series of meetings of senior officials of the ministries of foreign affairs of the participating countries and the second ministerial meeting held in Tokyo in June 2006. The outcome of the Tokyo meeting was the adoption of a Plan of Action The parties will develop a political dialogue (in particular, they will consider the possibility of holding a summit), contribute to the expansion of economic cooperation, establish contacts between expert communities (“intellectual dialogue”) and their educational exchange. The main section of the document was on Japan, intraregional cooperation in a wide range of areas, including in the fight against terrorism and drug trafficking, social, trade and investment, water and energy, transport and environmental issues, prevention of natural disasters(MOFA: “Central Asia plus Japan” Dialogue: Action Plan n.d.). The Japanese side emphasized that Tokyo intends to promote the involvement of Afghanistan and Pakistan in regional

cooperation, thus expressing its solidarity with the American strategy of accelerated development of relations between the countries of Central and South Asia(MOFA: Speech by Mr. Taro Aso, Minister for Foreign Affairs at the Japan National Press Club “Central Asia as a Corridor of Peace and Stability” n.d.). On the whole, Japanese diplomacy managed to put on a reliable basis a regular political dialogue with the Central Asian countries and "earn" a favourable reputation in the region, confirmed by sociological research results. Experts recognize Japan as a country that successfully projects "soft power" to Central Asia through the implementation of projects of educational, scientific, cultural cooperation with the countries of the region, cooperation in the fields of ecology, rational use of water resources, and the development of agriculture. At the same time, Japan has long deliberately pursued a line on "depoliticizing" relations with the countries of Central Asia, strategically remaining in the shadow of American diplomacy. The transition to a more active foreign policy in Central Asia, which began in recent years as part of a general revision of Tokyo's foreign policy, will require Japan's wide use of economic and traditional-political instruments of influence, the creation of alliances and coalitions. The most probable is the "projection" of a model of trilateral interaction implemented by Japan, the United States and India in Southeast Asia to Central Asia.

### **Mutual Interests of two regions**

Japan has shown its interests in the cooperation with CA's republics since the very start of their independence, to which CA responded gladly. The firm foundation for two regions is not so superficial and obvious which might take some observation to identify. However, we do have explicit declarations from the side of Japan about the reasons that support their considerable investments in CA. Japan is a country that relies heavily on world peace and stability due to their military status quo. With the collapse of the major world power --- USSR, Japan

took the responsibility to support and assist post USSR countries not only due to the humanity and altruism but also to rebuilt stability and thus prevent the possible construction of variable factors in the world. CA, on the other hand, was in need of external support in order to complete their independent and maintain internal stability. CA also share the same desire for a steady world condition and the belief of always choosing peace over chaos. These similar traits can be shown, for instance, through the action of disarmament of nuclear power done by Kazakhstan in 1995 which intention is identical to Japan's military disarmament. Japan, like other countries, has shown a fair amount of interests in the energy industry of CA which initially was not limited to gas and oil but also included natural resources like uranium. Japan was world third-largest nuclear-power nation regarding the number of civilian plants in operation. However, after the Fukushima incident, the nuclear plants in Japan were partly abandoned by the government, and it is unlikely that Japan will reopen them in a large number any time soon. However, it also made Japan more reliable on oils and coal, which import is also possible to be from CA republics. What Central Asia is seeking in Japan is a potential development model which can be used for the development for their regions. The fact that Japan is sticking to the guidance of keeping CA nations on the leading position in their relations (which was established by Japanese Foreign Minister Mr.Taro Aso) reassures CA republics while simultaneously increases the soft power of Japan in the region. This guidance also makes the Japan-CA relations significant and precious for CA republics since it provides the control and ability to navigate the relations to the CA, recognizing their power and their voices. It is also important to note that Japan and CA republic have no historical baggage making giving their relations a clean and firm platform while the relations of both region with their neighbouring countries are not relatively smooth. CA and Japan share a mutual affinity and are more than glad to cooperate for the prosperous of their own countries as well as the

prosperous and stability of the whole world.

### **Current situation**

Since 2015, a new period of the revitalization of Japanese policy in Central Asia began. Concern over the expansion of the Chinese presence in Central Asia, intensified after Beijing launched the Silk Road Economic Belt initiative, pushed Japan to try to balance Chinese economic expansion in the region. In October 2015, the Japanese Prime Minister visited all five countries of the region for the first time. During the visit, S. Abe made promises of significant Japanese investment in the countries of Central Asia (an amount of \$ 25 billion was named). In particular, plans for the construction of nuclear power plants and the extraction of rare-earth metals in Kazakhstan, gas production and the development of the automotive industry in Uzbekistan, investments in the Galkynysh Turkmen field, previously considered the Chinese “patrimony”, the reconstruction of the Manas airport in Kyrgyzstan (What Did Abe Accomplish in Central Asia? | The Diplomat n.d.). Negotiations between the Japanese-Turkish Consortium and the Government of Turkmenistan on the construction of a plant to clean the gas produced at Galkynysh began in February 2016. (Consortium offers up to \$20bn for Turkmenistan gas project - Nikkei Asian Review n.d.)

Japan continues to generously "feed" the countries of the region with economic assistance. The total amount of official development assistance provided by Tokyo to the Central Asian states amounted to 2001–2015. Over \$ 1.6 billion. Uzbekistan remains the main aid recipient (\$ 609 million in 2001–2015) and Kazakhstan (\$ 444 million); Kyrgyzstan, Tajikistan, and Turkmenistan received \$ 295, 236, and \$ 27 million, respectively. (Country Programmable Aid (CPA) n.d.) Funds allocated by Japan are spent mainly on projects in the areas of health care, transport infrastructure development and environmental protection. At the same time, Japan still does not link economic assistance with political conditions.

Until recently, Tokyo remained aloof from the competition for participation in the development of oil and gas resources in Central Asia. However, Japan, which before the accident at the Fukushima-1 NPP of 2011, produced about one-third of the electricity at nuclear power plants and intended to return to the widespread use of atomic energy gradually, gained access to developing uranium deposits in Kazakhstan and Uzbekistan. By the memorandum of understanding signed during Koizumi's visit to Astana, Japan-Kazakhstan negotiations on an intergovernmental agreement on the peaceful uses of atomic energy, which successfully ended in 2010, began in 2007 [18]. Japanese companies and Kazatomprom set up joint ventures for uranium mining. In 2013, an agreement was signed on the exploration of prospective uranium deposits in Uzbekistan by the Japanese company JOGMEC.

As a result, the economic presence of Japan in Central Asia concentrated in Kazakhstan. Accumulated direct investments of Japanese companies in this country amounted to about \$ 5.9 billion by 2017. During the visit, N.A. Nazarbayev in Tokyo in November 2016 announced the signing of new investment agreements by \$ 1.2 billion. The trade turnover between Japan and the countries of the region increased in 2001–2016. From \$ 337 million to \$ 1.2 billion, including with Kazakhstan, from \$ 161 to \$ 783 million; at the same time, the share of Japan in the total foreign trade turnover of the states of Central Asia declined from 1.5 to 1.2% over the years, and for Japan itself, only about 0.1% of foreign trade accounted for the Central Asian direction at the end of 2016.

### **Other influencing factors in Central Asia---Russia**

Although the influence of Russia in the post-USSR countries is diminishing with the time, the presence of Russia in the region is not likely to disappear soon (Matveeva,2013). Russia holds a strong desire to strengthen its role and relations with Central Asia and the historical legacy of Russia in the region cannot be

overlooked. Central Asia was part of the Russian empire since the nineteenth century, some regions like the northern parts of Kazakhstan were part of it since the eighteenth century. The marks left by the domination of Moscow for over 70 years cannot be quickly diminished. There are also influence from Russian-oriented elites, cultural ties, media influence, as well as the links in the economic and security spheres. There are also 7 million Russian immigrants living in the Central Asian republics as well as half a million Ukrainians.

Russia also maintains a dominant presence in the CA's energy industry. The closest relations in this sphere would be the energy relations of Russia and Kazakhstan. The main pipelines of Kazakhstan's oil are still under the control of Russian company Lukoil, and they are simultaneously active in the seven oil and gas onshore projects and three offshore exploration projects in the Kazakhstan sector of the Caspian shelf. The Russian authorities have also kept or regained some military and research facilities in Kazakhstan, Kyrgyzstan, and Tajikistan. Since the 1990s, Astana has exchanged with Russia the use of several firing ranges for military equipment, technical maintenance, and officer training. (Oliphant n.d.) Furthermore, Moscow rents, for example, the Baikonur space complex from Astana (70 percent of Russian rocket launches take place there), as well as missile test firing ranges in the regions of Karaganda, Zhambul, Aktobe, and Kyzyl-Orda.

### **Engagement in BRI---Central Asia**

The economic and political rise of China over the past two decades has become a critical factor in world politics. Even though in recent years the Chinese economy has somewhat cooled, the trend towards a further rise in Beijing remains. Meanwhile, the factor of rising China is significant for neighbouring Central Asia. It is no secret that the influence of Beijing in this region is growing today. China's desire to actively engage in economic cooperation, the willingness to invest

impressive sums of money in the implementation of the projects needed by the Central Asian countries gradually melt political caution and push the elites of the countries of the region towards ever closer interaction with their big neighbour.

A recent example of Beijing's large-scale activity in Central Asia was the expansion of already intensive economic cooperation between China and Kazakhstan. Thus, during the SCO summit in Astana on June 8–9, the parties signed 22 commercial agreements totalling \$ 7 billion. According to the agreements, the Chinese side is investing in the development of an agrochemical cluster in Kazakhstan and implementing some projects in the free economic zone in the Atyrau region. Besides, the Chinese corporation Hydrochina Corporation has signed a memorandum on the construction of a wind power plant in the Almaty region and a network of small hydroelectric power stations with the Kazakh holding company Samruk-Energy.

In May 2018, Beijing signed an impressive package of economic agreements with Uzbekistan totalling \$ 20 billion. During the first visit of the President of Uzbekistan Shavkat Mirziyoyev to China as head of state, two parties made several agreements. They imply a significant deepening of the interaction of the two countries in gas chemistry and hydropower, including the construction of a plant for the production of synthetic liquid fuels and a medium-term contract for the supply of natural gas to the PRC. Thus, Tashkent, as well as its neighbours in the region, stepped over a particular milestone in cooperation with Beijing, moving to more active implementation of joint projects with China on infrastructure and industry development.

### **Engagement in BRI---Japan**

Since Xi Jinping presented his initiative "One Belt, One Way" in Kazakhstan, ten years have passed. Nevertheless, Japan continues to change its attitude towards this ambitious project periodically.

On the one hand, Tokyo is gradually increasing the pace of its policy of detente towards China. Since the middle of 2017, against the background of positive signs indicating potential cooperation, high-ranking officials of these two countries made several reciprocal visits to discuss a range of issues, including but not limited to cooperation in infrastructure development. Against the background of growing tensions between China and the United States, Beijing is generally interested in rapprochement with Japan. Taking another step towards establishing cooperation - in the framework of the fourth round of the Sino-Japanese High-level Economic Dialogue - both sides promised to create a "Sino-Japanese public-private sector committee" to promote the implementation of projects aimed at improving infrastructure in third world countries. Southeast Asia will become the most visible test platform for public-private partnerships.

However, promoting his "Asian dream" concept (which is contrasted with the "Chinese dream"), Japanese Prime Minister Shinzo Abe has repeatedly voiced various conditions for Japan to take part in the "One Belt, One Way" initiative projects. in particular, good governance, transparency and fairness. Japan still has many concerns that China could damage the financial systems of debtor countries. Moreover, Japan is promoting its own BRI by increasing the pace of implementation of its landmark "Partnership for Quality Infrastructure," and it has already laid these ideas into the basis of the Indo-Pacific Foundation, recently created in cooperation with Australia and the US to meet global infrastructure investment needs.

At the domestic political level, these fluctuations of the Japanese authorities are aimed at preventing the growth of political discontent. From a geopolitical point of view, this approach at first glance allows Japan to kill two birds with one stone: to resist the growth of Chinese influence and support the US position. However, excessive politicization and excessively geopolitically interpreted rivalry of the Chinese initiative "One Belt, One Way" with the Japanese initiative



“Partnership for the creation of high-quality infrastructure” can hide from us the essence of what is happening. Currently, Japan and China are ready to provide each other with all possible assistance in solving many problems. Relations between the countries returned to average about 30 years ago. According to the representatives of Japan, this is the result of the efforts of both parties. For further peaceful cooperation, it is necessary to take into account common experience, history lessons and previously signed documents.

Today, relations between the two countries are regulated by three documents: the 1979 Joint Communiqué, the 1978 "Agreement on Peace and Cooperation" and the 1998 Japan-China Joint Declaration. The formation of Japanese imperialism, the rapid economic and military expansion in the Far East identified two main directions of Japanese policy: the elimination of inequitable treaties with Western countries; in geopolitics, this trend took the form of Asianism; expansion into the external possessions of Asia, which so far have not been particularly claimed by other states.

In Japanese geopolitics, conditionally they distinguish directions that are independent and dependent on German geopolitics. The center of independent geopolitical research before World War II was the Imperial University in Kyoto. The head of the Kyoto school of geopolitics is S. Komaki, the head of the country's first department of geography.

In principle, Tokyo's constructive participation in the implementation of the One Belt, One Road Initiative will not only promote the development of cooperation between China and Japan but also improve the quality of regional development. However, it is worth noting that China's creation of its courts to resolve trade and investment disputes related to the One Belt, One Road Initiative, which are subordinate to China's Supreme People's Court, has complicated the situation. As long as Japan is trying to create a free, open and equitable economic zone, China's unilateral attempts to provide legal protection for its companies

could undermine confidence in potential cooperation.

### **Models of cooperation**

In the new state of modern politics, it is essential for Japan and CA to find new ways of cooperation. While there are formal policies to serve as a platform for Japan's relations with CA, they are not applicable to the current situation anymore. "Central Asia Plus Japan dialogue" as well as the "Diplomacy to the Silk Road Region" were huge milestones on the history of Japan and CA's relations which established a firm foundation for future cooperation. However, they lacked concrete actions to follow up and realize the expected goals. While BRI managed to launch and achieve real economic and infrastructure plans with CA in the short five years. These results do not serve as a criterion of good or bad cooperation, but rather indicate the difference between Japanese and Chinese characteristics during international relations.

While China's advantage lies in their celerity of realizing projects, Japan is applying a more sensitive and individualized approach to the cooperating nations which may provide long-lasting cooperation. With Japan's showing interests of participating in the BRI, it provides an opportunity for the collaboration of Japan and China in the third region like Central Asia. Today, the attitude of Central Asian states towards cooperation is influenced by two main factors: (1) the failures and weaknesses of the CIS scheme, and (2) their perception that functionalist approaches better reflect the complexity of Central Asia's situation, since they offer a step-by-step timing for cooperation with other states, as well as outline the sector-by-sector pace for it. (Dadabaev, 2008) In this particular situation, there is a necessity to renew Japan and CA's mutual policies. A new concept of Japan-CA's joint partnership under the BRI should be published to guide and assist their distant relations.

## Conclusion

Central Asia and Japan relations were always promising; however, little was achieved under the former cooperation concept during the past 17 years. With CA's devotion to BRI and Japan's possible participation, the reconnection of formal cooperation under the concept of BRI is deemed necessary. Japan and China's joint investment in the third country is a feasible and proper way for efficient and deep relations which in this case would be CA. Both countries can use their advantage and thus make the cooperation of three parties more fruitful. It is important to note that CA is the region with various influencing factors like Russia and Korea. In order to compete with their industrial and business expansion in the region, Japan and China must cooperate and focus on economic or infrastructure projects. These projects need to be thoroughly researched before their launching, the acceptance and understanding of CA republics' people are also significant.

## References

Barisitz, Stephan. 2017. *Central Asia and the Silk Road: Economic Rise and Decline over Several Millennia*. New York, NY: Springer Berlin Heidelberg.

“Consortium Offers up to \$20bn for Turkmenistan Gas Project - Nikkei Asian Review.”

<https://asia.nikkei.com/Business/Companies/Consortium-offers-up-to-20bn-for-Turkmenistan-gas-project> (January 29, 2019).

“Country Programmable Aid (CPA).”

<https://stats.oecd.org/viewhtml.aspx?datasetcode=CPA&lang=en> (January 29, 2019).

Du, Michael M. 2016. "China's 'One Belt, One Road' Initiative: Context, Focus, Institutions, and Implications." *The Chinese Journal of Global Governance* 2(1): 30–43.

Lange, Christian. 2008. *Justice, Punishment and the Medieval Muslim Imagination*. Ed. Christian Lange. Cambridge: Cambridge University Press. <https://www.cambridge.org/core/product/identifier/9780511497254/type/book> (January 21, 2019).

Len, Christopher, and Central Asia Caucasus Institute & Silk Road Studies Program, eds. 2008. *Japan's Silk Road Diplomacy: Paving the Road Ahead*. Stockholm: Inst. for Security and Development Policy [u.a.].

Machatschek, Fritz. 1928. *Die Tschechoslowakei*. Berlin: Zentral-Verlag.

"MOFA: 'Central Asia plus Japan' Dialogue: Action Plan."  
<https://www.mofa.go.jp/region/europe/dialogue/action0606.html> (January 29, 2019).

"MOFA: Policy Speech by Ms. Yoriko Kawaguchi, Minister for Foreign Affairs of Japan At the University of World Economy and Diplomacy, Tashkent, Uzbekistan on August 26, 2004 'Adding a New Dimension: Central Asia plus Japan.'"  
<https://www.mofa.go.jp/region/europe/uzbekistan/speech0408.html> (January 29, 2019).

"MOFA: Press Conference by the Press Secretary July 25, 1997."  
<https://www.mofa.go.jp/announce/press/1997/7/725.html> (January 29, 2019).

"MOFA: Speech by Mr. Taro Aso, Minister for Foreign Affairs at the Japan

National Press Club ‘Central Asia as a Corridor of Peace and Stability.’”  
<https://www.mofa.go.jp/region/europe/speech0606.html> (January 29, 2019).

“Official Development Assistance (ODA) - Distribution of Net ODA - OECD Data.” *the OECD*. <http://data.oecd.org/oda/distribution-of-net-oda.htm> (January 29, 2019).

Oliphant, Craig. “Russia’s Role and Interests in Central Asia.” : 17.

“Russia’s Changing Security Role in Central Asia: European Security: Vol 22, No 4.”  
<https://www.tandfonline.com/doi/abs/10.1080/09662839.2013.775121?scroll=top&needAccess=true&journalCode=feus20> (January 29, 2019).

Sarker, Md Nazrul Islam, Md Altab Hossin, Xiaohua Yin, and Md Kamruzzaman Sarkar. 2018. “One Belt One Road Initiative of China: Implication for Future of Global Development.” *Modern Economy* 09: 623.

“What Did Abe Accomplish in Central Asia? | The Diplomat.”  
<https://thediplomat.com/2015/10/what-did-abe-accomplish-in-central-asia/> (January 29, 2019).

Anna Matveeva (2013) Russia's changing security role in Central Asia, *European Security*, 22:4, 478-499, DOI: 10.1080/09662839.2013.7751212/13/2019 2:10:00 PM

# Analysis of the Common Interests of Japan and Countries of Central Asia from the perspective of Belt and Road Initiative

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\* It should be noted that oil and gas are not the only...  
whet Japan's interest in Central Asia, but also...  
the world's third-largest nuclear-power nation in terms of...  
number of civilian nuclear plants in operation. However, after...  
Fukushima incident the nuclear plants in Japan were pa...  
abandoned by the government and it is unlikely that Japan v...  
reopen them in a large number any time soon.

FOUNDATION OF  
*cooperation*

## HISTORY OF

## Japan-CA relations

### A BRIEF HISTORY OF

### JAPAN & CA\* RELATIONS

\*CA is standing for Central Asian countries

1991

Central Asia became independent. Japan started to provide assistance over a broad range of areas, ranging from education, health, and infrastructure development for roads, airports, electrical generating stations to capacity building.

1997

'Diplomacy to the Silk Road Region' by then Prime Minister Hashimoto. This policy framework aimed to promote, basically on a bilateral track, political dialogue, economic cooperation and cooperation for peace.

2004

Japan took the initiative of the "Central Asia plus Japan" Dialogue.

Source: Takeshi Yagi  
"Central Asia plus Japan" dialogue and Japan's policy toward Central Asia

Central Asians and Japanese often refer to long history of trade, cultural and humanitarian relations that have taken place among countries and regions, located along the way Silk Road. Among examples referred to the rarities, made in Samarkand in the 13th century and founded in the ancient city of Nara, the historic capital of Japan. Also Buddhism, which in the sixth century, was moved to the Japan from Central Asia through China and Korea. After WW2 thousands of Japanese war prisoners were deported to Central Asia, where they participated in the different reconstructions and had tolerant relations and attitude with and from local people (Zhukova, 2007, pp.62-71).

### PEACE AND STABILITY

Japan is a country whose prosperity depends on global peace and stability and that of Central Asia and the surrounding region, stretching from the interior of Eurasia and Southwest Asia to the Middle East. The threats of terrorism and drugs which still originate in this huge landmass cannot be irrelevant to Japan.

### NATURAL RESOURCES \*

The production volume of crude oil in the region represents just over 2% of the world total and is forecast to double within several to ten years. 2% of global production is equivalent to approximately 1.6 to 1.7 million barrels a day. This is a volume equal to 30 to 40% of the amount of crude oil imported to Japan daily.

cooperation in economic and social fields may spill over into the political field as well. The habit of cooperation and the accumulated agendas of constructive work may eventually bring about very complicated, effective cooperation schemes.<sup>13</sup>

In addition, it is not unreasonable to expect that the process of cooperation in certain fields, conducted successfully, could have a confidence-building effect.<sup>14</sup>

### ORICAL BAGGAGE

Japan and CA have no historical conflicts and they are holding a certain affinity for each other. This creates a foundation for prosperous cooperation.

## ENGAGEMENT IN BRI

### Improvement of relations between China and Japan

Since 2014, the relations between the two countries have started to improve, especially in recent months, when China has become more and more affected by the trade war with the United States, while Japan has itself been the target of steel and aluminum tariffs.

Since the 2018 Eastern Economic Forum, held in September in Vladivostok. Their relations of two countries seem to be improving a lot, they scheduled an official meeting in Beijing, a landmark visit that Abe undertook in late October.

The improved relations between China and Japan aren't limited to politics, but also extend to the economic level, with Japan joining China in developing infrastructure projects in Asia. "If you can't beat them, join them" seems to be Abe's newest motto, and he overawed the signing of 500 business deals and a \$30 billion currency swap agreement while in China.

Japan's renewed interest in China contrasts with the steady attention Japan has focused on Asia. Japan is very interested in investing in infrastructure in Asia, especially through the Asian Development Bank, and it decided to team up with China in order to reduce the competition between the two.

CENTRAL ASIA-JAPAN

## WIDER INTERNATIONAL COOPERATION

Various international cooperation like ASEAN, CIS, CSTO were considered and studied by scholars focusing on whether they are suitable for a transformation of Japan-CA relations. Rukhimov (2013) argued that SCO is the best international cooperation for Japan-CA joint participation. Japanese scholar Iwashita even proposed a framework of SCO to create ad hoc status at a summit.

It is enough to show the urge and importance of an international organization to provide a platform and framework for Japan-CA cooperation. And with the current international situation, BRI is the most fitting shared platform existing.

### MODELS OF COOPERATION IN CENTRAL ASIA AND JAPAN'S CENTRAL ASIAN ENGAGEMENTS

Central Asia-Japan relations have always had a great potential. Yet just a fraction of this potential has been realized in the past years after the collapse of the Soviet Union. There is certainly room for further development of the Central Asian republics, Japan needs to strengthen its Central Asian diplomacy but lacked political will and dynamism in its engagement. The first visit by the Japanese Prime Minister to Central Asia was an encouraging sign, the years of passive Japanese involvement in the region is a challenging task of intensifying Central policy is a challenging one with many Japan needs to reevaluate its own strategy. From other more successful initiatives: China and Russia. The Belt and Road Initiative is an opportunity for mutual cooperation and Japan's foreign policy in Central Asia factors. This will first include the impact of the BRI.

\* SPECIAL \*

*thanks*

I extend my gratitude to the Waseda University and Master Kong Corporations for providing an opportunity and endless support for me and my research. I also want to thank Professor Hirakawa and CIE center for guidance and care. Special thanks to Madi and Ilari. &

## CA's Interests

Partnership with Japan benefits CA particularly in trade and investment, regional security, the fight against extremism and drug trafficking, transport and communication, energy, health and protection of the environment.

The Central Asian nations consider cooperation with Japan to be strategically important and collaboration will also build closer trade, economic and investment interaction between Eurasia, Europe, the Middle East and Asia-Pacific region, using geo-strategic and other advantage.

### GUIDELINES OF JAPAN & CA RELATIONS ESTABLISHED BY MR. TARO ASO

#### A LEADING

The leading role must be played by none other than Central Asian countries themselves. Mr. Aso, we should not allow Central Asia to be tossed about by, or forced to submit to the interests of outside countries.

#### BROAD-BASED PERSPECTIVE

Recognizing that the stability and development in Central Asia goes hand in hand with the stability and development of neighboring countries. Cooperating with CA means cooperating with its neighbors.

#### OPEN REGIONAL COOPERATION

Each country of CA is quite fragile when taken as an independent economic unit. When cooperating together, CA can reach higher potentials.

#### UNIVERSAL VALUES

Japan & CA seek partnership rooted in holding universal values in common, values such as democracy, human rights, the rule of law and the market economy.

## JAPAN-CA'S FUTURE

SCO Japan's ODA program provides considerable technological and administrative cooperation to all Central Asian countries, but with some differentiation. Japan will soon have official support for the economic development of the five countries to the amount of \$ 5.5 billion, was limited to Japan to train more than 3000 professionals and 400 students.

Central Asian countries and Japan during almost two decades extended bilateral relations and multilateral partnership

creating a new concept for partnership under BRI  
Enlarge joint projects on bilateral basis  
Conduct researches on the dynamics of bilateral and multilateral relations between Japan-CA  
Particular actions and the extended activities of Central Asia Plus Japan with other partners

And finally, international and regional organizations like Belt and Road Initiative need to have strong relations and join projects on Central Asia. A future strong partnership could contribute for sustainable development and strengthening stability in Central Asia as well as will contribute to international stability.

# Dual Roles: The Improvement and Stereotype of Women's Cultural Roles

## Based on Japanese and Chinese *Otome* Games

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### 1. Introduction

Though there is no officially academic definition of the term “*Otome* Games”, it has two essential features. First, it is designed for young female players, which is the meaning of “*Otome*”, requiring delicate stories, CGs and music. Second, romantic relationship is the core of the game, which makes it different from another wider concept, *Women-oriented Games* (女性向けゲーム), which includes Boys' Love games and others without romantic stories such as idol games. They are designed for young girls and women in which players play as the heroine and enjoy love affairs with different male characters. Thus, the definition of *Otome* Games in this project will be: games with romantic stories, specifically designed for young female players.

When talking about women's status, situation in Japan and China are similar. Different from their past controlled situation, women nowadays are becoming increasingly independent in the society. Receiving better education and having their own jobs, they pursue more narrative in economy and politic contexts. In cultural fields, there are increasing women-oriented culture works to provide female consumers with specific culture enjoyment. Of them, *Otome* Games seem to provide women with more cultural consideration for they target at female customers and cater to their preference of emotional needs.

However, the fact is that women in culture works are still trapped in the deep-rooted passive role in the patriarchal society. Most of cultural works including literature and films are still designed for men, where female characters are depicted as passive and subservient roles in patriarchal logic. Various scholars have researched on related topics. Martin (1991) comes up with the observation that in scientific reports elements related to women such as

eggs are depicted with stereotypical terms (“wait”) though the fact is that sperms and eggs are collaborating. Yang (2016) points out that female cultural works such as *Shojo* Manga which should have been interpreted as the emotional attack to the patriarchal logic of the society but still lack potency. Besides, as the basis of women’s culture roles, Morisaki (2015) points out that it is still difficult for women to build their managerial career since they are trapped in the gender-oriented stereotypical division of labour even in *The Society where All Women Shine* (すべての女性が輝く社会) where the government propagate the activeness of women in all fields of the society.

Therefore, further analysis needs to be done on whether female-oriented culture works such as *Otome* Games are doing what they seem to appeal: are they raising the status of women or are they still limiting women in stereotypical passive roles. Three kinds of methodologies are used to carry out the analysis: literature review, close-reading and interview.

This kind of study whose results are influenced by the choice of samples inevitably has restrictions. The choice of *Otome* Game samples may be representative to most *Otome* Games but there will always be particularly different ones. Besides, the size of player samples is also limited to students in Tsinghua University, some twitter and weibo followers of the writer considering the difficulty of handing out questionnaires and interviewing personally.

The paper is structured as follows. The first part introduces both the social background of women’s status in Japan and China and the cultural background of *Otome* Game Industry. The second part discusses relative literature on women-oriented cultural works in details and introduces details of other used methodologies. The third part analyzes women’s roles in *Otome* Games from both the perspective of female players and female characters. The fourth part is a reflection on the gap between female figures in games and in reality and the conclusion.

## **2. Background**

### **2.1 Social Background**



Both Japan and China has a long history of patriarchy where women were affiliation to men in the family. In recent years, situation has become better for women, since Japanese and Chinese governments have released policies which help to improve women's status. In Japan, the government released the policy of "A Society where All Women Shine" (すべての女性が輝く社会). In this propaganda, the government has introduced a wide range of policies to protect women's rights in the society. These include laws to promote the participation and activeness of women in job market, regulations to create the environment where there is no sexual harassment, as well as financial investment. In China, the proportion of women Deputies to National People's Congress has risen from 11.99% to 23.4% since 1954 (Li, 2014) , which reveals more active women political participation. Besides, the development of education in China gives more women the opportunity to receive compulsory and higher education. Since 1980 to 2017, the number of women university students has increased 74.1 times. The proportion of female students in primary and middle high school has also increased from 28% to 46.37%. (Wang, 2019)

However, situation in cultural fields are not so optimistic. Though it cannot be ignored that there are increasing companies catering to women's cultural needs to release women-oriented culture products, they are all to some degree of old-fashioned stereotypes: magazines for women center around fashion and cooking, and television programs for women are "soap opera" with weak logic. (Guo,2006) Women are still trapped in the traditional patriarchal family roles of emotional house wives, and their culture needs are interpreted as simple emotional desire.

In Japan, what listed as "best ranking for women" always have the theme of love affairs, diet and housework. In book stores such as book-off and ZAZACITY, corners labeled with "recommendation for women" are filled with books on diet, beauty and dessert.



Figure 1: Women-oriented corner in book off Shinyasuma



Figure 2: Women-oriented corner in ZAZA Hamatsu

Retrieved from : <https://www.bookoff-with.jp/w/2018/10/12/2411/>

Retrieved from: [https://twitter.com/oukoku\\_zaza/status/1015798937242853376](https://twitter.com/oukoku_zaza/status/1015798937242853376)

In China, there are still dramas advocating a woman's tameness to her husband and the family as the morality, and regard her fertility and the identity as a wife and a mother as the most important in her life. It is obvious that these are very old-fashioned ideas in feudal society but are still prevailing in current culture works relative to women. This phenomenon shows the great contradiction between the current economic-political and cultural roles of women. Figure 3 is a poster used to promote women's participation in construction industry, which focuses on their different point of view from male workers. While figure 4 is a poster of a recent Chinese drama *Mother's Life* (《娘道》), which directly and openly advocates that women's value lies in their identity as a mother and a tamed wife, and that if they cannot give birth to a son, they are neglecting their filial duties. This contradiction is to some degree ironic and reveals the great gap between women's situation economy, political and cultural fields.



Figure 3 Why“Women Participation”is Necessary in Construction Field?

Retrieved from: <https://blog.mcdata.plus/genba/women-empowerment/>



Figure 4 A poster of *Mother's Life*

Retrieved from: <http://ent.sina.com.cn/v/m/2018-09-06/doc-ihitesuz1193904.shtml>

## 2.2 Otome Game Industry

*Otome Games*, known as Girls' Games, seem to provide women with more cultural consideration. They are designed for young girls and women in which players play as the heroine and enjoy love affairs with different male characters.

Japanese *Otome Game* Industry has a relatively long history. The first wide-spread *Otome Game* is *Angelique*, which was released by *Koei* in 1994. It is the first game of young-women-oriented series called *Neo Romance* and is regarded as the pioneer of *Otome Games*. More than thirty years have passed and Japanese *Otome Game* Industry has developed quickly. With more delicate works such as *Princes of Songs* (うたのプリンスさまっ), *AICHU* and *DIABOLIK LOVERS*, Japanese *Otome Games* receive increasing fanatic fans from not only Japanese domestic markets but also overseas. The figure below shows the

famous *Otome Games* since 1994, and it is clear that there is a trend to develop the market of smart-phone *Otome Games*.

Year	Name	Platform
1994	アンジェリーク	SFC
2000	遙かなる時空の中で	PS
2001	遙かなる時空の中で 2	PC
2003	金色のコルダ	PC
2004	遙かなる時空の中で 3	PS2
2006	緋色の欠片	PS2
2007	桜蘭高校ホスト部	PS2
	金色のコルダ 2	PS2
2008	薄桜鬼 新選組奇譚	PS2
	遙かなる時空の中で 4	PS2
2009	薄桜鬼 随想録	PS2
2010	薄桜鬼 黎明録	PS2
	金色のコルダ 3	PS2/PSP
	Starry☆Sky～in Spring～	PC
2011	遙かなる時空の中で 5	PSP
2012	うたの☆プリンスさまっ♪ Debut	PSP
	DIABOLIK LOVERS	PSP
2013	うたの☆プリンスさまっ♪ Allstar	PSP
	BROTHERS CONFLICT	PSP
2014	薄桜鬼 SSL ～sweet school life～	PSP

2015	うたの☆プリンスさまっ♪ All Star After Secret	PSP/PSV
	遙かなる時空の中で 6	PSP/PSV
	アイチュウ	iOS/Android
	夢王国と眠れる 100 人の王 子様	iOS/Android
2016	囚われのパルマ	iOS/Android
	うたの☆プリンスさまっ♪ Shiny Life	iOS/Android

Figure 5: Famous *Otome* Games since 1994

The sample chosen in this project is *Princes of Songs* (うたのプリンスさまっ), which is an unfailing game series since 2012. From the figure above, it is clear that it has released four series in less than four years and has also started its smart-phone game market. What's more, it also targets at overseas consumers and started its Chinese server in 2017. Apart from games, there are also four seasons of derivative anime of *Princes of Songs*, which makes it more influential nowadays than other games such as *Haruka: Beyond the Stream of Time* (遙かなる時空の中で).

It is a romance visual game in which players assume the heroine Haruka Nanami (七海春歌), who is a new student of the composer classes of *Saotome Academy* (早乙女学園). She aims at becoming a successful composer for her favourite idol. There are also students who are trained to become idols from idol classes. She needs to team up with one boy student from the idol class and compete in the final competition when they graduate. If they success, they can debut in the *Shining Agency* (シャイニング事務所新人発掘オーディション). The player can choose from ten different characters to develop the romantic relationship.

Compared with that in Japan, Chinese *Otome* Game Industry has started only recently. Since late November in 2017, the success of the first wide-spread Chinese *Otome* Game *Love and Producers* (《恋与制作人》) has sparked heated discussions. Though its market and

operation is not as mature as Japanese *Otome* Games, it achieves great success with in-app charge and widely sold derivative goods. More than one thousand boxes of the first series badges was sold in less than ten minutes, and it is not rare to see players post on their weibo that they have charged over ten thousand yuan in order to unlock latter chapters of the story.

*Love and Producers* is the sample of Chinese Otome Game in this project. Player assume You Ran, who is a director who wants to rejuvenate her father's studio which is faced with bankrupt. There are four male characters she meets with in the process, including a policeman, a scientist, a CEO and an idol. Their real identities and the secret of You Ran are revealed in the story in which they use their super power "evol" to fight against the evil. The player can choose to develop the relationship with either all them with date and message.

### **3. Literature Review**

With the improvement and increasing independence in women's political and economical career, their cultural roles are also paid much attention to. The public discussion of women's cultural current situation is prolific, which indicates that there may be something needed to change considering women's culture position. Many of the literature are inspiring to this study on female roles in *Otome* Games.

First, Morisaki (2015) acknowledged that although women have become increasingly active in job market, they tend to express their worry during workplace counselling. She presented that it is more difficult for women to build their career in managerial positions and women are still thought to be supposed to work as housewives and mothers regardless of the fact of labour shortage. Her argument helps to reveal the dilemma for women behind the idea of A Society where All Women Shine, whose reason lies in the stereotypical division of labour.

Martin (1991) as an anthropologist doubted the objectivity of scientific reports regarding human reproduction issues. She discovered that terms used to describe female reproduction process such as menstruation tend to be negative, such as "debris", "ceasing" and "losing"; on the contrary, male reproduction are described with terms such as "fast" and "remarkable". She

stated that this difference between word choice is because of the gender stereotype behind the language of biology which is supposed to be scientific and objective. Martin's discovery reveals the potentially prevailing patriarchal logic thus could be used as an example to analyze women's roles in other cultural fields.

Similar to Martin's discovery, Mulvey (1975) suggested that classical Hollywood films also use patriarchal stereotypes to confine women. By analyzing the way that female figures are shown on the screen and the transitions between different shots, she argued that women on screen serve as spectacles to both male characters and audience, instead of being the same type of characters with male ones. With this observation, she revealed the logic of classical Hollywood films and concluded it as the "to-be-looked-at-ness" of women. Similar logic may be found in *Otome* Games and Mulvey's theory is helpful to analyze how *Otome* Games depict female characters.

The analysis on *Shojo Manga* is also a good example to understand *Otome* Games. Yang (2016) characterized girls' comics by the focus on sex boundary and boys' love. She maintained that they indicate the feminist implications of women's active role and the blur of the boundary between two sexes with emotional imaginations such as hermaphroditism and boys' love against ethics of the society. She considered that these efforts reveal more female active power than theoretical attack towards patriarchy. This feminist interpretation of *Shojo Manga* may also be used to give suggestions to the development and the function positioning of *Otome* Games.

To draw a conclusion, the purpose of this study is to analyze the current of the cultural role of Japanese and Chinese women through *Otome* Games and to try to give suggestions to Chinese female-oriented cultural industry based on Japanese experience. Analysis of samples on female roles in scientific and cultural works such as Hollywood films and *Shojo Manga* will all help to construct this paper.

#### **4. Women's roles related to *Otome* Games**

##### **4.1 *Otome* Game Players**

#### 4.1.1 Women as Independent Cultural Work Customers

*Otome Games*' influence on female players has two sides. On the one hand, they cater to female players' special emotional needs through ways such as providing company and relaxation to female players who are busy working; on the other hand, they trap women as impulse customers and put them in passive situation in cultural consumption.

To analyze the influence on female players, personal and online interviews are made with ten interviewees. Five of them are followers of the writer on Weibo, whose age are between 16 and 25. Three of them are students in China or abroad, and the other two works as clerks in companies. Three of the interviewees are students from Tsinghua University and Beijing Forestry University, who major in Art, Engineering and Landscape Gardening, aging from 19 to 20 years old. The other two interviewees are followers of the writer on Twitter, who are both Japanese clerks over 25 years old.

*Otome Games* first cater to female players in the way that they serve as company and relaxation to female players. Their increasing independence sometimes turns into loneliness, and that is when the love stories in *Otome Games* play its role. Eight out of ten interviewees admit that they use *Otome Games* as a way to repel feelings of loneliness and tiredness after a day's work or study. Different from other types of games, they enjoy the feeling of being needed and loved in *Otome Games*, especially when in the story they assume the heroine who has other talents. For example, in *Princes of Songs*, players not only enjoy the admiration of different characters, but also her identity as the talented composer student. The voices in *Otome Games* also give relaxation to players. With famous voice actors such as Kenichi Suzumura (鈴木健一) and Mamoru Miyano (宮野真守), players can wear earphones and enjoy the murmuring between lovers when they play *Princes of Songs*, which they lack because of too busy work and study. Therefore, *Otome Games* precisely locates female players' needs when they play games and can give female players emotional relaxation and spiritual comfort when they are tired from study and work.

Besides, it also helps to promote female players' confidence to some degree. In reality, many women are faced with the lack of self-confidence in a romance relationship. They are



judged by themselves and the society on their appearance, figure, education level and so on. This over-demands on women become the burden on them and deprive self-confidence of them when they want to start a romance relationship because they think they are not qualified. However, since *Otome* Games do not choose the player, and the handsome characters are equal to all female players no matter their physical appearance or characteristics, it gives players the opportunity to rethink about their identity in love affairs. It also inspires players to think about important things other than physical appearance. In *Love and Producers*, You Ran is loved not because she is physically charming and beautiful; instead, her strong-mindedness, independence and constant efforts are shown as the most charming point. “I used to think that I am not that kind of beautiful girls who are qualified to enjoy love with handsome partners, but I gradually changed my mind after play *Love and Producers*.” says one interviewee of *Love and Producers*, “I realized that there are many other things that are important for me to be a person other from physical appearance. You Ran is a strong-minded girl, and I think that is one important reason why she is loved by the four characters. I realize that there are also charming points in women’s characteristics, and I also have some special features that I should be proud of.” (personal interview, Dec. 18<sup>th</sup>, 2018)

Most importantly, when *Otome* Games aim at female players as the main customer group, it proves that women’s roles in cultural market should not be discounted. With their special needs and the power of consumption on their favourite *Otome* Games, women show that their cultural needs should not be ignored since they are a part of the society. Dramas that tell women to be tame will never success among female customers; they have their own independence, and if companies want to success, they need to figure out what women really need in cultural works and sell what they want.

#### **4.1.2 Women as Impulse and Passive Customers**

*Otome* Games can also be burden to female players. They may be induced by the marketing strategies of game companies, thus spend too much time or money on the game.

The first burden is financial one, the in-app purchase. Basically there are three types of charging systems in *Otome* Games. The first two types are for mobile phone games. Players

need either charge to purchase coins or diamonds in order to buy items or to roll a gacha to get character cards while can read the whole story for free, or charge to unlock latter chapters of the story. Another type is usually for games on other platforms such as PSV. Players need to pay a larger sum of money to buy the software together with the equipment beforehand in order to play the game (and there will be no charging after they start the game). *Princes of Songs* and *Love and Producers* are different in their consumption pattern. In the former game, players can read the story for free. They need to charge their account in order to roll a gacha to get SSR (Super Super Rare) cards of their favourite characters to get high scores in special events. In the latter one, players need to charge to buy diamonds in order to continue the story if they want to continue the story quickly. They also need to roll a gacha to get cards.

This financial expense can sometimes put female players in trouble for they tend to spend too much money on in-app purchase especially under the marketing strategies that there are constantly new special cards in events which ask players to keep charging their account, and some specific cards are really difficult to get. Six out of ten interviewees are to different degrees troubled with in-app purchase, with one expressed that in order to collect all of the cards of her favorite character, she average expense on gacha a month is over 20 thousand Japanese yen on *Princes of Songs*. And it is not rare to see players on Weibo saying that they have charged over one thousand yuan on *Love and Producers* in order to unlock following chapters. There are always the risk that it seems to you that you can never get the character you like even if you have collected all of the other characters, when you need to decide whether to continue rolling the gacha or to give up which to some degree means that your money are wasted.

Financial expense is only one aspect of possible problems female players are faced with when playing *Otome* Games. Another potential risk they are faced is time expense. Special events are hold regularly in mobile *Otome* Games when players need to finish specific tasks in order either to unlock various rare rewards or to get a higher ranking. In order to have a good performance in these events, players need to spend a lot of time repetitively playing the game. For example, in ranking events, female players tend to be induced by the marketing

strategy that higher ranking is the evidence that she loves the character most, they turn out to spend both money and time in order to get a higher rank. If players want a good ranking in the event and get the special cards as the reward for top ranking players, they need to spend a great number of time on the game to achieve and keep the ranking since there are players from various countries. Players can get around 2000 points for one play. If they want to rank top 500, the required point is around 200000. It means that they need to repetitively play the songs over 100 times. Each song is about 3 minutes, which means that they need to spend 5 hours on the game. Players even pay others in other time zones to play the game for them, making full use of their sleeping time. Thus the frequent and constant time input can be a kind of burden to female players, especially to their health.

Women's passive culture roles from this perspective lie in the fact that they are greatly influenced by marketing strategies. Some players are unconsciously led by the companies who are not only catering to their culture needs but also targeting at their money to spend more than they can afford on the game. There is a lack of reflection when female players are faced with *Otome* Games, especially when the event is related to their favourite characters.

## **4.2 *Otome* Game Female Characters**

### **4.2.1 Female Characters as Independent Women**

Women's current situation is shown from two sides from female characters in *Otome* Games.

For the positive perspective, currently female characters in *Otome* Games become more independent and self-made, which is in accordance with the reality of women. From the perspective of the plot, that is, what they are depicted as, there are certain improvements in women figures. For example, in *Prince of Songs*, Haruka is successful as a composer student and helps the idol group she is responsible for to win several prizes. In *Love and Producers*, the heroine You Ran works hard independently to rejuvenate her father's company. They are no longer the stereotypical female figures who seems that their only goal in life is to find a handsome and wealthy man and marry him. They are confident, self-esteemed and have their goals in career. They are not the affiliation to male characters, and they are radical enough to

know that love is not the only thing they pursue in the game.

#### 4.2.2 Female Characters with Stereotypical Roles

However, if analyzed carefully from the perspective of how they are depicted, female characters are still trapped in passive stereotypical roles and body shame.

Passiveness is suggested in angles of shots of CGs and derivative animes. For example, in the first episode of anime version *Princes of Songs*, there are constant extreme close shots of Haruka's face from the point of view of male characters. These shots emphasize on her physical beauty, making her the object to be watched and appreciated. Therefore, although she is active in the story when she criticizes the male character for not being polite enough to children, which seems to give her power over male, it turns out that she is still the one in the subservient position because she is deduced into the bearer of male gaze and her to-be-looked-at-ness seems to be the only standard by which she can be judged. Besides, Mulvey says that "the presence of woman is an indispensable element of spectacle in normal narrative film, yet her visual presence tends to work against the development of a story line, to freeze the flow of action in moments of erotic contemplation." (Mulvey, p.309) Haruka as the "spectacle" as the center of the screen slows down the pace of the anime, which also reveals her passiveness as a woman who is looked at and loses her autonomy to represent herself.

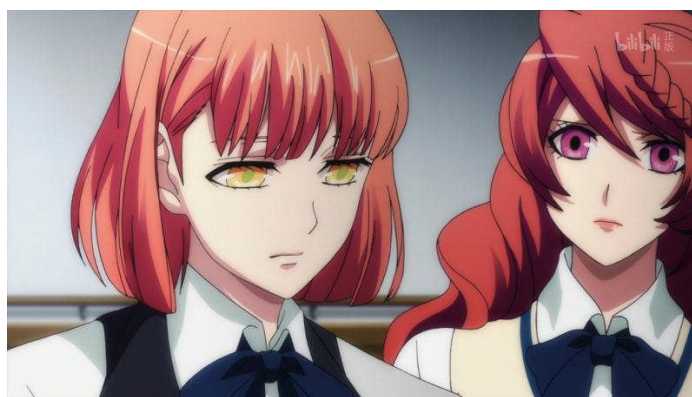


Figure 6 Haruka being "looked at"

Taken from: Chapter 10, Season 1, *Princes of Songs*

Another stereotypical image towards women shown in *Otome Games* is body shame. Women are required to be paid more attention to their physical appearance and figure. They

need to be wear delicate make-ups and keep slim figures. This kind of “ideal” female figure is also shown in *Princes of Songs* and *Love and Producers*. Both Haruka and You Ran are beautiful according to the prevailing aesthetical standard with big eyes, beautiful make-up and slim body. This presentation of women in *Otome Games* is a kind of body shame, for it to some degree suggests that only delicate beautiful girls can enjoy romantic relationships with men, and that women must be slim and pretty to please others. This is another evidence showing that women are still shown in stereotypical ways in *Otome Games* from the perspective of female characters.

## 5. Reflection and Conclusion

By analyzing women’s cultural roles in *Otome Games* from both the perspective of female players and female characters, we can find out the fact that they are consistent to some degree. They both show not only progress in women’s current situation as culture customers whose needs are paid more attention to and the independence as career women, but also the stereotypes of passiveness and strict demands on their body and appearance. Besides, things are also similar in Japanese and Chinese *Otome Games*, which to some degree show that in current culture stage, the conflicts between the progress and the stereotypes regarding women’s cultural roles are inevitable. It becomes clear that there are improvements that are valuable, and things need to change such as backward ideas towards women.

To draw a conclusion, women’s situation in Japanese and Chinese *Otome Games* are consistent with that in reality. On the one hand, they become more independent, pursuing their own careers and their needs must be paid attention to if the company wants to make more money. On the other hand, they are easily influenced by marketing strategies to over-spend time and money on these games which may become burden to them, and there are stereotypical requirements on their physical appearance. This representation of women in *Otome Games* to some degree suggests what needs to improve in reality, and is a new way to think about women’s current situation in the society.

There are also things need to improve in this project. Apart from the problems related to

sample size talked at the beginning of the paper, there are also the problem that whether the findings and conclusions are influenced by stereotypical statements towards women, such as they are emotional. These things are too deep-rooted in the society and the education, and it is difficult to get rid of its influence. Therefore, findings and conclusions in this project may not be as objective as the write wants to achieve, and that is where further analysis can be made.

### **References:**

- Morisaki, M. (2015). Josei Roudousha ni taisuru Kaunseringu wo Megutte~ Josei no Kyaria Kenchiku no Kadai [Building of Women Career: From the Perspective of Counseling for Women Workers]. *Sangyo Sutoresu Kenkyuu*, vol. 22, no. 3, pp. 231-238.
- Martin, Emily. (1991). The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles. *Signs*, vol. 16, no. 3, pp. 485–501.
- Mulvey, Laura. (2014). *Film Manifestos and Global Cinema Cultures: A Critical Anthology*. New York: University of California Press.
- Yang Wei. (2016). The Feminist Imagination in Japanese Shōjo Manga. *Japanese Learning and Study*, 2016 (03), pp. 35-42.
- Li Dan Dan. (2014). *Representative Structure Change of the National People's Congress Research: 1954-2013*. Diss. University of Central China Normal University.
- Wang Li Bo. (2019). Women: Who Benefit More from the Development of China's Education. *China Women's News*, 2019 (01), pp.006.
- Guo Jian. (2006). *From the Women Receiver to the Women Consumers*. Diss. Fujian Normal University.



## Research Questions

### Main Question:

- What is the current of women's roles in culture industry in Japan and China?
- Is there a gap between cultural works and their life reality?
- Is there anything China can learn from Japan in female-oriented culture industry?

### Sub Questions:

- What are the economical and political roles of women in modern society?
- Is there a gap between their culture role and the economical and political ones?
- How do women players feel when playing *Otome Games*? With whom do they identify with?
- How are female characters depicted in *Otome Games*?
- Are they "expected" women figures? What is the relationship between them and real women?
- If there were the gap, were it a problem? Could China learn from Japan's experience on this gap?

## What is *Otome Game*?

### 乙女ゲーム

"Girls' Games", designed for young girls and women in which players play as the **heroine** and enjoy **love affairs** with different **male characters**.

(Definition used in this project)

### Samples used in this project:

Japanese *Otome Game*: *Princes of Songs*

Chinese *Otome Game*: *Love and Producers*

うたのプリンスさま & 恋と製作人

## Why *Otome Games*?

### A way to understand:

- The depiction of women in common culture
- Women's attitude towards conventional depiction
- The cultural dilemma for women

## Background Information

### An Improvement for Women

#### in Economy and Politics

Japan: A Society where All Women Shine

すべての女性が輝く社会

China:

An Increasing Rate of Female Political Participation

the proportion of women Deputies to National People's Congress has risen from 12% to 23% since 1954

### Stereotype and Limitations for Women

#### in Patriarchal Culture

Women-oriented: Only love affairs?

Mother as the most important identity for women?

Affiliation to men?

Filial piety as a wife to husband and mother-in-law?

## Female Players

### Negative:

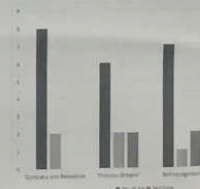
- Financial Burden in *Gacha-roll* as in-app purchase**  
Excessive purchase in order to get the rare cards of the specific character. --With the identity as "girlfriend"  
"Monthly 20 thousand yen on *Princes of Songs*"  
"I once spent over 10 thousand on *Love and Producers* but still cannot get the card."
- Excessive Time Expense on Special Events**  
New Year Count-down Event in *Prince of Songs*: *Score Type*  
Scores required to unlock all the stories: 848691  
Scores for single "PERFECT" ranking play: 10093  
--Repeat over 84 times  
--180 seconds each song  
--4.2 hours spent on one single event  
*Ranking Type*  
The higher score the better, usually ends up 100 times of score type--  
Much longer time expense



## Female Players

### Positive:

- Company and relaxation for female players who are busy working with increasing independence
- To fulfill the dream to be a princess women tend to have are taught to have since they are girls.  
"I think every girl wants to be a princess but for most of us that is impossible in reality, so the opportunities in these games to be the princess of multiple men are very cherishing"
- Self-recognition towards love and marriage beforehand



## Female Characters

### Negative:

- To-be-looked-at-ness, the bearer of Male Gaze**  
Laura Mulvey: Visual Pleasure and Narrative Cinema (1975)  
"Women then stands in patriarchal culture as signifier for the male other, bound by a symbolic order in which man can live out his fantasies and obsessions through linguistic command by imposing them on the silent image of woman still tied to her place as bearer of meaning, not maker of meaning." (p.305)



### B. Emotional Stereotype

You Ran in *Love and Producers* once ran into the criminal spot and brings trouble to another male character, Bai Qi.

### C. Body Shame: Extreme Slimness

## Conclusion & Reflection

### We know that:

- Improvement in economic, political and cultural roles
- Stereotype to be changed in culture works
- The gap between idealized female figure and reality

### We need to reflect on:

- Any stereotypical hypothesis in methodology?
- How to be gender-objective in the research?
- Any further application of the conclusion?

### References:

- Mohr, Laura. *Film Masculinity and Global Cinema Cultures: A Critical Anthology*. New York: University of California Press, 2014.
- 高橋あゆみ. "女性消費者に対するマーケティングをめぐって—女性のマーケティング戦略の展開—". *消費文化研究*, vol. 22, no. 3, 2015, pp. 211-218.
- Yang Wei. *The Feminist Imagination in Japanese Shōjo Manga*. Japanese Learning and Study, 2016 (67), pp. 15-42.

## Female Characters

### Positive:

- Independence as Career Women**  
Haruka in *Princes of Songs*: A successful planning staff student and helps the idol group to win the final award.  
You Ran in *Love and Producers*: Work hard to rejuvenate her father's company as a director
- Strong-mindedness and Bravery**  
You Ran once protected the male character Li Zeyan from lightning.  
Nobody remembered her because of this accident, but she still worked hard in the hospital to find out the way to recover.
- Tidiness and Beauty shown in Female Figures**  
Haruka and You Ran are well-dressed though without famous brand.  
CGs show their unique female beauty.

**The attitude of Japan's main newspaper towards  
'Belt and Road Initiative' in recent years**

**QIN Zixiao  
Tsinghua University**

**1. Introduction**

'Belt and Road Initiative' is a combination of 'The Silk Road Economic Belt' and 'The 21st-century Maritime Silk Road'. The initiative was first brought up by Chinese president Xi Jinping in September, 2013 which at that time only consisted the 'Silk Road Economic Belt'. Later in October, Xi Jinping brought up the 'Silk Road Economic Belt' during his visit in Indonesia. These two initiatives turned in to China's national strategy in November, 2013. The aim of this initiative is to build an Economic network from China to Europe which include infrastructure development and investment mainly focused on Middle Asia and South-East Asia. This initiative also started several financial institutions like the Asia Infrastructure Investment Bank and the Silk Road Fund.

The aim of this paper is to explore Japanese newspaper's attitude towards the Initiative. Considering Japan as third biggest Economic in the world and one of the most significant country in Asia, Japan's attitude could play an essential role in the development of the Initiative. In order to understand Japan's politic preference, the newspaper offer a channel to explore the attitude of the major politic groups. Through the research of Japanese major newspaper, this paper wish to understand the different target group of different main newspapers and the difference attitude towards the Initiative. Further developing the understanding of Japanese newspaper's main concern about the Initiative. Exploring the possible change of Japanese major newspaper's attitude towards the Initiative. And figuring out the possible reason for the change of attitude.

This paper mainly used the comparison methods to research these topics. According to the news reports of five major newspaper in Japan, the Yomiuri Shimbun, the Asahi Shimbun, the Mainichi Shimbun, the Nihon Keizai Shinbun, the Sankei Shimbun, the author would do lateral and vertical comparison. Using the lateral comparison to estimate newspapers general



idea in one period and the vertical comparison would compare reports from different period to estimate the difference between different phases.

This paper mainly focused on the reports between 2013-2018 and limit the research in the report related to 'Belt and Road Initiative'. In order to understand a nationwide and official attitude towards the Initiative, this paper only focused on the five biggest national newspaper and mainly cited the reports from the Asahi Shimbun and the Sankei Shimbun..

The paper is structured as follows. This first section presents the relevant research of the Initiative in Japanese academy. The second section would divide this five years into several period based on the significant events happened and reported on Japan's newspapers. The compare the news report in both lateral and vertical methods to conclude the general opinion of different phases. The fourth section wish to forecast the future trend of the attitude according to comparison and analyze the current obstacles between the cooperation of China and Japan in the matter of 'Belt and Road Initiative'. The final section would conclude this research, further question would also be carried out in this section for future study.

## **2.Literature Review**

Considering this paper concentrated on Japan's attitude towards the 'Belt and Road Initiative', this section would mainly focused on Japanese side of study. According to the research, Japanese scholar mainly considered the 'Belt and Road Initiative' in the following section.

Kiyoshi Wano (2018) considered the 'Belt and Road Initiative' as Chinese movement to establish an enormous economic zone from Europe to Asia. In his article he believed that Japan, instead of confronting this Initiative, should participate a unique but essential character. After his observation in Xian, mostly known as the starting point of the ancient Silk Road, suggested Japanese government should participate in this Initiative and serve as a long-time but independent supporter for the countries in the economic zone. He also emphasize that Japanese company should take China's uprising into consideration and make a early start for future's development. However, Kazuhiko Togo (2018) worried more of the politic and military uncertainty of the Initiative. Although he also strengthened the importance of business participant of Japanese companies, he stressed the possible uncertainty caused by the

rising of China. From his perspective, the 'Belt and Road Initiative' might change the current international politic structure and he warned, if a new district economic zone containing Europe and Asia would establish, Japan should pay more attention on defining their position again. He also express concern about Chinese emerging navy power. In his paper he believed Japan should hold a more flexible position on this subject, with the basic rule of cooperating with the United States, he also asked the Japanese government to post a more independent gesture considering the current US president also showed a great risk of uncertainty. In conclusion, Togo believed Japan should seek the opportunity with great patience and precautions.

Sachiko Hirakawa (2018) provide another view on this issue, she focused on the energy security of China. In this paper the author strengthened China's emerging energy needs with the rising of the economy. However with the coming confrontation between China and US, the risk of traditional energy transportation methods started to rise and the 'Belt and Road Initiative' is an attempt to secure its energy importation through middle Asia. After the failure of purchasing foreign energy company by Chinese nation-owned company, China turned to multilateralism methods within the structure like the Shanghai Co-operation Organization(SCO).

In conclusion, most Japanese scholar believed the 'Belt and Road Initiative' could serve as an opportunity for Japan but such opportunity also contained with a possible politic and military risk. Most suggest that Japanese government and companies should pay attention to this Initiative and participate as a long-time cooperator. This also reached the traditional Sino-Japanese 'the politically cold and economically warm situation'.

### **3.Division and analyzing of Japanese newspapers**

From the notion was brought up in 2013 to Prime Minister Abe made a relatively positive comments during his visit in China, Japanese newspaper have reported the 'Belt and Road Initiative' with a gradually changing attitude. The author would divide the report in to three phases. The division based on four important event relevant to 'Belt and Road Initiative' and Sino-Japan relationship.

#### **3.1 Division**

The author would consider 2013 as the start of this research for China's President Xi Jinping brought up the notion officially in 2013 for the first time. In October and November, 'The Silk Road Economic Belt' and 'The 21st-century Maritime Silk Road' was brought up. However until 2017 there was no official comments about this initiative from Japanese government and the newspaper gradually lost the enthusiasm of it. The next phase started in the May of 2017 while China hosted the 'Belt and Road Forum for International Cooperation' for Prime Minister Abe sent Mr Toshihiro Nikai who was the Secretary General of the Liberal Democratic Party to present the Forum. Although Nikai was not technically considered as the representative of Japanese government but this was considered as a remarkable event for Japanese participation of the 'Belt and Road Initiative'. This phase also consists another significant event for Prime Minister Abe for the first time made a official comment on Japanese participation in 'Belt and Road Initiative' in the 'International Conference on the Future of Asia'. The third phase started since Prime Minister Abe visited China in 2018 and his praise for 'Belt and Road Initiative' may could start a new era on the cooperation between two countries.

### **3.2 2013-2017.5 The 'solo dance' of China**

Interestingly, although the notion of 'Belt and Road Initiative' was brought up in 2013, most of Japanese news paper started to report and explain the meaning of it since 2014. In this period, most of newspaper focused on the question of 'what is this 'Belt and Road Initiative'', the news reports was generally brief.

#### **Asahi Shinbun(朝日新聞)**

The reports of Asahi started from 2014. A report was issued in December 21th in the column of Economic, named '中国の地域外交 海も陸も、すべての道を北京へ' (China's regional diplomacy: ocean and land, all the way to Beijing). This reports introduced the contents of this policy and briefly talked about the the history of ancient Silk Road and China's ancient tributary system in a relatively objective way. This reports considered This initiative as a Chinese version of the European Recovery Plan and the goal of this initiative was to stabilize domestic economic and politic. The mention of China's ancient tributary system also added a slight suggestion of the author, but not mentioned straightly.

The general emotion preference was relatively objective, most of the reports was focused on Xi Jinping's speech during his visit such as 習氏、「微笑外交」に転換 バンドン会議「一带一路」PR (Xi Jinping, changing into Smiling Diplomacy in the Bandon meeting with 'Belt and Road'), although sentence such as 「国際世論の懸念を払拭（ふっしょく）するため戦術転換をした結果」と指摘する。(It was criticized of seeking to get rid of the suspicious from international public opinion) was usually written in the end of the reports, but most of the reports focused on the reports of the fact.

### **Sankei Shimbun（産経新聞）**

Sankei News started to report 'Belt and Road Initiative' only after 2015 but was the most enthusiastic one to use this terminology in its reports. Sankei mentioned the initiative for the first time when the list of China's most popular words was reported in the end of 2014, the first formal reports about the initiative was made in 14th February, 2014. In a comment essay named 真珠が欠けた「首飾り」戦略(The 'String of Pearls without pearl') was published on the newspaper, sentence such as '中国が甘い言葉で持ちかける'夢の計画'に、周辺諸国も思わず乗り気になったに違いない。(There was no doubt that China was using nice world to make a 'dream plan' and lured the countries around China favor it involuntarily)

In this period, Sankei News did not really pay much attention on this initiative but often used this notion in the news related to China. Letters such as 強い (strong, fierce) 狙う (seek to grab) was often used. A clear negative opinion was carried out for most of news reports about the initiative would be written with negative words and most of the movement was considered as aggressive. The news was trying to impress the reader with a threatening image of China.

### **Nihon Keizai Shinbun(日本経済新聞)**

Nikkei, with the main target group of businessmen, reported on this initiative with a more subjective view. Most of it reports remained focusing on the economic event. Nikkei's report of 'Belt and Road Initiative' was started relatively early with the title of 中国、4.5兆円超の基金創設へ 「シルクロード経済圏」 (China, using 4.5trillion of fund to build the Silk Road Economic Circle) on 8<sup>th</sup> November 2014. The rest of reports were mostly focused on the

practical topic such as China's investment in South east Asia and Middle Asia, the Eurasian Land Bridge.

### **Mainichi Shinbun（毎日新聞）**

Mainichi started to mentioned the initiative since 1st January 2015, an essay named チャイナウォッチ 中国が15年に直面する九つの経済構造変化(World watch: China facing nine changes of the economic structure in 2015), a further report explaining the contents of the 'Belt and Road Initiative' was published in 1-3rd March 2015, named 「戦勝」70年：中国の計算(70years after the Winning of WW2, China's Thinking). The reports from Mainichi also remained subjective, mainly reporting China's overseas investment and President Xi Jinping's visit and public speeches.

### **Yomiuri Shinbun（読売新聞）**

Yomiuri published a serious of reports introducing Xi Jinping's policy in the end of 2014, the 'Belt and Road Initiative' was mentioned for the first time on 18<sup>th</sup> October 2014. The attitude of Yomiuri was quite unusual, as one of the best selling newspaper, its reports related to the Initiative seemed to prefer using an emotional title but with surprisingly subjective contents. The title in this period such as 獅子の計略 (The strategy of the lion).

### **3.3 2017.5-2018.10 Melting ice**

Since May 2017, Japanese government made two positive move on the topic of 'Belt and Road Initiative'. On 15<sup>th</sup> May 2017, Prime Minister Abe sent Toshihiro Nikai to present the 'Belt and Road Forum for International Cooperation'. For the first time a high level Japanese party leader presented in a 'Belt and Road Forum', this immediately started a report boom in Japanese newspaper. Interestingly, instead of the Initiative, Japanese media spent more pages on North Korea Issue. One month later Prime Minister Abe made the first comment representing Japanese government on the 'International Conference on the Future of Asia'. A relatively friendly gesture made both side of the media wondering was it a new start for Sino-Japan relationship. During this period, Japanese newspaper paid more attention on this topic and the attitude showed a sigh of changing. In this period, the author would show the difference between two newspaper.

### **Asahi Shinbum(朝日新聞)**

Asahi started the report of the ‘Belt and Road Forum for International Cooperation’ since February, a report named 「一帯一路」 5 月に開催（‘Belt and Road’ conference will inaugurate in May） and followed by a news on 29th March mentioned that ‘中国側は 5 月に北京で開く「一帯一路（シルクロード経済圏構想）」の首脳会議への、世耕弘成経産相の出席を求めたという。’（China invited the Minister of Economy, Trade and Industry of Japan to present the forum）. Formal report was made during the Forum, Asahi reported the meeting of Nikkai and Xi Jinping and wrote a brief introduction of the Forum. Interestingly, instead of focusing on the Initiative, Asahi seemed to be more anxious about North Korea issue for news mentioned Nikkai’s visit to China spend more pages on his mission of discussing Korea Issue instead of the ‘Belt and Road Initiative’. On June, News about Prime Minister Abe’s comments was reported in the tile of ‘中国の一帯一路、条件付き「協力」安倍首相、講演で表明’ (Prime Minister Abe showed willingness to cooperate China’s Belt and Road Initiative with condition). Although it was relatively simple report but was followed with several reports about this comments. The possibility of Sino-Japan relationship shifting into a better status was discussed, the Free Trade issue was also linked to this comment because of the trade wars started by US President Trump.

### **Sankei Shimbun（産経新聞）**

Sankei Shinbun started the reports since April with modest title of 「一帯一路サミット」に 28 カ国首脳が出席（‘Belt and Road Summit’ 28 countries head of government will present) and 二階氏が来月訪中 一帯一路フォーラム出席 (Nikkai will visit China next month and present the ‘Belt and Road Forum’). The report on the Forum itself was relatively objective however the comments towards the Forum seemed to be fixed. On one side, 「一帯一路」会議開幕 中国、新たな国際秩序狙う (Belt and Road Forum started, China seeking to establish new international order) showed the anxious and suspicious towards the initiative, however on the other side report such as 「一帯一路」会議開幕 日本、協力へ慎重姿勢崩さず (Belt and Road Forum started, Japan lost its prudent towards cooperation) wrote that ‘米国が環太平洋戦略的経済連携協定（TPP）から離脱を決め、多国間貿易協定を推進する日本にとっては、中国主導で日中韓などが参加する東アジア地域包括的経済連携

(RCEP)の重要度も増しており、内外情勢の見極めを慎重に行う必要がある。(With US dropping TPP, it's increasingly important for Japan to join the Regional Comprehensive Economic Partnership led by China)' The mixed feeling showed that although Sankei still held its suspicious attitude towards China, but it also need to admit that Japan should consider joining the 'Belt and Road Initiative'. This mixed feeling remained when Prime Minister Abe made the official comment, 一帯一路透明性が重要, 首相、日本協力に「条件」(The transparency of Belt and Road was important, Prime Minister's condition for cooperation) showed the regret for USA dropping TTP, which seemed a little unwillingness for the Prime Ministers comment.

### 3.4 2018.10~ A new start?

Prime Minister's visited China on 25-27 October 2018, according to China's media People's Daily(人民日报), Prime Minister Abe called the 'Belt and Road Initiative' as a concept with great potential. This expression was widely praised in China and was considered as one major milestone for the future cooperation. However such expression was not found in Japanese newspaper. All five major newspapers did not published news report with the title of 'Belt and Road Initiative' and this expression was not founded.

However the report about the 'Belt and Road Initiative' could be found in the reports of Abe's visit to China. The attitude, however, differed between different newspaper. The attitude of Asahi was surprisingly positive, in the essay published in 22th October, '中国が主導する「一帯一路」構想については、アジアと世界経済に資する潜在力がある。懸念される中国の覇権の具としてではなく、世界の発展に役立つ公正なインフラ開発となるよう、日本が関わるべきだ。'

The opinion of Sankei Shimbun was quite the opposite. They published an essay written that China was '日本の協力を利用して一帯一路の国際的な信用を高める戦略だ(Using Japan to increase international world's confidence towards the initiative). And the essay also ended with an ancient Chinese saying '一山不容二虎' (Two tigers could not live on the same mountain) to make a pessimistic forecast on the Sino-Japan relationship .

Yomiuri and Mainichi, however published a third perspective. Instead of making judgment of Japan's presence in the 'Belt and Road' Initiative, they focused more on the risk of the

Initiative. The risk of the debt issue was emphasized but still remained positive on the future development of Sino-Japanese relationship.

### **3.5 Vertical Comparison: changed or not?**

In this part, the general attitude in different period would be compared in order to estimate to what extent did Japanese newspaper changed their opinion on the issue of 'Belt and Road Initiative'.

Obviously, the general attitude towards 'Belt and Road Initiative' changed between 2015-2018. However, according to the division, the author found that Japanese newspapers attitude did not change their attitude according to Prime Minister Abe's comments.

Compared the attitude of 2015 when first round of reports were published and 2017 when Nikkai presented the 'Belt and Road Forum for International Cooperation'. An obvious change could be noticed. Take Asahi Shinbun for example, Asahi published the first report of the Initiative in the end of 2014, named '中国の地域外交 海も陸も、すべての道を北京へ', in the following reports, Japanese newspaper mainly considered it as a plan irrelevant to Japan, only as a strategy brought by Chinese President Xi Jinping, as is said in 習氏、「微笑外交」に転換 バンドン会議「一带一路」PR. However Asahi started to considered the Initiative as a plan that would affect Japan after Prime Minister Abe made his first comment in June 2017. Asahi published a news related to AIIB just a few days after PM Abe made the Comment, in the reported named パリ協定推進、投融資に力 AIIB、年次総会で方針 (AIIB decided to use the investment to push forward the Paris agreement) Asahi considered Japanese possibility of entering the Initiative. Although the news believed that Prime Minister Abe made this comment mostly in order to gain support on the issue of North Korea. Attitude changed that Japanese newspaper started to consider Japan as a participating side instead of the witness side as it was in 2015.

The attitude, however, did not changed so significantly in 2018. Although Prime Minister Abe praised the Initiative during his visit to China in October. This comment was not reported in Japanese major newspaper. But the attitude still showed different outlook compared with 2017. Although most Japanese newspaper still considered Japanese participation of the 'Belt and Road Initiative' mainly was a gesture to gain China's support in the North Korea Issue, the opinion between different newspaper changed. Sankei still remained pessimistic towards



the cooperation between China and Japan according to 平和友好条約 40 年 戦略的互惠の行方 日本は一帶一路の伴走者か(藤本欣也 2018). But Asahi was holding an extremely friendly attitude towards the Initiative according to (社説) 日中平和友好 40 年 主体的外交を練る契機に (could be found in ).

Another change could also be found according to the reports of debt issue. According to Nikkei, there were only two reports about China's investment in 'Belt and Road Initiative' causing countries in South East Asia and Middle Asia facing the risk of increasing external debt. However there have been 46 pieces of reports of this topic in 2018. The rise of attention towards such question caused more concern and anxious in Japanese newspaper.

#### **4. Concerns and possible barriers**

Japanese attention and participation towards 'Belt and Road Initiative' gradually rose in recent years. However such attention and participation still remain fragile and lack of confidence. According to the research of the newspaper, some major concern could be found from the reports. Also some barriers for the cooperation between China and Japan could be found.

##### **4.1 External Debt Issue**

All of the major news paper, whether positive or pessimistic, raised their interest in the external debt issue in the progressing of the 'Belt and Road Initiative'. Worrying about causing foreign countries in the Initiative Zone facing an unacceptable amount of external debt during the construction. Japanese newspaper emphasized this issue in the reports.

##### **4.2 India**

Interestingly, Japan newspaper would always linked the 'Belt and Road Initiative' with the 'Free and Open Indo-Pacific Strategy'. As is written in インド太平洋、消えた「戦略」、政府が「構想」に修正、賛同国拡大狙う。(The government adjust the Indo-Pacific Ocean Strategy to win support from more countries), '日本、米国、豪州、インドの 4 カ国が主導する。経済や安保で日米豪印とアジア各国が協力を深め、アジアへの強引なインフラ投資や海洋進出を続ける中国に一定の歯止めをかける狙いがある。' (*The strategy was lead by Japan, US, Australia, India to further cooperate in the area of economy and security. To some extent prevent China from keeping invest in Asia and expanding in the pacific ocean*)

Such reports seemed that Japanese newspapers were still having a serious trust issue toward the 'Belt and Road Initiative'.

#### **4.3 The asynchronous between government and newspaper**

The attitude of Japanese government showed a major difference with the newspaper during PM's visit to China in 2018. With a friendly gesture from Japan's Prime Minister, Chinese media was looking forward a new era between China and Japan. Especially on the cooperation of the 'Belt and Road Initiative'. However the lack of reports showed that Japanese newspaper did not considered the comment as a formal and serious one. Such lack of negotiation might cause the misjudgment from China and lead to future conflict.

#### **5. Conclusion**

The attitude of Japanese newspaper started the reports of the 'Belt and Road Initiative' in the end of 2014 and gradually paying more attention on this topic. Although the change and the current general opinion is still not optimistic, but with more attention and gradually friendly gesture from Japanese government. Chances existed for the future cooperation between China and Japan, and as the second and the third largest economy in the world, there is no doubt that cooperation fit both sides interest better than meaningless conflict.

During the past five years, The reports of 'Belt and Road Initiative' experienced two major changes and three main phases. From the witness side to a participation part, Japanese newspaper change its identity on this topic. However problem also existed, Japanese newspaper still remained a relatively pessimistic attitude on China's investment in the Initiative, 'Free and Open Indo-Pacific Strategy' still served as a confronting counterpart and the future relationship between China and Japanese government still remain uncertain.

Although barrier existed, with the constant communication and government relationship kept warming, a brighter future for Sino-Japan cooperation could be expected.

#### **Reference**

Kazuhiko TOGO(2018), "One Belt One Road" Initiative and Japan's Foreign Policy, The Bulletin of the Institute for World Affairs, Kyoto Sangyo University:30, 53-67

Hirakawa Sachiko(2018),China's Energy Policy and Regional Diplomacy: Central Asia as a Model of "Belt and Road Initiative", Institute of Asia-Pacific Studies Waseda University :30, 89-1

鷲尾 紀吉 (2018),「一帯一路構想」に関する予備的考察-一大ユーラシア経済圏の形成を中心に, 中央学院大学商経論叢: S32-2, 77-89

#### 朝日新聞

吉岡桂子,中国の地域外交 海も陸も、すべての道を北京へ,朝日新聞,2014.12.21: 7

倉重奈苗,習氏、「微笑外交」に転換 バンドン会議「一帯一路」PR,朝日新聞, 2015.4.26 :6  
(地球 2 4 時)「一帯一路」 5 月に開催,朝日新聞,2017.2.4: 1

保護主義へ懸念、「日中共通」認識 経済官庁次官級協議,朝日新聞,2017.3.29:経済 1  
パリ協定推進、投融资に力 AIIB、年次総会で方針,朝日新聞,2017.6.17,朝刊 経済:8  
(社説)日中平和友好 4 0 年 主体的外交を練る契機に ,2018.10.22 朝日新聞:朝刊オピニオン 2

#### 毎日新聞

細川美穂子,チャイナウォッチ 中国が 1 5 年に直面する九つの経済構造変化,毎日新聞,2015.1.1:Vol.93 No.2: 61

日中:第三国投資 インフラで「実利」政治主導、課題も,毎日新聞,2018.10.27:大阪朝刊:経済面 6 頁

#### 日経新聞

大越匡洋,中国、4.5 兆円超の基金創設へ 「シルクロード経済圏」,日経新聞,2014.11.8  
(東洋経済の眼)自由貿易、日本の戦略 どうなる新たな経済連携 ,日経新聞,2017.6.10:  
朝刊商況 5

福田直之,日本の「協力」、中国歓迎 一帯一路、習氏肝いり構想,日経新聞,2017.7.9:朝刊 外報 1

インド太平洋、消えた「戦略」、政府が「構想」に修正、賛同国拡大狙う。 ,日経新聞,2018.11.13 :朝刊 4 ページ

#### 読売新聞

〔獅子の計略〕経済秩序(3)「海上シルクロード」構想,読売新聞,2014.10.18:東京朝刊 5

〔獅子の計略〕 政策決定（６） 膨張経済 支える外交 調整役 異色の国際通,読売新聞,2015.3.2:東京朝刊 6

産経新聞

宇都宮尚志,真珠が欠けた「首飾り」戦略,産経新聞,2015.2.14:東京朝刊 6

河崎真澄,アジア投銀 7 カ国署名せず 中国、資金力で批判封じ,産経新聞,2015.6.30:大阪朝刊 総合 1

藤本欣也,「一带一路」会議開幕 中国、新たな国際秩序狙う,産経新聞, 2017-05-15:大阪朝刊 総合 3 面

西村利也,「一带一路」会議開幕 日本、協力へ慎重姿勢崩さず,産経新聞,2017.05.15:大阪朝刊 総合 3 面

一带一路 透明性が重要 首相、日本協力に「条件」,産経新聞,2017.6.6:東京朝刊 2

藤本欣也,平和友好条約 4 0 年 戦略的互惠の行方 日本は一带一路の伴走者か,産経新聞,2018.10.26,東京朝刊:9

### **Acknowledgment**

First I wish to thank the Master Kong Program and the Waseda University from offering me such a precious opportunities to exchange in Waseda University. I have learned a lot from this semester. Then I wish to thank Mr Hirakawa and all the teachers helped us in this half year, only with their generous help could I finish this research and the paper. I also wanted to express my gratitude for all the kind persons I had met in Japan for they gave my a great experiences and many precious memories to remember. Finally I wish to tank all the students in this program, their accompany filled my daily life with great joy.

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"Belt and Road Initiative" is a combination of "The Silk Road Economic Belt" and "The 21st-century Maritime Silk Road". The initiative was first brought up by Chinese president Xi Jinping in September, 2013 which at that time only consisted the "Silk Road Economic Belt". Later in October, Xi Jinping brought up the "Silk Road Economic Belt" during his visit in Indonesia. These two initiatives turned in to China's national strategy in November, 2013. The aim of the initiative is to build an Economic network from China to Europe which include infrastructure development and investment mainly focused on Middle Asia and South-East Asia. This initiative also started several financial institutions like the Asia Infrastructure Investment Bank and the Silk Road Fund.

The aim of this paper is to explore Japanese newspaper's attitude towards the Initiative. Considering Japan as third biggest Economic in the world and one of the most significant country in Asia, Japan's attitude could play an essential role in the development of the Initiative. In order to understand Japan's politics preference, the newspaper offer a channel to explore the attitude of the major politic groups. Through the research of Japanese major newspaper, this paper wish to understand the different target group of different main newspapers and the difference attitude towards the Initiative. Further developing the understanding of Japanese newspaper's main concern about the Initiative. Exploring the possible change of Japanese major newspaper's attitude towards the Initiative. And figuring out the possible reason for the change of attitude.

This paper mainly used the comparison methods to research these topics. According to the news reports of five major newspaper in Japan, the Yomiuri Shimbun, the Asahi Shimbun, the Mainichi Shimbun, the Nihon Keizai Shimbun, the Sankei Shimbun, the author would do lateral and vertical comparison. Using the lateral comparison to estimate newspapers general idea in one period and the vertical comparison would compare reports from different period to estimate the difference between different phases.

The author of this consider 2013 as the start of this research because China's Premier Xi Jinping brought up the notion officially in 2013 for the first time. In October and November, The Silk Road Economic Belt and The 21st-century Maritime Silk Road was brought up. However, until 2017, there was no official comments about this initiative from Japanese government and the government gradually lost the enthusiasm of it. The next phase started in the May of 2017 while China hosted the Belt and Road Forum for International Cooperation, the Prime Minister Abe, Japanese Mr. Toshimitsu Nishii who was then Secretary General of the Liberal Democratic Party to present the Forum. Although Nishii was not technically considered as the representative of Japanese government but was considered as a remarkable event for Japanese participation at the Belt and Road Initiative.<sup>1</sup> This phase also concerns another significant event for Prime Minister Abe for the first time made a official comment on Japanese participation in 'Belt and Road Initiative' in the 'International Consistency in the Future of Asia'. The third phase started since Prime Minister Abe visited China in 2018 and his praise for 'Belt and Road Initiative' may could start a new era on the cooperation between two countries.

Although the change and the current general opinion is still not optimistic, but with more attention and gradually friendly grows, these Japanese government. Chances existed for the future cooperation between China and Japan, and in the second and the third largest economy in the world, there is no doubt that cooperation in both sides interest better than meaningless conflict.



# **The Comparison Research in Death Penalty between Japan and China**

**WANG Zhixin**

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## **1. Introduction**

Death penalty, which indicates a government-sanctioned practice to deprive one's live for a crime, is always one of the most severe punishment. Once upon a period of time, Japan was the first country which abolished death penalty for nearly 3 centuries from 810 to 1156 A.D (Sato, 2013). However, this abolition of death penalty is no longer been seen in Japan recently although more and more countries are endorsing to waive (or indirectly waive) the application or execution for death penalty with the development of humanism or democracy, leaving Japan the only advanced country still remained it except for the U.S. On the other hand, as a traditional legal country in Asia since Meiji era, Japan has a well-developed legal system followed by many other countries. Therefore, even though Japan has still retained the application for death penalty to some crimes, its practice is restricted to some limitation out of the same consideration to respect humanism.

In fact, among all the countries or regions conforming Continental Law which derived from European continent, Japan is always the target of learning and imitating by China in terms of criminal law. Although most of criminal terms and concept have been absorbed from Japan, there are many differences or divergences caused by a range of factors with China, especially on the death penalty. Such controversy can be fully typified evidently the recent Jiang Ge Case that a student named Jiang Ge was killed to death by the murderer Chen Shifeng who allegedly stabbed Jiang more than ten times in order to harass his ex-girlfriend. With more than 4.5 million signatures from China prosecuted this murderer to death penalty on the Tokyo Court, the Tokyo court, however, only sentenced the murderer to 20 years in prison despite statement saying that "the suspect has a strong motivate of killing"<sup>1</sup>, which drown a strong opposition from Chinese websites and medias. On the other side of the coin,

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<sup>1</sup> Translated from Japanese: "殺意をもってあらかじめ用意した", juridical report 平 28 (刑わ) 2622 号·平 28 (合わ) 299 号, Tokyo Court.

the media from Japan seemed indifferent about the result, in other word, “taking such cases for granted” (Zhang, 2018), appearing reverse responses to China.

Motivated by this case from which may imply some significance to both countries, the purpose of this study is to deepen the understanding toward the death penalty in Japan and its comparison with China’s, through which it is meaningful to find more beneficial experience from Japan.

The holistic methodologies first depend on a range of studies viewing, then some interview and news reading was conducted to assess the value and concept toward death penalty from grass-root point of views. Besides, by attending some criminal trial in Tokyo court, an observation on the process of juridical trial was conducted.

The structure of the paper is organized as follows. The first section views the history of the formation of Japanese criminal law and some theories of death penalty along. In the second section, the current status of both procedure and outcomes in Japanese death penalty is presented including the statistics and observation in Tokyo court. Then some major news and interview is conducted in the third section to show the grass-root point toward death penalty. In the last section, the comparison with death penalty in China is made to conclude some experience and suggestions to it.

## **2. Literature Review**

According to Japanese criminal law and affiliated official documents, there are 18 crimes eligible for the death penalty with a restricted limitation and inspection system. In practice, however, with the increasing globalization of humanisms, it can be seen an obvious decline for the execution in terms of both categories and numbers. Firstly, only prisoners committing the three categories of crimes— rape, murder and robbery resulting death have been actually sentenced to death. Secondly, the number of executions had declined dramatically until 1997 and since then keep it a fairly low statue under the average of 4 persons per year.

It is such an inclination that provokes some controversy opinions by various researchers who advocate the abolition of death penalty. As one of those representatives, Kagawa (1997) claims that it is inevitable for the occurrence of misjudgment due to the misunderstanding of

the case or ability to judges<sup>2</sup>. Because the death can't be revived and the reputation can't be reversed, death penalty should be regarded separately with any other sentences radically. Besides, standing on the point about the effect in death penalty, Ooya (2003) argued that it was useless by using it as a precaution for the following crimes from evidences that the crime rate still remains relatively flattened even after the abolition of death penalty in many other countries.

However, regarding the domestic boom for the death penalty abolishment, the current phenomenon is relatively conservative or even "willing" to impose death as a sentence both practically and theoretically. Sato (2013) acknowledged that Japanese judges tended to ignore international criticism by changing the anonymity of prisons' names to public from 2007, Before which "The secrecy that surrounds capital punishment in Japan is taken to extremes not seen in other nations" (Johnson, 2006), indicating the determination for not abolishing the death penalty.

The retention for death penalty get support not only from judges in the court, but also a large number researchers and lawyers. Lane (2005) believed that the death penalty can provide a power of deterrence to intimidate social evil. Even some pro-abolishment researchers like Tagusari (2012) admitted the necessity to protect the victim's right and appease its requirement. What can be always referred by those anti-abolishment proponents was the strong public support which is probably one of the basements for death penalty. Tagusari (2012) also regarded to the official polls by Cabinet Office from 1956 to 2009 which showed that the proponents who supported the abolishment have been keeping a low profile on the average of 20% as an effective testimony for government and scholars.

In general, the current phenomenon of the death penalty in Japan tends to be a mixed compromise among the public, scholars and international trends as the conclusion by Shanhe, Rebecca & Toyoji (2010) that the Japanese criminal justice system on the one hand applies the announce and execution of death penalty system scrupulously due to the avoidance of misjudge and wrongful execution, but on the other hand is reluctant to abolish such system backed huge public foundation.

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<sup>2</sup> Examples can be seen from "the four unjust cases": The Usagita Case, the Tagawa Case, the Matsuyama Case and the Shimayama Case.



### **3. The formation of Japanese criminal law and the death penalty**

#### **3.1 The emerging of eclecticism and the new doctrine**

During the very early period of Meiji Reform from 1868, Japan's criminal law was not as modernized as supposed to be. As a matter of fact, no matter the Interim Criminal Law (仮刑律) released in 1868, The Protocol of New Criminal Law (新律綱領) in 1870 or The Reformulated Criminal Law (改定律例), all of them were all based on traditional Chinese formation, complemented with some contents created in Tokugawa Period. However, with the scope of reform expanding on every aspect of society, the old series of laws became incompatible with constantly changeable situations. Therefore, some Japanese scholars influenced by the theory of abolishment of death penalty at that time advocated a new doctrine named eclecticism. The standpoint of eclecticism was to combine the retributationalism and utilitarianism, which means on the one hand realized the necessity of capital sentence, on the other hand emphasized the mercy to criminals who "can be forgiven". Based on eclecticism, the first official criminal law (the old version) was enacted in 1880. One can say the "eclecticism" indicated not only the meaning above, but also a compromise between the tradition and modernization, because there were loads of leftovers from the feudal time such as discrimination on identity and torturing during the interrogation. With the disintegration of old society, more and more socialists criticized the eclecticism as unproportioned mercy for criminals (Kida, 1971). Those scholars attached on great importance on the authority of penalty and the precaution for social security, establishing a new faction on Japanese modern criminal law called "the new doctrine".

The dispute between eclecticism and new doctrine lasted for a long time, during which the New Criminal Law (刑法典) was finally enacted in 1908 and continued until today. However, the first version of criminal law was not regarded as a best solution for both two factions, since it was just an imitation of German criminal law. It should be noted that Germany revised the criminal law and retained many conventions in order to maintain the position of emperor, in the meanwhile, it also introduced some modern theories into the criminal to fulfill the demanding from industry. This consideration precisely coordinated the

requirement of Japanese government who wanted to establish a Mikado country, and thus became a new prototype for Japanese criminal law. However, the new doctrine claimed it was a continuation of Old Criminal Law (Kawakuchi, 2005) while the eclecticism compared it as a deterioration of society. After the enactment of New Criminal Law, both side began an unprecedented dispute to dominate the priority on amending criminal law, on the other side they absorbed new theory from Germany to remedy defects respectively. Represented by Makino Eiichi and Miyamoto Hidenaga, the new doctrine adopted *teleology* specialized by *social precaution theory* and *subjectivism theory* as its core explanation (Fu, 2016). In brief, the teleology on crime is a principle which emphasizes that the purpose of the criminal law is not retribution but precaution for the social security, and the precaution theory and subjectivism theory can be understood as criteria of crime where whether a person is guilty or not is judged by his purpose or consideration rather than his behavior or consequence. From a pragmatic point of view, contrasted with eclecticism, a person can be judged as a “criminal” before he actually commits the crime. The heated dispute continued until the prelude of WWII when the nationalism and militarism played dominant parts in the society because the new doctrine which highlighted the authority exactly met government’s desire. Therefore, once the new doctrine was “forced” to promote as national ideology, the dispute became meaningless since even the scholars of new doctrine themselves couldn’t control such powerful momentum, resulting a period called “dark time”.

### **3.2 Japanese criminal law after WWII**

The new constitution after the WWII law can be regarded as a decline for the new doctrine. Firstly, the new constitution law prioritizes human rights, emphasizing the protection from being deprived without any evidence. Secondly, all the subordinated laws should be centered around the constitution law. Followed by the liberal tendency, the nationalism-centered doctrine weakened and even the debate between the two sides became unimportant. The criminal field in Japan at that time was more like an amalgamation among different theories because, on the other hand, although the new doctrine was no longer accepted, there were still some advisable theories in the previous New Criminal Law influenced by this doctrine, besides, the old doctrine itself was divided into several factions

led by separated young scholars who tried to explain the same question with various methods. As the Kimura said: “The current issue is to find out the proper solutions to the various problems in the criminal law proposed in the school dispute with theoretical and practical requirements.”, most scholars<sup>3</sup> reached a general consensus on the combination among different doctrines to form Japan’s own criminal doctrine while they could have different explanations on specific questions. The attitude toward death penalty became one of the most outstanding questions among them.

The abolishment of death penalty had been existed in the dispute between two doctrines before the WWII when the eclecticism advocated mercy and the new doctrine suggested precaution. General MacArthur who insisted the human rights participated the formulation of new constitution law after Japanese government was taken over by the U.S., influencing a new generation of Japanese scholars. Dr. Masaki was one of the earliest scholars who launched anti-death penalty campaign, also, his treatises became one of the earliest materials to systematically discussed the importance of death penalty abolishment, making a strong impact on Japanese criminal law cycle. Just as theoretical circle began to reflect the defect of death penalty, the notorious Four Injustice Case shook the whole Japan, discrediting the authority of Japanese court. Under this background, the principle of caution on death penalty emerged in early 1990s and thus Japan actually suspended the execution of the death penalty for a period of time despite some announcements on death penalty still existed.

However, the alleged caution on death penalty was actually a semi-finished product, manifesting Japan’s hesitant on whether or not abolishing thoroughly. Such compromise retained the most lethargy flaw—the over-time of trial resulting in the aging of death row, which can be embodied on the case of Japanese Aum Doomsday Cult (オウム真理教) where the trial for the principal criminal who killed 27 people lasted more than 10 years because of the this principle. One can say that Japan at that time was trapped into a dilemma within the tendency of global abolishment of death penalty and the necessity of punishment toward evils.

Therefore, so far although general items and principles of Japanese criminal law has not

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<sup>3</sup> A small portion of scholars held the criminal theory of Marxist which is a completely different pattern from tradition.

been amended much toward death penalty, there were a turmoil over theoretic and practical exercise. It can be predicted that the discussion and application revolving the death penalty will last for a quite long time.

#### 4. Social concept

##### 4.1 Public opinions on the death penalty

Limited studies proof that one of the largest obstacles lies on public opinions, where sizable part of citizens support capital punishment. This section begins with social surveys (polls) and news media as source, then analyze the existed reasons beneath.

Public opinion polls reflect the most prevalent will of people. According to the survey on Public Opinion Poll in Relation to the Basic Legal System (基本的法制度に関する世論調査) conducted by Japan Cabinet Office, people in favor of death penalty had never exceeded 71% before 1990 when the Aum Doomsday Cult had not happened. However, stepped into the 1990s when the globally increasing demonstration against death penalty elicited domestic scholars to realize the seriousness of this problem, the public opinion stood on opposite side, reflected by the survey where the supporting rate increased dramatically and reached 85% in recent years.

調 査 年 月	①死刑存続	②死刑廃止	③わからない
昭和 3 1 年 4 月	6 5 . 0 %	1 8 . 0 %	1 7 . 0 %
昭和 4 2 年 6 月	7 0 . 5 %	1 6 . 0 %	1 3 . 5 %
昭和 5 0 年 5 月	5 6 . 9 %	2 0 . 7 %	2 2 . 5 %
昭和 5 5 年 6 月	6 2 . 3 %	1 4 . 3 %	2 3 . 4 %
平成 元 年 6 月	6 6 . 5 %	1 5 . 7 %	1 7 . 8 %
平成 6 年 9 月	7 3 . 8 %	1 3 . 6 %	1 2 . 6 %
平成 1 1 年 9 月	7 9 . 3 %	8 . 8 %	1 1 . 9 %
平成 1 6 年 1 2 月	8 1 . 4 %	6 . 0 %	1 2 . 5 %
平成 2 1 年 1 2 月	8 5 . 6 %	5 . 7 %	8 . 6 %

*(The supporting rate of death penalty by surveys of Cabinet Office of Japan)*

The polls are not the exclusive source to reflect public opinion. Through newspaper there were some clues on how Japanese citizens converted their opinions. What pushed the public

indignant to the climax was the miserable casualty in Tokyo Subway Sarin Attack Incident and its endless trial process. In March 1995, the perpetrators from Aum Domsday Cult released sarin on three lines of the Tokyo Metro, killing 13 people and injuring more than 6300 others. Such unprecedented terrorism itself infuriated Japanese people but what's worse was the unbearable up to 20 years of trial process during which the people's attitude toward penalty became gradually enthusiastic and impatient. According to the survey from Sankei Newspaper on "whether to support the execution of death penalty on perpetrators in Aum", more than 80% of respondents favored<sup>4</sup>. Besides, the investigation from Mainichi Newspaper found there were still nearly 60% of interviewees hoped the death penalty can continue to exist after the execution of perpetrators<sup>5</sup>. On the other side, the editorials of newspapers provided more professional views from public. The *Yomiuri Newspaper*, for example, commented that "*since Mrs. Kamikawa (the minister of Justice who signed the execution order) emphasized the order was based on extremely cautious discussion, it is important to maintain this attitude in the future.*", which implied the standpoint on death penalty. In 2016, *Yomiuri* also criticized that "*Now that the public poll released by Cabinet Office in 2015 have showed the overwhelming majority on supporting death penalty, the JFBA (日本弁護士連合会) should pay attention such a gap between public opinion and its assertion.*", which satirized abolishment of death penalty hold my theoretical circle. In addition, *Sankei Newspaper* also expressed the favor that "*Since our country is definitely a country under the rule of law with death penalty, it is our obligation to enforce the execution on it.*", and that "*there are some crimes which can only be repaid by capital sentence.*"

The polls and newspaper covering two specific cases reveal the support for retaining the death penalty is deeply rooted in Japanese public opinions despite the fact that there is an apparent separation with global tendency and academia.

## 4.2 The underlying reasons

Behind the high support for the death penalty are correlating factors among Japanese

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<sup>4</sup> 産経新聞・FNN＝2018年7月21～22日実施されていた「オウム真理教の元教祖ら7人の死刑が執行されたが、死刑制度に賛成か、反対か」について世論調査。

<sup>5</sup> 毎日新聞＝2018年7月28～29日実施されていた「オウム真理教の松本智津夫（麻原彰晃）元死刑囚ら13人に死刑が執行されました。海外では死刑制度を廃止した国が多くなっています。日本の死刑制度は今後どうした方がよいと思いますか。」という世論調査。

national complex since ancient time and dramatic fluctuation recently.

Firstly, favoring of death penalty has been rooted so deeply and naturally in Japanese minds that it even become a conditional reflex when being asking about this kind of questions (Yoshida, 1994). One of such national complex comes to the alleged foreigners-eliminating concept generated in Japanese society. In brief, people born from the Seken (世間, the “world” defined by Japanese) don’t welcome the people outside and even people without the same pace. the Japanese who were group-oriented and with ancestral roots in village life, have a long tradition of isolating and eliminating evildoers (Lane,2005). The foreigners-eliminating concept cannot be simply regarded as a kind of discrimination under the fact that Japan is a nation-state since ancient time, instead, it is more proper to call it a unique culture. For example, according to a questionnaire in 1992, there were still 40% of housing proprietors refusing foreigners to rent houses without reasons.<sup>6</sup> The same is true or even worse for even natives. As one of the regional laws, the better-birth protection law (優生保護法) overtly stipulated that “Except for mental disabilities, physical disabilities and conspicuously low-ability workers” which was criticized as an incursion to the rights of disabilities. Although it was merely a regional law made in Nara prefecture that can’t represent the will of the whole country, such similar campaign bursting out sporadically like “campaign of not laying unlucky kids” (不幸な子供を産まない運動) in Hyogou prefecture and “campaign of laying the kids of Kuroshio Current” (黒潮の子を産む運動) in Kagayama prefecture implied that the ordinary Japanese, although the majority, still can’t accept people discording themselves.

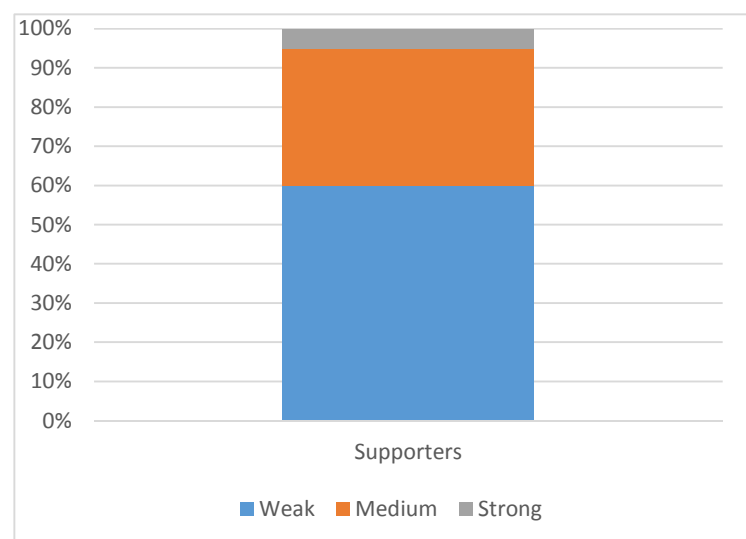
The high-pressured society is probably the second factor. The causation can be explained that the people under high pressure cannot be aware of their pressured status and gradually accustom an endurable personality whereas an orderly society was formed, causing people became more sensitive about surrounding security under the stably pressured environment (Yoshida, 1994).

Finally, another reason which should also be taken into consideration is the decline of culture of criticism to current policy related with modernization and globalization. Japan has

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<sup>6</sup> 大阪府と府下の宅地建物取引業者団体のアンケート結果（1992年3月、回答者数5838）。

seen the tremulous changes in surrounding from the disintegration of Soviet Union to sporadic wars in Vietnam, domestic China and Southeast Asia. As one of the most formidable hostile for Japan, the falling of Soviet Union also meant a failure of a tentative reform approach which ones made it strong enough to compete with the U.S. Also, the nervous surrounding environment like conflict with China and the civil war in Vietnam induced on increasing tension among Japanese society. Further, in the educational system, those new generations tended to regard “being obedience without any reasons to everything” as “fashion” and incline to “be no power, no care and no sympathy fearing of being recognized as a cult (築地書館, 1990). ” The evidence can be showed from a recent survey on how university students in Japan think about death penalty<sup>7</sup> where among the supporters who dominated 66% of the respondents, only minority of students answered strongly in favor. The latent reason may lay on the social tendency (maintain the state quo the death penalty is still remain) and the anxiety about the impact of abolishment once changing state quo can result. In other word, even the most intelligent part of new generations in current society may still hesitate to express their own opinions and tend to conform what is always be.



*(The supporting rate of death penalty by university students in Japan )*

Interestingly, like the situation in Japan, there are many other advanced countries where the supporters of death penalty dominate the majority. As countries that have already

<sup>7</sup> An Analysis of a Survey of University Students. Advances in Applied Sociology,06,29-35. doi: 10.4236/aasoci.2016.62003

abolished the death penalty, such as Britain and France most people are also disapproving of the abolition of the death penalty. However, after the parliament passed the abolition of the death penalty, the nationals did not show an excessive reaction against such abolition. Therefore, it is clear that public opinion can't be a major reason to retain the death penalty. On the contrary, in Japan's case, not only Japanese lawyers but also judges and bureaucrats tend to defend themselves by referring public opinion, as Japanese lawyer Yuji Ogawara says, "Politicians listen to voters' views" (Lane, 2005a) after citizens demanded that the perpetrators in Aum Cult pay with their lives.

Now that the public opinions can only be counted as a consequence of social phenomenon, the reasons behind it are rooted in the value toward death penalty as mentioned above. Even in some official occasions, Japanese government bureaucrats admitted the state quo when they refer to retribution as one of the reasons<sup>8</sup>. Therefore, one can say that because of the favoring inclination toward death penalty in Japanese society, not only the public but also a large proportion of officials disagree the abolishment and the only thing is that these officials make use of public opinion as an excuse for not abolishing it. The deep reason may lie on the aforementioned social phenomenon that the Aum Cult infuriated the public and also made the government realize the necessity of death penalty especially for the terrorism. Also, it is noted that the increasing tendency began in 1995 when Japan suffered the climax of Bubble Economy, causing a large number of bankrupts and unemployment. One can imagine that the crime rate also followed the rate of unemployment, also reminding the government to retain the death penalty.

## **5. The practice of death penalty in Japan**

Although death penalty has received dominant support in Japan, it has presented distinct features in the trial process and practical execution compared with other developing countries.

### **5.1 The operation on judgement and imprisonment**

Firstly, death penalty is always criticized as a defiance of human rights by activists on the one hand, on the other hand, Japan actually pays special attention to human rights in the course of trials. Like many other countries, Japan also advocates "the compatibility between

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<sup>8</sup> For example, Tomoko Sasaki, the former member of Diet, once said: "A basic teaching is retribution, if someone evil does something bad, he has to atone with his own life."



the investigation to the truth and the protection of human right”, but it does step further. On the trial, the suspects will first be asked (or voluntarily request) to wear a suit instead of a prison uniform and their handcuffs will be replaced by a black rope. Besides, Japanese criminal system is applying the principle of caution that only majority of judge consensus the death penalty can the suspects be announced the death penalty. Also, the suspects can also appeal to the second trial and third trial until all the three courts refute the requirements.

Besides, they have their own seats located in the side of defendant rather than the middle of court or even standing. All of these are aimed at placing the suspects at the same position as the prosecutors’ and presupposing that the suspects were innocent without guilt. For those who cannot afford to ask lawyers, the government can provide State-selected lawyers (国選弁護人) with a relatively low price though Legal Aid System (法律扶助制度). Therefore, during the trial phase, Japanese courts have made an effort to prevent human rights from being deprived by guaranteeing suspects nearly the same status and rights as prosecutors. Japan’s respect toward human right can also be embodied in the sentence of prison, as prisoners are regarded as “humans” as they should be. For basic living standards, the institutions (prisons) lend or provide free clothing, bedding, daily necessities and food necessary for the prisoner to live according to the climate. For example, it is required that all the prisons should be equipped with warming conditioner within Hokkaido (Kikuda, 1999). Also, some of the clothes and daily necessities can be purchased by themselves within a certain range. As daily necessities, in addition to utensils, chopsticks and towels, toilet paper, toothbrush, tooth powder, soap, etc. are also provided free of charge. All food is provided free of charge, whose menu is decided by the prison food committee. For medical care and sanitation, all the treatment and medicine are afforded by government and prisoners can also receive treatment from outside doctors or even go out to the specialized hospitals. For entertainment, in order to assure “the freedom of getting information” by constitution law, in addition to borrowing books from the library (recognized books by government) in prison, it is also allowed to have private books sent or purchased. Some rooms in prison also provide radio and televisions (although channels are also recognized by government) during the weekends (Xu, 2003). In summary, from the trial to the prison before execution, the

measurements to the basic needs and rights of prisoners (suspects) are aiming at protecting the minimum human right and considering their career when released from prisons even for those who have been sentenced to death.

The second feature comes to Japanese unique trial system—the Citizen Judge System (裁判員制度). Differed from the Jury System in western countries where the designated citizen can only judge whether the facts in a case are true or not but cannot determine which laws and penalty to apply, the Citizen Judge System entitles citizens to not only decide the application for laws and sentences, but also possess nearly the same rights as judges such as voting. The initial propose is to reflect public opinions and experience in each case, avoiding discrimination or misjudging that may be caused by over-relying on professional legal elites. Noted that this system does not transform a solemn and professional trial into a subjective “election” based on public sentiments, rather, it should be regarded as a cooperation between national and judges. Three main systematic measurements can be concluded as designed to balance this cooperation: first is the applicability. According to Citizen Judge Law, only the cases where the suspect might be sentenced to death, indefinite punishment or other imprisonment can be judged under this system composited by 6 citizen judges and 3 official judges. And even if a case is in compliance, it is up to the judge to decide whether to adopt the system in the end. Second is the leading role of professional judges in determining the progress of trials. Since the professional judges have already learned about the cases before the citizen’s participation, they can also determine which materials or evidence need to be submitted in court. Furthermore, when they get controversial suggestions from citizen judges, the judges can even stop the trial for discussion until they make consensus. Third was the appeal system. The citizen judges can only attend in the first instance under this system. So the professional can correct the result which they are unsatisfied during the first trial in the second or third instance. Those three measurements in the citizen judge system can not only guarantee the democracy and justice but also reserve the profession and caution in the court.

## **5.2 The unique secrecy on execution**

The third feature was aforementioned secrecy, which had been criticized as “a wall of denial” (David, 2006) not only because there were few opened data about from office, but

also the extreme confidentiality during the execution. There were several “bricks” constructed this “wall”: (1) The “raid” as mentioned before, was a policy that most of the prisoners have spent years in prison but still don't know whether today is his last day until the last hour of execution. (2) only after the condemned prisoner has been executed will the relatives, the defense and public be informed. (3) no private person and attend or see the execution; and (4) the Ministry of Justice will not explain why it chose to execute some of the prisoners but retain others to survive. In fact, this confidentiality or secrecy itself is a mystery, because it contradicts the Japanese government's tendency to be more open and accountable in other areas. One probably cannot understand why Japanese government took so many measurements to protect the democracy and openness from judgement in the court to the life in prison, but still maintained such a controversy secrecy during the execution. According to the interview by David Johnson, Japanese prosecutors listed some reasons (or excuses) below: (1) “For the interest of prisoners”, written by French, “it will be crueler if we notify the prisoner in advance that he is about to be executed, because it will cause him great suffering, they may fall into despair and suicide or run away” ;(French, 2002) (2) “For the interest of executors”; (3) Confidentiality is an East Asian traditional characteristic and (4) Influenced by the U.S during the period of American Occupation. However, all explanations seem unpersuasive since none of them can be sustained by substantial evidences. As some scholars pointed out that the rapid shift to secrecy is a tool for those old social efforts and forces which will be replaced by new social efforts and forces (Wolff, 1950), this paper inclined to deduce that the secrecy of execution can be regarded as the last resistance of death penalty from Japanese government facing overwhelming criticism all over the world. Once making execution openness, there must be more criticism from domestic abolitionists and international researchers. Fortunately, On September 27, 2010, Japan's Ministry of Justice made the death penalty scene in Tokyo public to the news media, and allowed the photos and videos for the first time, indicating the secrecy began to untie.

Process	Measurements or policies
Judgement	Legal Aid System; Manner; Citizen Judge

	System, Caution by judges
Imprison (before execution)	Basic life standard as a human
Execution	Secrecy

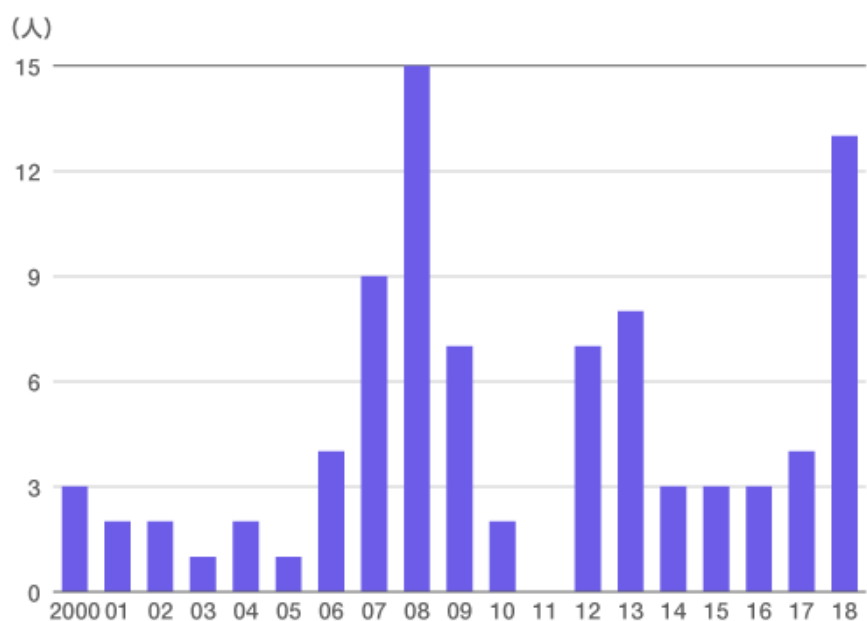
*(The policies or rules within each process)*

## 6. The contrast to China's death penalty

As one of the largest learners and follower, using and drawing on the theory of Japanese criminal law to analyze domestic situations has become a trend of China (Li, 2004). Although China has imitated Japanese criminal law in various aspects and they are both countries which retain the death penalty, it does not resemble Japan in detail due to the difference in culture, society and politics.

The most obvious one comes to the number of execution. As the date of death penalty is classified as a state secret in China, there have been no precise figures on annual executions while the Amnesty International believed that at least one thousand executions were implemented in 2017 no matter it was reliable or not. On the contrary, in 2018 only 15 prisoners were executed in Japan including 13 of them had relations with Aum Cult, which has been the largest number since 2008.

死刑執行数



(截至2018年7月27日)  
本图表由编辑部根据各类报道制作

nippon.com

*(The figures of people executed in Japan)*

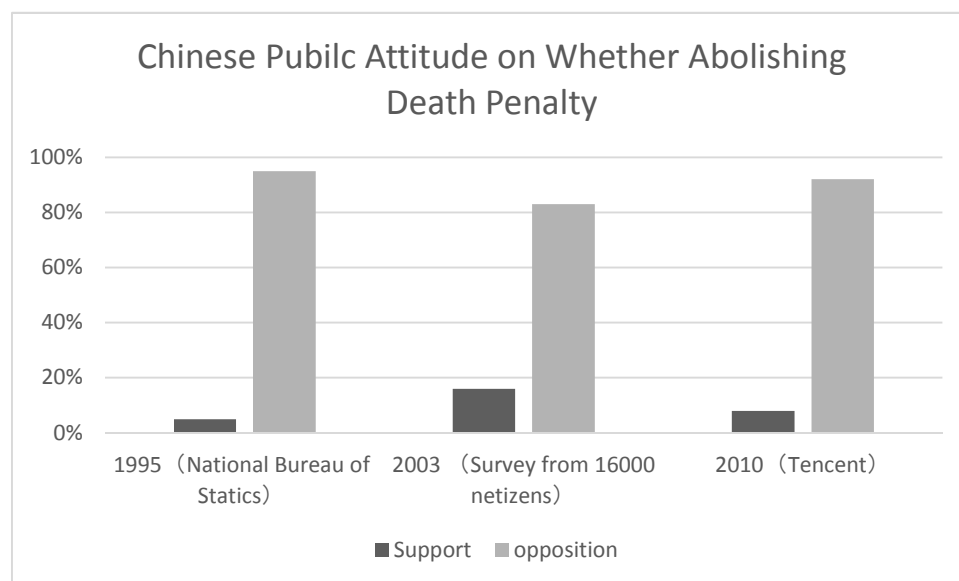
Behind the dramatic contrast in figure is the huge difference from public to official and from law and from judgement to execution.

First, from the perspective of legislation where criminal laws originated, there are 47 articles in China's current criminal law which stipulates 68 types of crime in death penalty. Among them, the crimes of disturbing public order, crimes of damaging property and economic crimes (including crimes such as corruption and bribery) that do not cause death directly in cases occupy nearly a half of the total crimes of death penalty. In Japan, only 17 kinds of crimes can be sentenced to death, and abolished death penalty for property crimes and economic crimes that do not cause death. This legislated phenomenon becomes the main reason why numbers of death row remain high level.

When analyzing the deeper factors on such huge contrast hiding in this phenomenon, the process from judging the criminals to implementing the execution should be a focus. On Japan's side, as analyzed before, despite some controversy about the secrecy during the execution which has been ameliorated gradually, the process of death penalty in Japanese criminal system can be concluded as cautious, democratic and humanistic. However, in China not only is there a large number of titles can be sentenced death penalty, but sizable cases which applied immediate execution without any hesitant. Even though in theoretic academia, scholars have been quite advanced in advocating death sentences with a reprieve to protect those "between killing and not killing". However, in practical, Chinese courts tend to the former option on how to deal with whether killing or not killing (Zhao, 2005). Besides, quite a few of criminals have been judges death penalty not as murders or violence but just because of corruption or stealing, making the judgement more out of control. On the protection of human rights, China still has long way to go. Unlike Japan, once a person is identified as suspect by prosecutors, he or she will be constrained by handcuffs all the time until the end of judgement during which he or she should also wear prison suit despite there is no reputation on which clothes are mandatory. On the other hand, one may easily believe that China's execution would be more mysterious from the fact that "China is one of the only countries which keep the figure as a state secret", but actually except the numbers, China is more reasonable in all aspects of the execution of the death penalty compared with Japan. Firstly,

from the interpretation of the Chinese supreme court, the death rows before execution have right to meet their relatives<sup>9</sup> and actually the executors usually notify those prisoners the date of execution several days in advance to make sure they have enough time for funeral affairs. Secondly, compared to hanging which is the only way for execution in Japan, China has already generalized injecting which is considered more efficient and humanistic.

Lastly, public opinion always plays an important role in retention of death penalty and Japanese government is also willing to refer it as a part of reason. However, whether the public also in favor of retention in China and whether Chinese also excuses it as a reason are two questions which will be too critical to be simplified. In traditional China, “a killer should repay his life” or “a tooth for a tooth” have been popular saying for a long time, reflecting Chinese justice on death penalty. Even though Chinese government have merely been conducted any polls toward public opinion, some surveys from third parties proved the concept to be true.



*(The attitude on death penalty on Chinese citizens)*

Like Japanese, Chinese people in favor of death penalty have always been dominant, which may be thought as a part of common value in East Asia. Also, deterrent effect and retribution are generally believed as two of the most prevalent opinions (Jiang, 2010) as a

<sup>9</sup> Article 423 of the Interpretation of the Supreme People's Court on the Application of the Criminal Procedure Law of the People's Republic of China states: “The first instance of the people's court shall inform the offender of the right to meet his close relatives before the execution of the death penalty. The offender applies for a meeting and provides specific contact. In the case, the people's court shall notify its close relatives. If the close relatives of the criminal apply for a meeting, the people's court shall permit and arrange the meeting in time.”

popular saying goes “killing a chicken to scare the monkey”. However, although letting politicians make a decision to abolish the death penalty in violation of public opinions in the short term is undoubtedly an idiotic dream, differing from Japanese government which tries to defend itself by referring public opinions as a shield, Chinese government also believes the necessity of death penalty. According to a Chinese high court official, “we sentence people to death ... to educate others – by killing one, we educate one hundred” (Lu & Zhang, 2005). This would explain why China allowed more loose policies in the execution because China prioritized more importance on the benefit of death penalty than the cost like criticism. Therefore, it will be impossible that the favorable attitude toward death penalty can fade on in short term both privately and officially, not to mention abolishment.

## **7. Conclusion**

The abolition of the death penalty is an inevitable trend of social development. As one of advanced countries, Japan has already nourished all the premises on abolishing death penalty based on well-developed criminal rate, economy and political democracy. However, with the traditional conservative value and the fluctuation in social security especially terrorism recently, there are still some barriers Japan has to face in the future. Some positive factors such as the amelioration on execution and the end of Aum Cult Case, one can predict the supporters will decrease gradually until Japanese officers cannot refer it as the only defense to retain death penalty.

On the other hand, as the largest developing country, China is facing and will face problems on how to keep social security, how to improve economy or how to fulfill more demanding live standards which seem more urgent than death penalty. Besides, the high profile on number and unchanging attitude of government and public reveal that death penalty will still play an important role in the social transition period. From this point, the claim of abolitionists seriously divorces from the national situation and is unrealistic.

Comparing these two countries, it can be concluded that Japan regarded death penalty as an interim compromise while China explained it as an indispensable tool. However, there is no doubt that the final abolition of the death penalty in the two countries is the trend of the

times. To this end, the first purpose of Japan is how to reform the criminal system to apply the abolishment followed by the rest of developed countries. China, on the other hand, should consider how to evolve itself under the condition of not only retaining the death penalty but also protecting human rights. Thus, during the current phase, the best prototype for China is the present Japan whose system exactly meets China's requirement. First, the judiciary should reduce the application of the death penalty within its own functions, especially for crimes that do not cause death (including duty crimes), property crimes, and crimes that undermine social management order. Firstly, the legislature should follow the trend of the times by cancelling the death penalty for non-violent crimes (like economic crimes and property crimes), and limiting the death penalty to war crimes and violent crimes with intentional death. Besides, through the design of legislative techniques, the death penalty provisions in China's criminal law should be minimized. Secondly, the amount of application of the death should be reduced to the minimum in the judgement. It is pleased to see that the Supreme Court will withdraw the death penalty approval right recently, hoping this decision will enable the effective application of the death penalty. Thirdly, the government should guide public opinion and cultivate people's sense of tolerance. Retribution is the social and psychological basis for the existence of the death penalty. And also government itself should give up the consideration on deterrent effects of death penalty. Only if public and government generally learn to be tolerant and rational can the cruel punishment of the death penalty naturally have no place to stand.

#### **Reference:**

- David T. Johnson, 田鎖麻衣子(2012), 孤立する日本の死刑, 現代人文社.
- Koichi H., Thomas E. (2006). Crime and criminal justice in modern Japan: From re-integrative shaming to popular punitivism, *International Journal of the Sociology of Law*, 34(3), 157-178.
- Lane, C. (2005). Why Japan still has the death penalty. *Washington Post*, January, 16.
- Shanhe J, Rebecca P, & Toyoji S. (2012). Why Japanese Support the Death Penalty? *International Criminal Justice Review*, 20(3), 302-316.
- M. Sato. (2014) *The Death Penalty in Japan*, Springer Fachmedien Springer VS, Wiesbaden.



Watamura, E. , Saeki, M. , Kiyomitsu, N. and Wakebe, T. (2016) How Is the Death Penalty System Seen by Young People in Japan?

—An Analysis of a Survey of University Students. *Advances in Applied Sociology*, 6, 29-35. doi: 10.4236/aasoci.2016.62003.

美浦克教 (2018), オウム真理教の13人執行を機に死刑制度を考える～新聞各紙の社説の記録, <http://news-worker.hatenablog.com/entry/2018/08/01/071129>

かたつむりの会:死刑の文化を問いなおす, 東京: インパクト出版会, 1994.1

贾秀芬. 日本死刑制度探析, 日本研究(第4期), 91-94.

刘明祥. 日本死刑制度的现状与我国死刑制度的展望, 江海学刊(2004年第5期), 104-111.

程德文. 日本恢复刑事陪审团制度的动因及其合理性[J]. 南京师大学报(社会科学版), 2004(05):38-44

何成兵. 临终会见:究竟是谁的权利——死刑临行会见权的归属及保障探寻[J]. 政治与法律, 2014(10):128-136.

# The Comparison Research of Death Penalty between Japan and China

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## Why this topic?

Heated dispute on the Internet between Japan and China

Japan is the only advanced country which still retains the death penalty

Japan is the first country which de facto abolished death penalty from 810 to 1156

Why such conversion from the FIRST to the LAST?

Why not the murder sentenced to death?



## The practice of death penalty

### Judgement

- The principle of caution
- Legal Aid System (法律扶助制度)
- Citizen Judge System (裁判員制度)
- Manner

### Imprison

- Basic life standard as a human

### Execution

- Secrecy

## The formation of Japanese criminal law and the death penalty

### Before the WWII

- Eclecticism (折衷主義) was the combination of retributivism and utilitarianism, which means on the one hand realized the necessity of sentence, on the other hand emphasized the mercy to criminals who "can be forgiven".
- The authority of penalty and the precaution for social security, establishing a new faction on Japanese modern criminal law called "the new doctrine".
- The dispute between eclecticism and new doctrine lasted for a long time, during which the New Criminal Law (新刑法典) was finally enacted in 1908 and continued until today.

### During the WWII

- once the new doctrine was "forced" to promote as national ideology, the dispute became meaningless since even the scholars of new doctrine themselves couldn't control such powerful momentum, resulting a period called "dark time".

### After the WWII

- The criminal field in Japan at that time was more like an amalgamation among different theories because, on the other hand, although the new doctrine was no longer accepted, there were still some advisable theories in the previous New Criminal Law influenced by this doctrine, besides, the old doctrine itself was divided into several factions led by separated young scholars who tried to explain the same question with various methods.

## The contrast with China

Measurements or Policy	Japan	China
Numbers of death rows	4 in 2017 and 15 in 2018 including 13 in Aum cult	National secret but it is said more than 1000 annually
Numbers of Crimes	17 kinds of crimes can be sentenced to death, and abolished death penalty for property crimes and economic crimes	There are 47 articles in China's current criminal law which stipulates 68 types of crime in death penalty
Judgement	Cautious, democratic and humanistic	Sizable cases which applied immediate execution without any hesitant
Imprison	Basic living standard as a human	Crowded and have no attention to pay on prisoners
Execution	Secrecy; hanging	the death rows before execution have right to meet their relatives; injecting
Social value	People in favor of death penalty have always been dominant; Chinese government also believes the necessity of death penalty; Japanese tends to defend itself	

## Conclusion

The abolition of the death penalty is an inevitable trend of social development

### Japan: an interim compromise

- All nourished prerequisites on abolishment: well-developed criminal rate, economy and political democracy
- Obstruct: Traditional conservative value and the fluctuation in social security
- Positive factors such as the amelioration on execution and the end of Aum Cult Case
- Supporters will decrease gradually until Japanese officers cannot refer it as the only defense to retain death penalty

### China: an indispensable tool

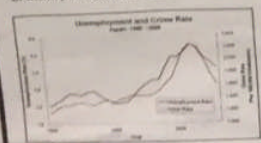
- China is facing and will face problems much more important than abolishment
- Obstruct: high profile on number and unchanging attitude of government and public reveal that death penalty
- should consider how to evolve itself under the condition of not only retaining the death penalty but also protecting human rights

Reference:  
 1. 日本国憲法 (The Constitution of Japan). Tokyo: The Japan Legal Association, 1992.  
 2. 日本国刑法典 (The Criminal Code of Japan). Tokyo: The Japan Legal Association, 1992.  
 3. 日本国刑務法典 (The Criminal Procedure Code of Japan). Tokyo: The Japan Legal Association, 1992.  
 4. 日本国民事訴訟法典 (The Civil Procedure Code of Japan). Tokyo: The Japan Legal Association, 1992.  
 5. 日本国行政訴訟法典 (The Administrative Procedure Code of Japan). Tokyo: The Japan Legal Association, 1992.  
 6. 日本国労働組合法典 (The Labor Union Law of Japan). Tokyo: The Japan Legal Association, 1992.  
 7. 日本国労働契約法典 (The Labor Contract Law of Japan). Tokyo: The Japan Legal Association, 1992.  
 8. 日本国労働基準法典 (The Labor Standards Law of Japan). Tokyo: The Japan Legal Association, 1992.  
 9. 日本国労働安全衛生法典 (The Labor Safety and Health Law of Japan). Tokyo: The Japan Legal Association, 1992.  
 10. 日本国労働関係法典 (The Labor Relations Law of Japan). Tokyo: The Japan Legal Association, 1992.

## The social value toward death penalty in Japan

犯罪類型	死刑適用率	終身刑適用率	無期懲役適用率	懲役適用率
殺人	100%	0%	0%	0%
強姦	100%	0%	0%	0%
強盗	100%	0%	0%	0%
横断	100%	0%	0%	0%
詐欺	100%	0%	0%	0%
窃盗	100%	0%	0%	0%
賭博	100%	0%	0%	0%
暴力団関係	100%	0%	0%	0%
その他	100%	0%	0%	0%

"There are some crimes which can only be repaid by capital sentence" - 産経新聞  
 "It is important to maintain this attitude (the execution of death penalty) in the future." - 読売新聞



Foreigners-eliminating concept generated in Japanese society

High-pressure society forms an endurable personality, causing people became more sensitive about surrounding security under the stably pressured environment

The decline in culture of criticism to current policy

The Necessity in Japanese society

# **Current Situation of Foods for Special Medical Purposes (FSMPs) in Japan**

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**Fudan University**

## **1 Introduction**

As the deepening understanding of disease mechanisms, the role which nutritional support plays in medical services and health management has been attracting increasing attention. Foods for Special Medical Purposes (FSMPs), which are specially designed to meet the health requirements of patients, are considered as important sources of their nutritional support and physical recovery. FSMPs usually possess some or all of the following features: (1) Enhanced nutrient component; (2) Reduced or avoided nutrient component; (3) Complex and comprehensive nutrition; (4) Easy to eat and digest; (5) Acceptable flavor; (6) Used under medical supervision.

Ciampa (2017) emphasized that FSMPs are a type of food that is intended to be consumed or enterally administered under the direction of a physician and that is formulated for the specific dietary management of a condition or disease for which distinctive nutritional requirements are established by medical evaluation based upon known scientific principles and clinical trials. Singh (2007) acknowledged that FSMPs originated from the nutrition interventions that involved dietary modifications and the use of synthetic diets for the children who suffered from the genetic metabolic disorders. For instance, Lofenalac, the first FSMP containing low amounts of phenylalanine and sufficient tyrosine was approved for the nutritional management in phenylketonuria infants. With new discoveries of the effect of specific foods and nutrients on human health, the applications of FSMPs have been extended into broader spectrum of disease, including dysphagia, hypertension, diabetes, Alzheimer disease, inflammatory bowel disease, cancer cachexia, and even HIV-associated enteropathy (Ciampa, 2017; Matsuzaki, 2009; Morgan & Baggott, 2006;).

In the developed countries and regions, such as Japan, the United States, and the European Union, the laws and regulations related to FSMPs have already been promulgated and perfected since the last century, and FSMPs have formed a relatively mature market.

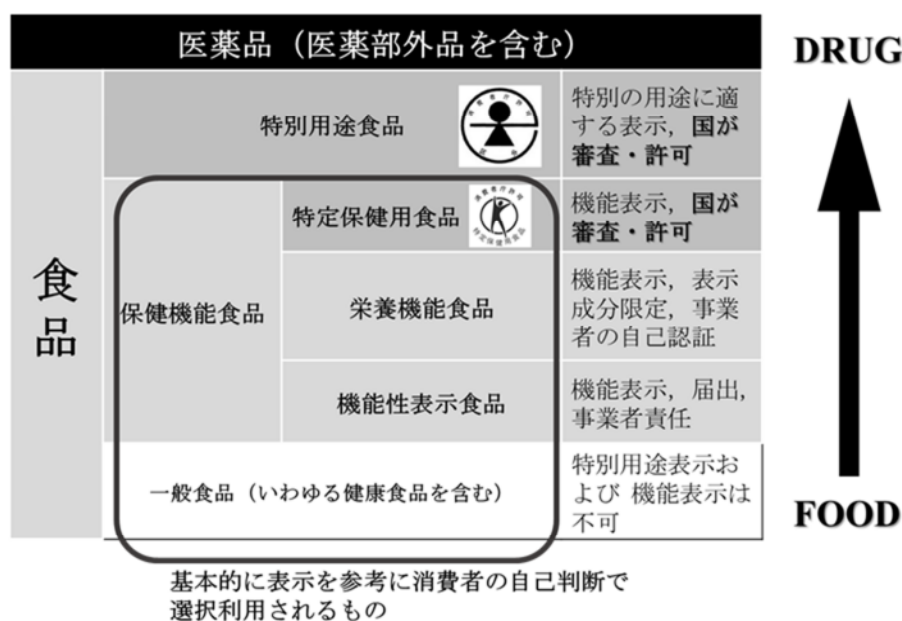
When it comes to Japan, Umegaki (2017) presented that FSMPs in Japan could be traced back to the special nutritional food system which had been established in 1951 and required marketing authorization and that the category of foods for special purposes was created in 1991 which could be classified into foods for patients and foods for healthy individuals. Li (2018) and Umegaki (2017) revealed that Japan and China are the only two countries which apply the license administration for FSMPs. In addition, Umegaki (2017) indicated that several different type of foods which contains the constituents to influence physical function coexisted in the context of Japan, such as “特別用途食品”, “特定保健用食品”, “栄養機能食品”, and “機能性表示食品”.

Meanwhile, in China, the regulation standards of FSMPs have just been formulated in the past eight years, and there still shows a promising market which has untapped potential and great opportunities. Therefore, the development of FSMPs in China should draw the advanced experience from those developed countries and regions where FSMPs are under well-established management system. In line with the purposes of describing the landscape of FSMPs in Japan and providing some useful experience and enlightenment for China’s FSMPs cause, a comprehensive study will be carried out in this research on the government supervision, and representative products of FSMPs in Japan.

This project paper will be structured as follows. The first chapter, which is the core part of this research, will pay attention to government supervision of FSMPs in Japan. The mechanisms of FSMPs administration system in Japan will be collated and analyzed base on the publicly disclosed archives on the website of three government agencies of Japan, including Consumer Affairs Agency (CAA) and Ministry of Health, Labour, and Welfare (MHLW). Also, the author will summarize the characteristics of the supervision system of FSMPs. The second section will select the typical FSMP products and the outstanding FSMP manufacturers in Japan to reveal the requirements that existing items can satisfy. The related questions will be answered based on the information collected from the official websites of those enterprises, such as Otsuka, Morinaga, and Nutri.

## **2 Supervision system of FSMPs in Japan**

### **2.1 Position of FSMPs in Japanese food categories**



**Figure 1** The classification of health-promoting foods in Japan

Nowadays, FSMPs are named as “特別用途食品” in Japanese. According to the definition of FSMPs given by CAA, in Japan’s food supervision system, FSMPs refer to the specially designed foods which are suitable for the uses of the sick people, pregnant women, lactating women, infants, and the people with deglutition difficulty. FSMPs in Japan originate from the special nutritional foods (特殊栄養食品) introduced in 1952, which contained several enhanced nutrients. Over time, with rapid improvement of people’s living standards, the demands of Japanese consumers for health-promoting foods were also becoming more and more precise. Therefore, component-adjusted foods designed for different health-associated purposes have emerged. Today, as a country that owns great advantages in food industry and pharmaceutical industry, Japan has developed a hierarchical supervision system for the foods which are able to make impact on human health.

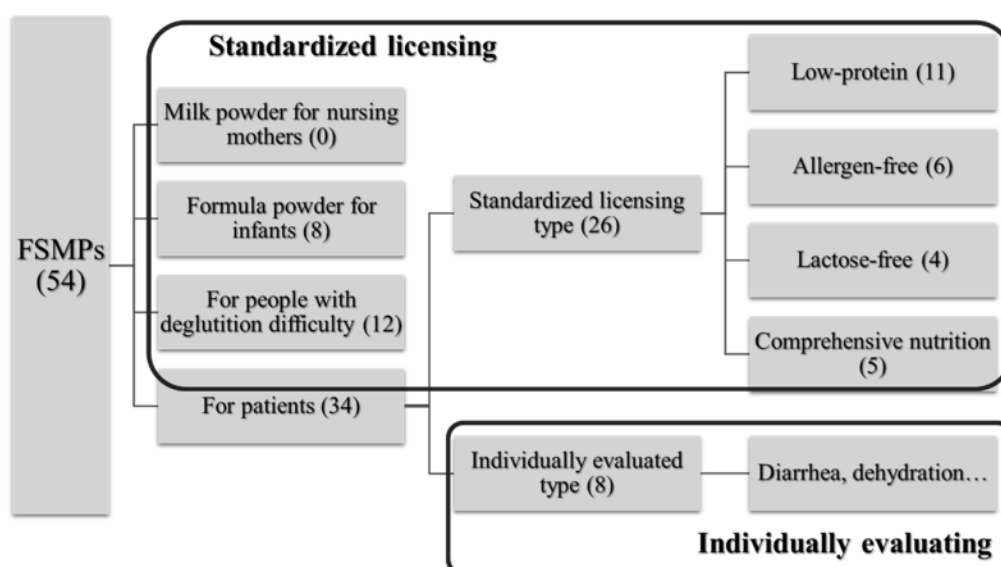
As shown in Figure 1, from common foods that healthy individuals eat every day to drugs that are usually applied to treat specific diseases, there exist a four-layer definition and classification system determined by the government for the health-promoting foods. The lower types in the classification are closer to common foods, and are formulated to be able to improve some aspects of physical functions. Meanwhile, the upper types of health-promoting

foods are closer to drugs, which usually aim to meet with patients' requirement of the disease treatment, and thus the government conduct stricter supervision on them. Located in the top-most of the classification, FSMPs need the examination and licensing of CAA and MHLW before appearing on the market, and should be taken under the guidance of doctors.

The four-layer classification of health-promoting foods of Japan shows its superiority, which effectively differentiates the demands of different consumers. Moreover, the regulatory standards targeted for each food type enhance the management efficiency and maintain the accuracy of the supervision. However, the definition of the four types of foods, which contains several similar characters, may cause confusion for the average consumers who are not familiar with the supervision system, and they could not make the most appropriate choice among a variety of health-promoting foods. Under these circumstances, it is essential for the government and the food manufacturers to popularize the differences in the four-layer classification to the public in order to make the most of the regulation system.

## 2.2 Classification of FSMPs in Japan

In 2009, CAA established the classification system of FSMPs. That is to say, the classification of FSMPs is based on the government supervision rather than the spontaneous formation of the market. Figure 2 indicates the various types of FSMPs in Japan, and the numbers in the brackets refer to the amount of each type of FSMP which has obtained the FSMP licensing up till now. Since there have not been any products approved as the milk powder for nursing mothers, the amount of that type shows zero.





**Figure 2** The classification system of FSMPs in Japan. The numbers in the brackets refer to the amount of each type of FSMP which has been approved up till now.

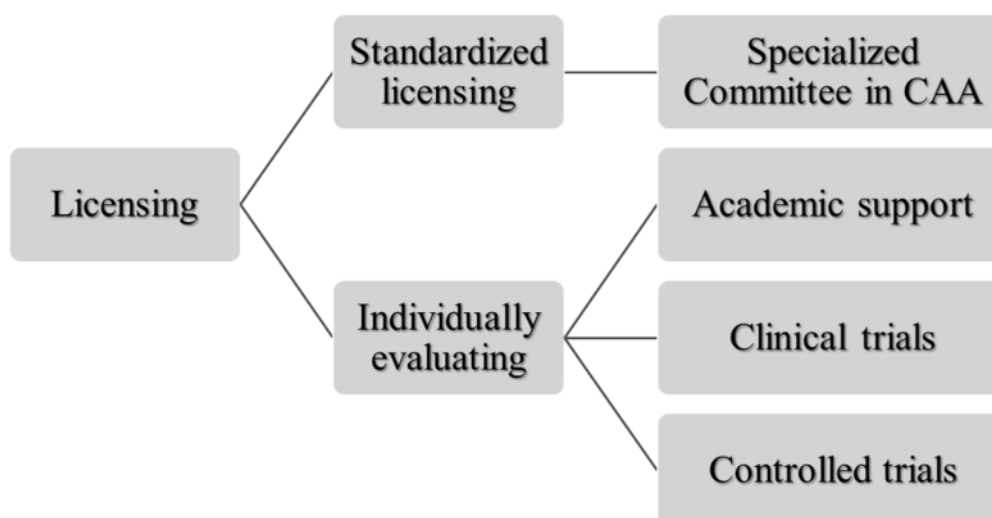
At the first level, based on the different targeted consumer groups, FSMPs in Japan are divided into four categories: milk powder for nursing mothers, formula powder for infants, foods for patients, and foods for people with deglutition difficulty. And according to the methods of examination and approval, foods for patients can be further subdivided into two types: standardized licensing type, and individually evaluated type. The standardized licensing type contains the four kinds of foods, for which CAA has set confirmed standards. Those four kinds of FSMPs consist of low-protein foods, allergen-free foods, lactose-free foods, and comprehensive nutrition foods. And then, the foods for patients that are specially formulated on other components belong to the individually evaluated type, which needs to be examined respectively without confirmed standards.

The classification of FSMPs accords with its definition in Japan. It is worth noting that two types of foods designed for healthy individuals, milk powder for nursing mothers and formula powder for infants, are also included in the classification system of FSMPs. The two types do not conform to the definition of FSMPs in the U.S. and the Europe Union, which target sick people and specific health problems. Stricter regulation can be performed on formula milk powder for nursing mothers and formula powder for infants as a consequence of bringing the two types of foods into the supervision scope of FSMPs. Furthermore, the license label of FSMPs on the external packing container indicate the authentication of better functions and higher qualities from the government. The prospective improved profits with the FSMP authentication can drive the food and drug enterprises to develop new products with better health-promoting effects.

### **2.3 Regulation and licensing of FSMPs in Japan**

The regulation and licensing of FSMPs in Japan have their legal basis. The Health Promotion Law promulgated in 2002 requires that the foods labeled with FSMP must acquire the license issued by the prime minister. In 2009, the authority of regulation and licensing of health-promoting foods was transferred to CAA from MHLW. Therefore, the main body of the supervision of FSMPs is CAA now. There is specialized committee (特別用途食品の許可等に関する委員会) affiliated to the Department of Food Labeling (食品表示企画課) of

CAA that is responsible for the specific work of the regulation and licensing.



**Figure 3** The classification of the licensing routes of FSMPs

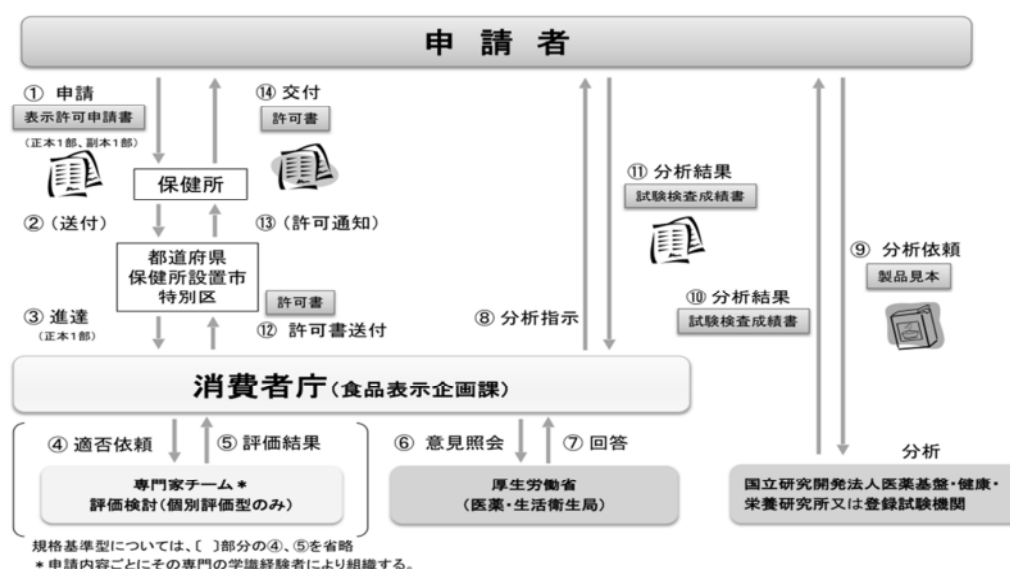
Figure 3 reveals the two different licensing routes of FSMPs: standardized licensing and individually evaluating. Standardized licensing is applicable to milk powder for nursing mothers, formula powder for infants, foods for people with deglutition difficulty, and the standardized licensing type of foods for patients (shown in Figure 2). The standards include the following four aspects of requirements. The first requirement is mostly about specific enhanced or reduced nutritional components, such as, the content of protein or lactose. Also, fluidity is taken into consideration in the standards of comprehensive nutrition foods and the foods for people with deglutition difficulty. Second, CAA propose a requirement of the scope of application as well. The specific disease or condition where the product can be taken has been declared in the standards. And the manufacturers of FSMPs must mark the scope of application on food package, and they are not allowed to broaden or narrow the scope. For instance, low-protein food need to be marked with “Applicable for the people with the protein-restricted diseases, such as chronic kidney diseases (CKD). The third standard defines the necessary items that must be indicated on food packing containers. These items can contain the following details: (1) The key feature of the FSMP, such as “Low-lactose”; (2) The content of the specific nutritional components; (3) The normative methods of using the FSMP; (4) The necessity of taking the FSMP under the supervision of doctors or dietitians; (5)



The limitations of the FSMP: Taking it can relieve the sickness, but taking more cannot cure the disease; (6) The possible side effects of taking too much FSMP. Additionally, the last aspect of standards is experiment protocols of necessary tests for each type of FSMPs. The standardized inspecting procedures work as the solid foundation for the consistency of FSMP application examination.

The standards are established by the specialized committee affiliated to the Department of Food Labeling of CAA. Since the details of the standards are concerned with the approval of FSMPs, the specialized committee also receive the views from the nutrition community and the FSMP manufacturer. Then, symposiums are hosted regularly in which the comments and suggestions from all sides can be discussed. And the minutes and achievements of the discussion are all open to public online, which can be easily searched out.

Meanwhile, it is a much too huge task to set detailed standards for each kind of FSMP designed for different conditions. On that condition, individually evaluating plays an important role for the other FSMPs without ready-made standards. The required application materials of individually evaluated foods include the academic support which can prove its effectiveness, clinical trials data, controlled trials data compared with other marketed products, and toxicology data. All of the trails and materials need to be conducted and provided by the manufacturer.



**Figure 4** The application procedures of FSMPs

Figure 4 indicates the whole application procedures of FSMPs. Firstly, the applicant needs to submit the application materials of the FSMP to the local public health center. Then, the application will be handed over to the CAA. If it belongs to the individually evaluated type, a group of experts will be organized to evaluate the application materials. If not, the application will be sent to MHLW for comments. Also, the application of individually evaluated type requires comments from MHLW. And then, the food sample will be sent to the National Institute of Health and Nutrition, and the food ingredients will be analyzed there. The data provided by the National Institute of Health and Nutrition is an essential basis for the approval. Finally, the result of application will be sent back to the applicant by the public health center.

The foods which obtain the government licensing of FSMPs will be able to mark the round label on the food container (shown in Figure 5). On the one hand, the label indicates that the food has been approved as FSMP by CAA. On the other hand, the specific types of the food in the classification system is also marked clearly.



**Figure 5** The label of FSMP licensing

<http://www.caa.go.jp/>

[https://www.os-1.jp/products/allow\\_display/](https://www.os-1.jp/products/allow_display/)

### 3 FSMP products in Japan

#### 3.1 Low-protein foods

There are 11 kinds of low-protein foods that has obtained FSMP licensing, which mainly target the patients with chronic kidney diseases (CKD). Considering the eating habits of Japanese, 10 of the 11 kinds are low-protein rice. And the other one is low-protein. Some products of the low-protein rice are divided into several subtypes with different degrees of protein decrease. Actually, there are low-protein subsidiary food in the market; however, none of them have been approved as FSMPs up till now.

### **3.2 Allergen-free foods and lactose-free foods**

Both of allergen-free foods and lactose-free foods are designed for infants who are not suitable for breast milk or common milk powder. There are 6 kinds of allergen-free foods and 4 kinds of lactose-free foods. Three of them belong to both of the two types. In the allergen-free foods, the allergenic protein is hydrolyzed by enzymes into low molecular mass components, which cannot cause allergy and are much easier to absorb for infants.

### **3.3 Comprehensive nutrition foods**

The 5 kinds of comprehensive nutrition foods are all fluid food. That is because the comprehensive nutrition foods mainly target the individuals who are difficult to swallow and digest common food. It is remarkable that there are many similar fluid foods containing comprehensive nutrients, but they do not acquire the licensing of FSMPs.

### **3.4 Individually evaluated foods**

The 8 kinds of individually evaluated foods targets 4 types of disease conditions: ulcerative colitis, chronic kidney disease, diarrhea and dehydration, and gastroesophageal reflux.

### **3.5 Formula powder for infants**

The 8 kinds of formula powder for infants with FSMP licensing are designed based on the components of mothers' breast milk; therefore, they are considered as high-quality alternatives of breast milk.

### **3.6 Foods for people with deglutition difficulty**

If the FSMPs mentioned above cause a stereotype that FSMPs are not diversified in form and cannot be really delicious, the foods for people with deglutition difficulty will bring new insights. There are 12 kinds of products in this type of FSMP. And they include the taste of vegetables, such as tomatoes, fruits, such as apples and oranges, and even amazake. The

people with deglutition difficulty usually cannot enjoy the natural flavor of vegetables and fruits, but now FSMPs designed for them will bring them appropriate nutrition and make up for the problem.



**Low-protein rice for patients with chronic kidney disease**



**Allergen-free and lactose-free milk powder for infants with allergies**



**Comprehensive nutrition liquid food**

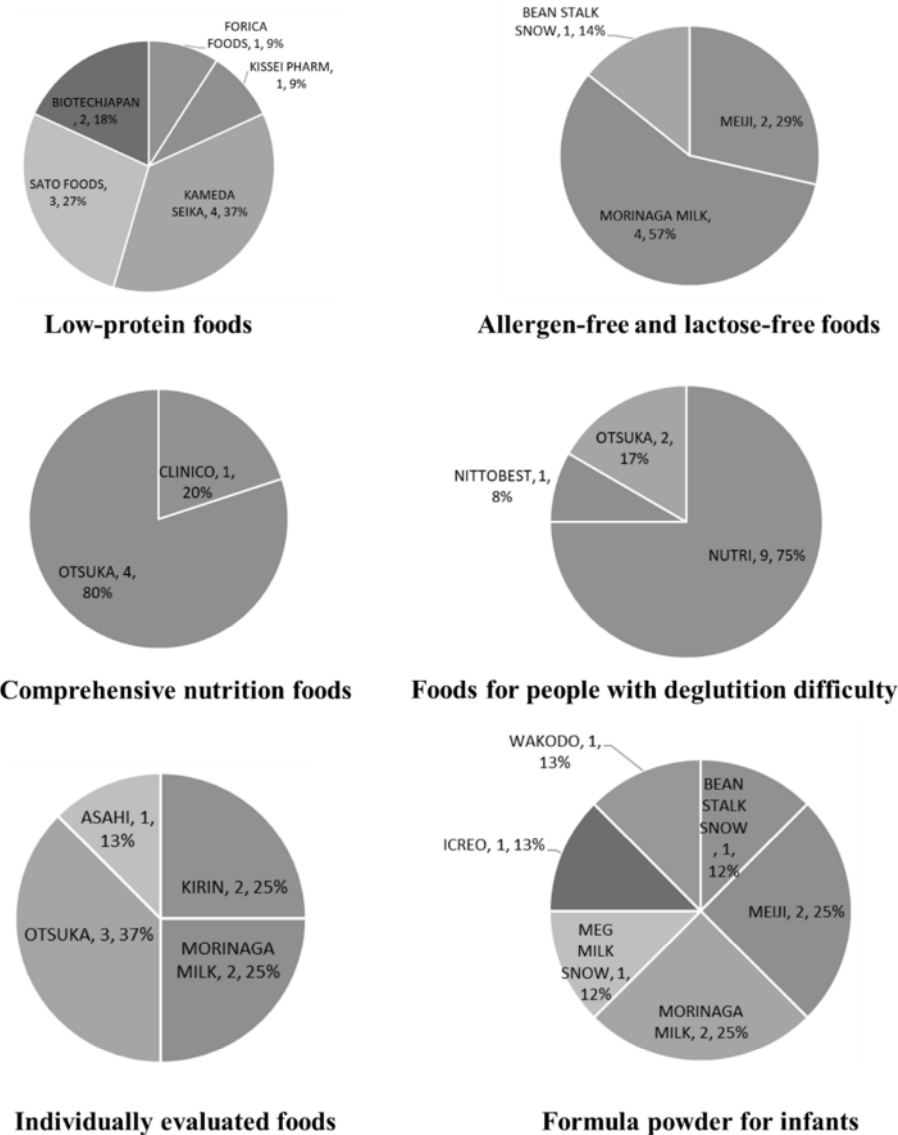


**Oral rehydration liquid (individually evaluated)**

**Figure 6** Several products of FSMPs in the market of Japan

### 3.7 Product shares of FSMPs manufacturers in Japan

Figure 7 shows the product shares of FSMPs manufacturers in Japan. Now all of the FSMP manufacturers in Japan are domestic enterprises. Different manufacturers take advantage of each type of FSMPs. Due to the fact that the author has no access to the sales of each FSMP, Figure 7 uses the amount of FSMP products of each type to reflect market shares of manufacturers. It is one of the deficiencies of this research.



**Figure 7** Product shares of FSMPs manufacturers in Japan

#### **4 Literature study: a survey of the application condition of FSMPs in Japan**

This chapter is based on the survey about the application condition of FSMPs in Japan carried out by Shimaoka et al. In the survey, 1,698 medical and nursing staff members were investigated from November 2013 to January 2014, and the recovery questionnaires almost covered all regions of the country.

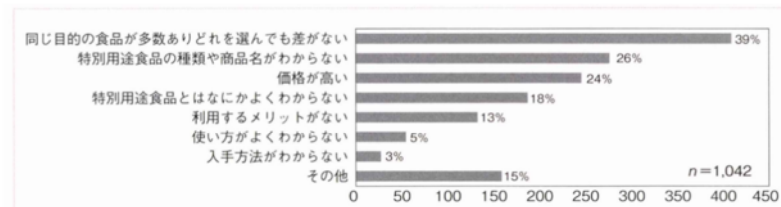


図1 特別用途食品を利用していない理由

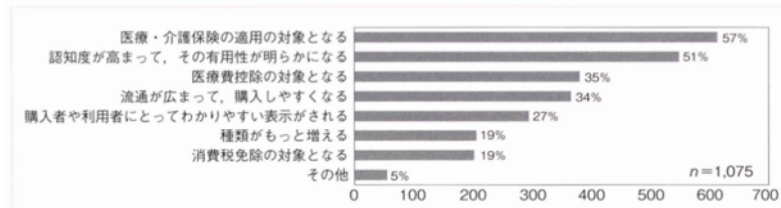


図2 医療・介護関連従事者が特別用途食品に期待すること

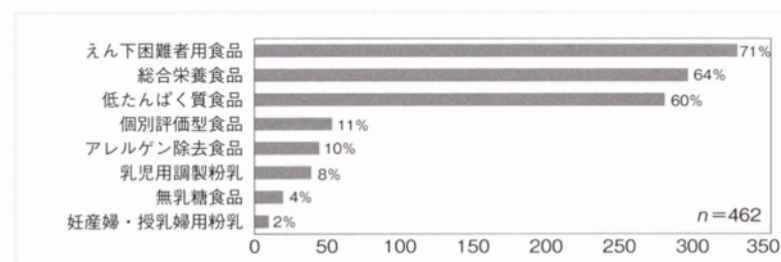


図3 利用している特別用途食品の種類

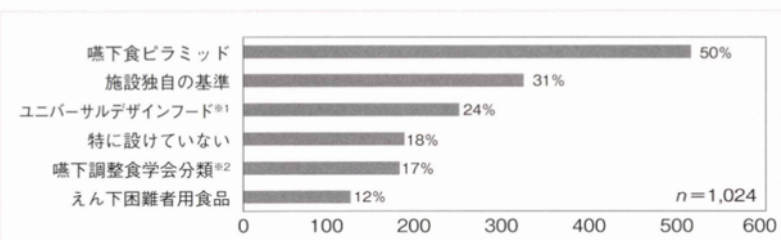


図4 摂食嚥下障害者に対して重視する食品基準の種類

※1：日本介護食品協議会自主基準。

※2：日本摂食嚥下リハビリテーション学会 嚥下調整食学会分類 2013。

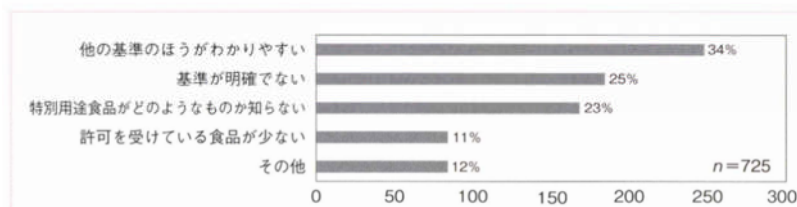


図5 えん下困難者用食品を重視しない理由

**Figure 8** Results of the survey of the application condition of FSMPs in Japan

For the first question about the reason why the respondents did not choose FSMPs, the top two answers fell on the same problem. There are quantities of foods that are designed for disease conditions and possess special health-promoting functions in the market; however, only a small part of them have been approved with the label of FSMPs. Even though the respondents were all professional staff members in the field of medicine or nursing, many of them could not tell the differences between the foods with and without the license of FSMPs when faced with a large number of foods indicating their special functions in health, which

looked quite similar. This result suggested that the role and position of FSMPs could be confusing when compared with other types of health-promoting foods, and that the specific characteristics of FSMPs should be popularized in their target population and staff members in medicine or nursing.

The second question reflected the main expectations of those who would require and guide the patients to use FSMPs. What the respondents most requested was to make the cost of FSMPs covered by the health and nursing insurance. Although nowadays thanks to the development of electronic commerce consumers possess an easy access to FSMPs by shopping online, the health and nursing insurance have not brought FSMPs into the reimbursement range. The second highest voice was about the awareness and effectiveness of FSMPs, which had a large space for improvement. The targeted consumers of FSMPs needed to be clearly informed of the significance and specificity of FSMPs, and thus they would give priority to FSMPs when there were the demands of health-promoting foods.

The result of the third question was in accordance with expectation. Since the respondents were all staff members of medical or nursing institutions, the majority of FSMPs that they used was the foods for people with deglutition difficulty, comprehensive nutrition foods, and low-protein foods, which were usually taken by the patients or the aged in hospitals or nursing center. On the contrary, the FSMPs targeted infants and pregnant or nursing mothers were used by the consumers outside medical or nursing institutions in general.

Turning to the result of the fifth questions, the respondents did not pay enough attention to the standards of the foods for people with deglutition difficulty because there existed other standards that were easier to understand. Combining the results of the first, second, and fifth questions, it was the awareness of FSMPs standards and products that the department in charge should pay attention to and make efforts to enhance. On the one hand, the targeted population of FSMPs, including the staff members in medical or nursing institutions, ought to realize the significance of the label of FSMPs which makes them different from other health-promoting foods. On the other hand, the standards of FSMPs should be introduced to more consumers in a comprehensible way so as to help them to choose and take FSMPs appropriately.

## **5 Future prospects of FSMPs in Japan**

Today, there exist a number of health-promoting foods designed as a comprehensive nutritional source. However, there are only 5 kinds of foods approved as comprehensive nutrition type of FSMPs. Considering comprehensive nutrition foods are regulated as a standardized licensing type, the standards of comprehensive nutrition foods have aroused the concern of Japan Health and Nutrition Food Association. They claimed that the standards of comprehensive nutrition foods were too restricting to be coordinated with existing products in the market. The coexistence of the products, which look similar, with and without the license of FSMP would cause consumers' confusion in their choices as well, which was to the disadvantage of establishing a positive and effective image and reliability of FSMPs. As a consequence, Japan Health and Nutrition Food Association has proposed the request to broaden the standards of comprehensive nutrition foods. The issue is in the discussion process of the committee in charge of FSMPs.

Another new trend of FSMPs in Japan is the set meals respectively designed for the patients with diabetes and kidney disease. It is not enough beneficial for the patients with diabetes and kidney disease to take only one or two kinds of FSMPs in daily diet, because the nutritional components which they take in from other common foods cannot be quantified. Also, it is inconvenient for them to calculate the total nutrient amount even if they take several specially designed foods in which the nutritional components have been measured. Under the circumstances, the set meals respectively designed for the patients with diabetes and kidney disease which can satisfy the dietary demands a whole meal have been proposed to be added as new types of FSMPs belonging to standardized licensing type of foods for patients

## **6 Conclusion**

Japan has developed a well-targeted four-layer classification system of health-promoting foods, which achieves the different strategies of supervisions based on the degree of the effect that the category of food can have on human health. For consumers, the classification system delimits clear scopes that the health-promoting foods are able to work. Moreover, the classification can reduce potential risks of the exaggeration and even false advertising of the



health-promoting foods. In China, the exaggeration and false advertising of the functions of the health-promoting foods have prevented the healthy growth of their market. However, the classification which contains several similar designations is likely to cause consumers' puzzle, which can offset the positive significance of the hierarchical management to some extent. Considering that Chinese consumers' receptivity of new classification methods for health-promoting foods varies in a wide range, a relatively complicated classification system is difficult to acquire desired effectiveness, especially in less educated communities.

Remarkably, the classification of FSMPs in Japan has brought milk powder for nursing mothers and formula powder for infants into the scope of supervision. Although the title of FSMP is not obligatory for formula powder, the license of FSMP represents the authentication of better functions and higher qualities from the government, which is expected to drive the food and drug manufacturers to develop new kinds of formula powder with better health-promoting effects.

The regulation and licensing is the core of the FSMPs system, which set a pattern for the regulatory authorities of FSMPs in China. The combination of standardized licensing and individually evaluating proves to be the most shining point of the regulation and licensing. In this supervision system, standardized licensing is primarily responsible for the efficiency of the examination and approval. Meanwhile, individually evaluating paves a way for the innovative research of FSMP manufacturers. It plays its significant role in the assessing of the FSMPs about which there are few precedents or related experience. The high requirements of individually evaluating for the supporting application materials balance the uncertainty of a newly designed product and the enthusiasm of the manufacturers for innovation in FSMPs. The two different routes of FSMPs regulation and licensing guarantees the efficiency of the examination of proven products, and, at the same time, performs necessary evaluations to maintain the effectiveness and safety of newly developed types of foods for patients. The balance of efficiency and reliability in the regulation and licensing of FSMPs proves to be essential experience deserve study and reference for the competent department of China. In addition, in the process of qualification examination, the opinion of MHLW and the independent inspection institution can guarantee the objectivity and fairness of the approval. In China, the drug approval in the charge of National Medical Products Administration

(NMPA) was involved in bribery scandals once. Therefore, the supervisory authority of the FSMP approval should lay emphasis on the objectivity and fairness in China, and it is worthy of consideration to introduce a third-party institution to provide advice or recommendations.

Although the sales data of each kind of FSMP were not obtained, the analysis of the product shares of FSMPs manufacturers in Japan indicates that the existing approved FSMP products are all designed and manufactured by Japanese domestic enterprises. On the one hand, those domestic manufacturers possess solid technological accumulation in health-promoting foods including FSMPs. On the other hand, the strong demands for high-quality FSMPs of the clinical care and particularly elderly nursing encourage the FSMP manufacturers to develop more and better FSMP products. The potential market of FSMPs in China has attracted global leading FSMP manufacturers, which is likely to place competitive pressure on Chinese domestic FSMP enterprises. However, based on the vast market of China, the domestic enterprises can have a place in the field of FSMPs.

The survey of the application condition of FSMPs in Japan reveals the significance of popularization of the elementary knowledge of FSMP in targeted consumers as well as staff members of medical and nursing institutions. In China, there exists similar problems that limit the application of FSMPs. Considering that FSMPs need to be taken under the supervision of doctors, it should be the first step to popularize the concept and functions of FSMPs in the groups of doctors. The responsibility should be assumed by both competent authorities of the government and FSMPs manufacturers. In addition, the societies in the field of medicine nutriology can establish clinical guides of the application of FSMPs, which will provide dependable bases for doctors, especially those working at the hospitals in rural areas. Furthermore, since the consumers in need of FSMPs may not be able to afford the cost of long-term use of FSMPs, it will greatly promote its development and application to bring the cost of FSMPs into the scope of health insurance reimbursement. To say the least, the government should give priority to the products of FSMP which have to be taken for a long period and can cause the heaviest burden, and include them into health insurance in the first place.

## **Acknowledgements**

In the first place, I would like to convey my sincerest gratitude to Prof. Hirakawa, who has provided the careful support and guidance for me and for the research. And I want to express my special gratitude to Dr. Tsutsui Daihachi, the president of the Goseikai, for his kind and generous help with my dream plan on FSMPs by a whole box of fluid foods and related publicity materials. They are precious first-hand materials for this research. At last, I would love to show my heartfelt thanks to all the people from Waseda University and Master Kong Group who has supported my research and exchange study in Japan.

## References

Ciampa, B. P., Ramos, E. R., Borum, M., & Doman, D. B. (2017). The emerging therapeutic role of medical foods for gastrointestinal disorders. *Gastroenterology and Hepatology*, 13(2), 104-115.

Li, X., Jiang, X., Sun, J., Zhu, C., & Bai, W. (2018). Recent advances of medical foods in china: The opportunities and challenges under standardization. *Food and Chemical Toxicology*, 119, 342-354. doi:10.1016/j.fct.2018.02.024

Morgan, S., & Baggott, J. (2006). Medical foods: Products for the management of chronic diseases. *Nutrition Reviews*, 64(11), 495-501. doi:10.1301/nr.2006.nov.495-501

Singh, R. (2007). The enigma of medical foods. *Molecular Genetics and Metabolism*, 92(1), 3-5. doi:10.1016/j.ymgme.2007.07.002

井上善文, & 医療法人川崎病院外科総括部. (2012). 総合栄養食品. 栄養-評価と治療, 29(1), 47-50.

梅垣敬三, & 医薬基盤・健康・栄養研究所 国立健康・栄養研究所 食品保健機能研究部. (2017). 保健機能食品制度と特別用途食品制度の基本 医歯薬出版.

小原佑一, & 財団法人日本健康・栄養食品協会栄養食品部. (1999). 特別用途食品, 病者用食品. *Diabetes Frontier*, 10(1), 57-61.

島岡巖, 齋藤悠子, 川口晋, 神谷慎一, 下田智久, 日本流動食協会, . . . 日本メデイカルニュートリション協議会. (2015). 特別用途食品の現状と課題 - 使用実態調査より 医歯薬出版.

松崎政三. (2009). 特別用途食品・病者用食品の必要性. *メディカ出版*, 2(1), 10-15.

株式会社大塚製薬工場 <https://www.otsukakj.jp>

株式会社クリニコ <https://www.clinico.co.jp/>

厚生労働省 <https://www.mhlw.go.jp>

消費者庁 <http://www.caa.go.jp/>

内閣府 <http://www.cao.go.jp>

ニュートリー株式会社 <http://www.nutri.co.jp>



# Current Situation of Foods for Special Medical Purposes (FSMPs) in Japan

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School of Advanced Science and Engineering



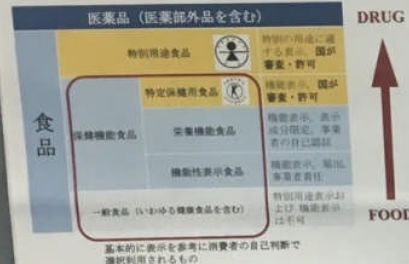
## The position of FSMPs in food categories

**Definition:** Foods for Special Medical Purposes: A category of foods for particular nutritional uses specially processed or formulated and intended for the dietary management of patients and to be used under medical supervision.

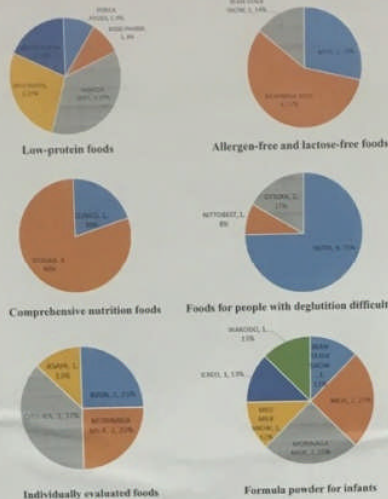
特別用途食品とは、病者用、妊産婦用、授乳婦用、乳児用、老人用、障害者用などの特別の用途に適する旨の表示をする食品をいいます。

### HOW FSMPs WORKS

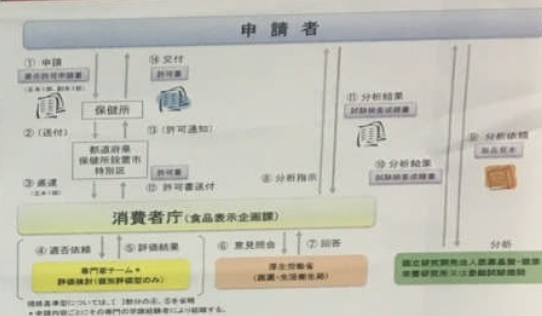
- Enhanced nutrient component.
- Reduced or avoided nutrient component.
- Complex and comprehensive nutrition.
- Easy to eat and digest.
- Acceptable flavor.
- Used under medical supervision



## Market shares of FSMPs manufacturers in Japan

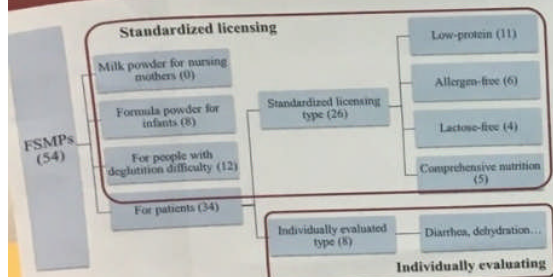


## Regulation and licensing of FSMPs in Japan



[https://www.caa.go.jp/policies/policy/food\\_labeling\\_health\\_promotion/inf03](https://www.caa.go.jp/policies/policy/food_labeling_health_promotion/inf03)

## Classification of FSMPs in Japan



The classification was established in 2009.

## Market shares of FSMPs manufacturers in Japan



<https://ja.wikipedia.org/wiki>

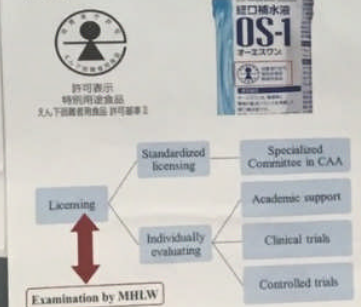
## Regulation and licensing of FSMPs in Japan

健康機能食品 (Health Functional Food)

特別用途食品 (Special Purpose Food)

標準化食品 (Standardized Food)

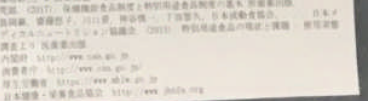
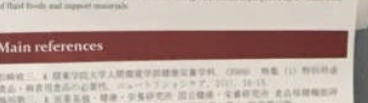
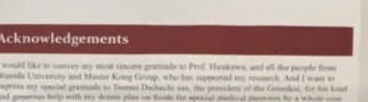
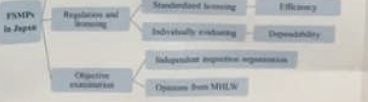
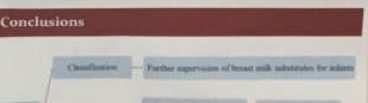
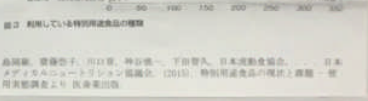
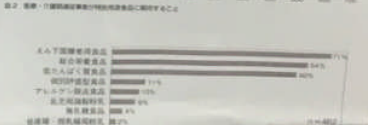
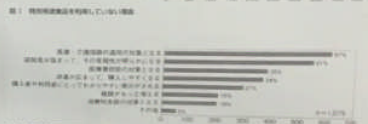
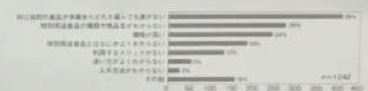
個別評価食品 (Individually Evaluated Food)



CAA, Consumer Affairs Agency  
MHLW, Ministry of Health, Labour and Welfare  
[https://www.caa.go.jp/production/food\\_labeling/](https://www.caa.go.jp/production/food_labeling/)

## The application condition of FSMPs in Japan

1,698 medical and nursing staff members investigated in 2013-2014



## **Barrier Free Design in Japan:**

### **Concepts and Practices**

**HAN Binjie**

**Peking University**

#### **1. Introduction**

Concern on vulnerable groups raises worldwide. More people with disability appear publicly as a result of this, while rate of disability in a society remains relatively constant. Discussions on accessibility of the architectural environment and public facilities never end, whose following exploration and innovation actually reduce “barrier free” to an outdated term for English-speaking countries where “universal design” dominates. “Barrier free design” is currently used in some countries including Japan, referring to serial concepts and equipment that extensively aid those with disability to conveniently, independently and safely use facilities during living. The aid ranges from signal classification, physical facilities to mental guidance, whose beneficiaries can be everyone, especially those with handicap or inconvenience of any extent, notably the disabled, the senior as well as the expectant mothers.



Figure 1 International symbol of barrier free

Seen from itself, barrier-free design has been far from oblivion since mid-20<sup>th</sup> century, but when set in Japan, the issue gains ever more attention. Olympic and Paralympic 2020 in Tokyo is imminent, calling pressingly for renewal and construction in a barrier-free manner, and demographic data indicate a soaring aging rate domestically at the same time. There are

researches and comments of large amounts, covering the barrier free design in different areas from various dimensions. Kose (1998) examines the definitions and prospects the global trend from barrier free design to universal design. Meltem (2018) and Asiah et al. (2014) explore the accessibility of public spaces and buildings in respectively Turkey and Malaysia. Christian (2004) looks into *Design for All* campaign launched in Europe and shows her interest over Information Society Technologies and the help it can bring about. Besides, Matsushima (2014) explains some of the measures Tokyo has taken to better the barrier free environments.

Japan can claim certain achievements concerning barrier free design, and can thus share some experience with its gigantic neighbour. Chinese barrier free system has always been progressing at a steady pace since *Reform and Opening*, but far from sufficient or successful now. This paper tries to answer whether the experience of Japanese barrier free system can apply to China and to what extent, if possible. To achieve this, it is necessary to inspect specific technical norms and functioning of the whole system first, then to find out opinions of the disabled and the public on it.

Related studies and other materials were reviewed at the beginning, then some field trips towards various places, including campuses and rehabilitation centres, followed to gain the knowledge in person, and interviews were held for some subjective opinions and feelings. Besides, there are absolutely some information in China in order to build a solid comparison and to bridge situations of two countries. Attentive as its author might be, the research fails to refrain from some inevitable restrictions. Most of the surveys and interviews are located in Tokyo, the capital of Japan, which neglect situations in other prefectures, thus might distort the situation of the country as a whole.

The paper is structured as follows. The first chapter explores barrier free system in Japan, namely its evolution, technical norms as well as the management that underpins. The second chapter specifies on several cases related to Japanese barrier free, illustrating it in a more detailed and personal way. The last chapter inspects deeper into the issue and attempts to see the public conception behind it, then discuss the probability to apply some experience to China after

the introduction of some China's basic status quo. And through this we can safely conclude that barrier free design in Japan is multiscale, multidimensional, people-centred and future-oriented, and the experiences can be reasonably applied to China.

## **2. Literature Review**

Since raised in the middle 20th century, the concept of the "barrier free design", has long been discussed, despite the evolvement of the terminology itself. Related researches as well as construction practices have been copious, which can serve well as the foundation of the paper.

The concept of special design for people with disability emerged in around 1960, and the trend was passed to Japan about one decade later. Kose (1998) adopted some clauses of the American regulations and explained barrier free as merely being accessible and usable by the physically handicapped in the buildings. He also stated that Japanese deemed barrier-free almost equally as the elimination of the physical barriers, which actually was in alignment with the global conception then.

Then there was more consideration over the perceptions and feelings of the disabled, so the expression developed into universal design in main English speaking countries. Asiah Abdul et al. (2014) suggested that universal design should ensure the basic needs of potential users with disability will be met. Christian and Constantine (2004), described the universal design, or Design for All, as a new philosophy for design that recognizes, respects values and attempts to accommodate the broadest possible range of human abilities, requirements and preferences.

Researchers in the field of barrier free typically concentrated their work on their own countries, and the viewpoints were multi-dimensioned. In Meltem's (2018) work, main items of "circulation" have been inspected in Turkey and he argues that a new vision based on accessibility and social justice is crucial to a better quality of the construction and life. Jakubisova and Rollova (2017) presented an overview of Slovak legislation on barrier free, and found the tourism and the forests can benefit from thorough universal facilities. Asiah Abdul et al. (2014) portrayed barrier-free in built environment in Malaysia. To solve inextricably



intertwined problems, Christian and Constantine (2004) hold that it is ideal to build up a network (EDeAN, short for European Design for All e-Accessibility Network), while Zeng (2015) turned to intelligent technology for aid.

Likewise, there are lots of articles dealing with barrier free in Japan and China respectively. Cheng and Gao (2012) look into the barrier-free design in kindergarten buildings in China and found that children are supposed to be cared as much as the elderly or the disabled. Zeng (2015) explores the barrier free design in the aspect of daily products, especially packaging, attempting to develop a more convenient product design manner by analysing the demand characteristics of those in need. Kose (1998) assumes that spurring the public awareness is the key to promoting barrier-free evolvement, for everyone will undergo a span of “disable” time and this sort of empathy and resonation can be emphasized. Horikoshi (2005) introduces the policies and measures for universal design of various Japanese ministries to foster everyone’s accessibility to IT devices. But most of the works deal with only one country, Japan or China, while this paper attempts to bridge them on the basis of respective research.

A few such meticulous comparisons have been done. Saito (2006) delivered a comparative study between Japan and the United States to understand how managers recognize and put universal design into practice in their workplace. With more complexity, Takahashi (2014) delivered a comparative study of the barrier free design history among three countries including Japan, China and South Korea. He sorted the evolvement of barrier-free in three countries, then set about comparisons of status quo: First he explained related regulations and technical norms, then presented some examples of reconstruction plans, besides some screening and sanction procedures, as well as administrative structures followed. At last he developed a system to assess barrier free levels by marking several subordinate items.

Table 1 assessment of barrier free in three countries

Source: By Takabashi Gihei in *Comparative Study of the History of Barrier-free Design and Universal Design in Japan and Overseas Countries*

項 目	中 国	韓 国	日 本
法制度の内容	★★	★★	★★
整備基準・ガイドライン水準	★★	★★	★★
国際基準調整	★★	★	★
権利条約の理解	★★	★★	★
公共施設整備水準	★★	★★★★	★★★★
住宅地整備	★	★★	★★
歩車道整備	★	★	★★
駅・交通機関	★	★★	★★
業務、商業施設整備	★	★	★★
都市基盤面整備	☆	☆	★★
障害者（団体）の参画	★★	★	★★
BF検証の仕組み	★	★★	★★

However, the precedent tends to concentrate too much on the regulatory dimension, only looking through the laws or blueprints without examining whether they are well implemented as well as subjective feedbacks. On the contrary, the purpose of the research is to put the barrier free design in the set of Japan, and to percept the ethos behind it after ascertaining the whole system. Moreover, it could be an originality to seek for opinions of help receivers, and to consider whether the experience is able to be applied to China by comparing two countries critically.

### 3. Barrier free in Japan

#### 3.1 Evolvment

By and large, Japan has been leading Asia since mid-20<sup>th</sup> century in terms of barrier-free design, but shows a slight lag from some western countries just because of its imitation of the latter. Although public presence fuelled the campaign at the very beginning, laws and regulations plays a more important role in the whole process, which will thus be emphasized. On the basis of chronological study, the history can be divided into four phases with respectively distinct traits.

The first phase started in 1950, but can be earlier in some extent. Japan passed the Act for the

Welfare of Persons with Physical Disabilities this year, which was the first legislation of this sort. The aim of it was to resettle people with disabilities into specially established centres and provide proper training, so that they can return to normal society with both social and working skills. Apparently, the concept of a drop-in and training centre repulsed people while lacked consideration for the seniors who had to be cared all through. Then in 1965, appeals of “local live” prevailed, centres gradually converted into welfare dwellings, but there were only impulsive small-scale reconstructions without national uniformity or standardized technical norms. Besides, Tokyo Olympic 1964 became an opportunity for Japan to expose to global criticism in terms of barrier-free design, but the impact was meagre, after all, the first Paralympic was just held in 1960. To sum, the phase was the rudimentary stage of Japanese barrier-free, with sporadic thoughts, regulations and activities.

The second stage started from 1970 and ended in 1994. A campaign launched in 1970 in Miyagi prefecture went viral, which aimed to voluntarily accompany people in wheelchairs to take a walk outside. Two years after spread, it became popular in Tokyo and Kansai area, known as “create communities with welfare” campaign, paying more attention to barrier-free design environment. In 1973, the first conference of wheelchair users commenced in Sendai, the capital of Miyagi, marked nationwide attention to the issue. Correspondingly, the Basic Law of People with Physical or Psychological Disabilities came out in 1970, guiding the Policy for Welfare City in 1973 and Outline of Living Environment Enhancement in Tokyo in 1974, which was actual a sketchy guideline of barrier-free design, and in 1982, a more detailed guidebook Barrier-free Architectural Design Standard followed them. Besides, Basic Law for Persons with Disabilities came into force in 1993.

Accident that a blind person fell down the platform onto rails of JR for lack of braille in 1974 hit the country and forced people to concern barrier-free design in public places, especially transport centres. A guideline of barrier-free facilities in terminals and vehicles came out in 1983, from Ministry of Transport, and a series of regulations set by some railway companies resonated to this around the year of 1991. As a silver country, Japan started to show its care for

the senior since 1986, when council of ministers released Policy for a Longevity Society, which included a special plan of senior residence. An enhanced version came into being, namely the Gold Plan, in the first Heisei year (1989).

So this was the phase with the rapidest pace of development. Publicity started to reach the whole country while concern started to reach the senior. The definition of barrier-free itself became more extensive, and “went outdoor”. Moreover, input from overseas also tended to increase. More introduction of western academic works, more attendance in international conference and the activity of International Year of the handicapped in 1981 were all strong evidence.

Heart Building Law in 1994 marked the beginning of the third period, which was actually a joint name of two regulations dealing with lives with welfare and barrier-free design inside buildings. This “heart” was so pivotal that many following laws were in fact its amendment or update, and these regulations together with affiliated technical norms formed a relatively rounded system coping with architectural barrier-free design. On the other hand, universal design in transportations also developed a lot surrounding Barrier-free Transport Law in 2000 (also a joint name of three sub-ones).

There were many attempts to be more detailed, standardized and considerate in this period. Generally speaking, most of Japanese started to perceive and experience barrier free a lot personally from this phase on. For instance, many financial institutions started to provide favourable loans to builders constructing mansions with more universal facilities; Houses were asked to label its barrier free performance; There were even an interesting statute passed in 2002 legally permitting guide dogs in public spaces. Long-term plans also appeared in this period. Starting from 1995, there was a multi-ministry plan of Seven-year Normalization Strategy, dealing with various dimensions with respect of the disabled. Plans of this kind can not only promote efficiency of cooperation between different sectors, but also stabilize related policies and thus benefit more help receivers.

The last period spans from 2006 until now. Barrier free has been showing more

comprehensiveness. Mentioned Heart Building Law and Barrier-free Transport Law were merged into one as (New) Barrier Free Law, which was passed by Ministry of Land Infrastructure and Transport. Several bills supplementing details in public transport, entertainment areas and architectures followed respectively in 2007, 2008 and 2012. Barrier free has been comprehensive in other sense. Services and Supports for Persons with Disabilities Act, complemented in 2013, started to exert substantial care mentally. There was also act dealing simply with discrimination against the disabled which takes effect from April 2016.

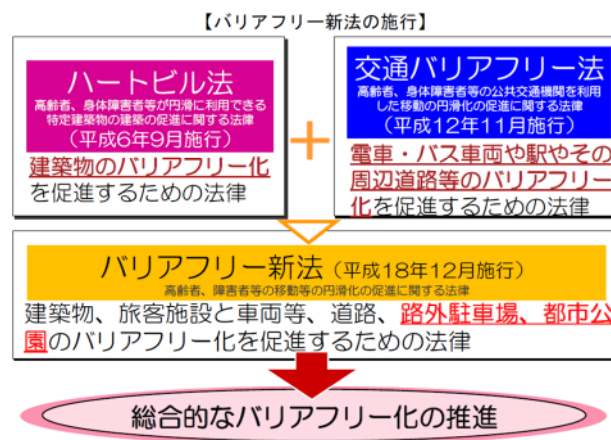


Figure 2 The merge of two laws

Source: By Ministry of Land, Infrastructure, Transport and Tourism in *Basic Conception of New Barrier Free Law*

Japanese barrier free also goes global during the period. In 2014, Japan signed Convention on the Rights of Persons with Disabilities as a member country, shouldering more international responsibility in caring the needed. At the time being, Tokyo is about to hold its second Olympic and Paralympic, which is definitely a check on barrier free by the globe.

In terms of territory, it goes from local, nationwide to global; In terms of motivation, it alters from impulse to law, and back to details; In terms of idea, it converts from special treatment to normalization, from physical to mental. This, to conclude, is the evolution of Japanese barrier free.

### 3.2 Technical norms

Japanese barrier free goes much further than mere laws, slogans or concepts by building a multi-dimensional, dual-directional and down-to-earth system. Technical norms are the bridge between ideas that inspire the welfare society, and facilities that people in need interact with most. This section is a brief summary of technical norms, focusing on characteristics these standards show while inevitably partial to physical aspect.

There is no need at all to repeat original texts of countless technical norms, for they are easily accessible and organized well on the website of Ministry of Land, Infrastructure, Transport and Tourism. Standards in effect now dates back to mentioned Barrier Free Law in 2006. The subordinate statutes of the Law set rules that must be obeyed in design. There are statutes respectively dealing with barrier free in conditions of architectures, roads, vehicles, parking lots and parks, where numbers or rates are fixed strictly, occasionally some illustrations or samples follow in appendices.

The most noteworthy feature of the system ought to be its concern on mobility. One might emphasize that facilities in a certain place must be designed without barrier so that they are able to conveniently use or live in, but this thought tends to neglect their need of moving, as well as linking between varied places of their activities. Over half of terms in these statutes provide standards directly relating to the users' move, namely those on slopes, elevators, blind tracks, steps, handrails and so on. Others cope with a certain static point, but regulations are based on scenarios of users' passing, for instance the width of exit, the means of opening a toilet door, the design of a ticket-check. Besides motion itself, sometimes breaks are also taken into account accordingly, like compulsory slope landing set every certain distance so wheelchair users can take a break after reeling for a while. In this reading, people with disability are seen as proactive participants of the society with colourful activities in community life and desire to explore the environment, rather than a specially cared group, rotting in a certain place.

Secondly, Japanese barrier free norms put an emphasis on uniformity. On the one hand, standards and signals stay in consistency in different prefectures all over the country. The signal system is the most demonstrative. The barrier free logo itself, as well as other signs of various

facilities are uniform and illustrated in the guidebook with such accuracy that every length of line and degree of angle is fixed. On the other hand, equipment of the same kind stays similar in different context, the embossment of the blind tracks must include dots and sticks of the same height nearly everywhere, for example. It also holds for “negative” vacant space, for instance, passages of different kinds, slopes and intervals between barrier free parking lots are all stipulated to be wider than 120cm so that wheelchairs can smoothly pass. Barrier free design in individual places can thus be integrated into one big system, or rather, a net.

Several other virtues should also be appreciated. Leading other Asian countries, for certain facilities, staff are also fairly stipulated. Personnel in aeroplanes and trains shall be trained to provide basic aid to those in need and to address some related emergency. In some public centres, if signs like “service for persons with hearing impairments” are displayed, there shall be these staff standing by; In the system of technical norms, there are two sets of standards in some fields with compulsory one and instructive one, giving some prefectures an interim for transition; Some clauses start to cater to foreign people with handicap and suggest to introduce foreign languages to some facilities.

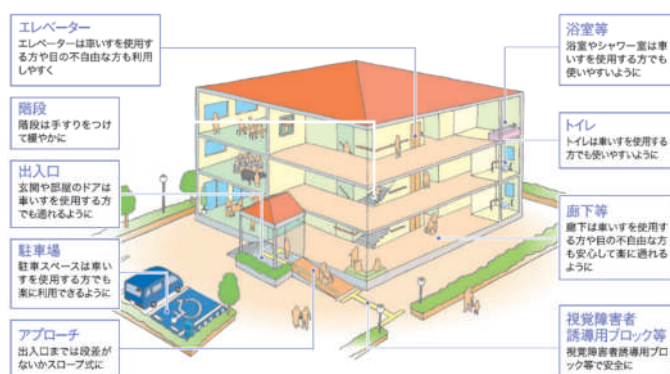


Figure 3 Uniformity

Source: By Ministry of Land, Infrastructure, Transport and Tourism in Explanation of New Barrier Free Law by the Ministry

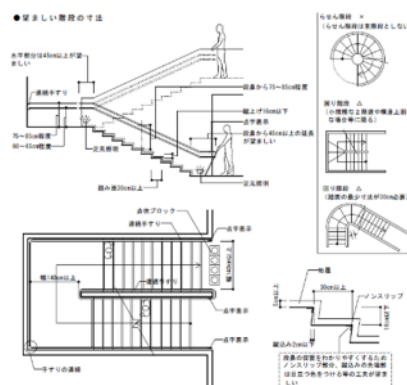


Figure 4 Mobility

Source: By Ministry of Land, Infrastructure, Transport and Tourism in *Barrier Free Architectural Design Standard*

But stains exist. First, the norms set by the ministry seems to focus only on construction of

the barrier free facilities, with rare consideration of inspection and maintenance of them. Second, Admittedly Japan is going to be a silver society in the near future, but the technical standards concentrate a little too much on people with movement handicap, who are typically the senior in wheelchairs. People with hearing or eyesight disabilities, toddlers, expectant mothers are not cared well in some cases.

### **3.3 Implementation**

On the basis of technical norms, it is necessary to observe how the system functions so that standards can be firmly complied with. Here implementation refers to every link in the process that puts barrier free design into practice, and how the system is managed and updated. By watching roles of each performer, we can deepen our understanding of Japanese barrier free on abstract level.

The management structure of barrier free design as well as flow of its construction is outlined in the laws and statutes mentioned, and further elaborated and illustrated in assorted guidebooks or pamphlets. Local governments are also obliged to disclose their policies and current situations in this aspect. Generally speaking, there are four main subjects in the project: Ministry of Land, Infrastructure, Transport and Tourism and its minister on the country level; Planning (or construction, environment, etc., depending on different prefectures) office of every municipality on the local level; Owners, managers or constructors of certain facilities; Common people, or facility users.

The minister, together with the ministry, decides fundamental policies and guidelines in terms of barrier free, and has the responsibility of overall and ultimate management. Laws and regulations shall be regularly inspected and amended by them. Besides, they guide municipalities in creating their distinct “Basic Planning of Barrier Free”, then establish various sectors and offices in the ministry aiming to provide help, mainly financial aid. Local government typically implements the project on the municipality level (rather than prefecture level), thus Basic Planning of Barrier Free composed by planning offices. The planning usually consists of study of status quo, goal, detailed methods and persons in charge. Besides, there are



always another part dealing with some “key areas”. Here key areas contain specific meaning defined by the government, that areas with certain density of transportations and public services. Planning in these places are so crucial that different kinds of design and facilities are integrated in one blueprint, supervised and implemented exclusively.

People always have right to participate in the process of planning. They can hand in their proposals and utter their voice before the official documents are released, or they can attend meetings and hearings held in municipality. After construction, they have many ways to complain and propel adjustment. Certainly they can also be represented to do these. On the other side, every person has obligation to cooperate while using barrier free facilities, and to provide basic help to those in need. Depending on the sort of ownership, people contribute to barrier free in varied manners. For example, personal owner of a certain place, or constructor of a certain mansion, will be asked to practice barrier free under guidance from government, and will be subsidized as mentioned; Transport centres, public offices or intersections are often directly managed and outfitted by relevant public sectors to meet barrier free standards.

Again, phases after construction do not appear. Barrier free design is deemed as a one-off work, without future concern on renewal and management. But merits in this structure are not dwarfed. Universal participation guarantees that everyone can be equally heard and decently cared, money can thus flow to where it is needed most. Besides, planning is highly and precisely localized, which is exactly the aim of multi-layer structure. You can see special chapters for facilities in winter condition in documents of some cities in Hokkaido.

#### **4. Case Study**

To gain a deeper understanding of barrier free design, two cases in Japan will be provided. The first one is Tokyo Olympic and Paralympic scheduled in summer 2020. By exploiting what people do to prepare for an international event for all, we can know how the country is able to meet intensive needs of barrier-free in certain venues in a limited time period. The second one is barrier free system in Waseda University, where we can catch a glimpse of how barrier free is

carried down-to-earth in a certain institution (to be precise, an educational institution), and how it makes various attempts to assist students multi-dimensionally. Besides, throughout these two cases we can find out that Japan's barrier free is becoming more and more international.

#### 4.1 Tokyo 2020

In official publicity, barrier free design or universal design is referred to as accessibility, and along with some other cares, called Diversity and Inclusion. For the special event, the first feature we can tell about the barrier free is the establishment of special groups, or the launch of special researches.

There are three main performers concerning barrier free preparations in Olympics and Paralympics: Tokyo Organising Committee of the Olympic and Paralympic Games (the Committee), Ministry of Land, Infrastructure, Transport and Tourism (the Ministry) and Bureau of Olympic and Paralympic Games Tokyo 2020 Preparation (the Bureau). Their work hardly overlaps: The Ministry delivered some field researches, the Committee issued the Accessibility Guidelines as well as some training handbooks for staff, while the Bureau took charge of construction or readjustment of barrier free design in 11 venues that will be used in 2020.

Speaking of the research, the Ministry conducted some experiential surveys. First they recruited people with different kinds of handicap by help of some non-governmental organizations, then grouped them accordingly to experience some infrastructure and facilities. Specifically, they assigned five routes, the most important being one from Narita Airport to Nippori station, which is almost the only way linking the airport and Tokyo downtown area. Their activities in the process were monitored or interviewed, so were their own feelings, or rather complaints. Detailed guidelines were developed just on the basis of them. Of course, some scholars also gave their advice in the report, and it has become a helpful document for the Committee and the Bureau.

The Committee is responsible for two games as a whole, and is good at coordinating all quarters, securing resources and organize people. Therefore, remarkably they create the "Handbook to Accessibility Support", which is a particular guide for all the staff on assisting the

disabled. As mentioned before, there is hardly clauses concerning staff training in laws or regulations, and planning or a certain place seldom demands staff to strictly meet a standard in terms of helping the disabled or using barrier free facilities. But in this handbook, actions, expressions and words are all normalized, and the guideline matches up with facilities very well. Moreover, staff are asked to consider feelings of help receivers, especially to avoid fear and to respect self-esteem. Some typical provisions of the handbook are as follows:

**Going up a step (a change in surface level)**

- ① First, verbally signal what you are about to do (for example, “I’m now lifting the front of the wheelchair because there’s a change in level”); then, perform the procedure for lifting the casters.
- ② With the casters lifted off the ground, push the wheelchair slowly forward, and get the casters onto the step.
- ③ Push the wheelchair a little further. When the rear wheels (larger wheels) touch the step and stop, lift the wheelchair by the push handles while pushing it forward, taking care to avoid impact.

.....

**On a rainy day:**

A wet surface makes the wheelchair user and the assistant more likely to slip while going over a change in surface level. Be sure to stop the wheelchair in front of the step for a second to ensure safety and lift the caster in a stable condition.....

Also, the committee sets the technical norms in Tokyo 2020 Accessibility Guidelines, and the standards base on not only mentioned domestic standards, but also specifications provided by IPC (International Paralympic Committee), so as to meet needs of athletes all over the world.

The Bureau does more pragmatic work, but seems a little passive. Its only responsibility relating to barrier free is to fit 11 venues in Tokyo Prefecture into barrier free standards, so what it has only done is holding some workshops, and to implement conclusions by mentioned method: mingling with owners, managers or constructors. Still, one thing should be appreciated: The Bureau created many policies to eliminate the language barrier, and even set a multilingual office to focus on related issues.

To conclude, we can figure out the second feature of the system, which is the emphasis on people. On the side of staff, the government tries its best to provide humane and considerate assistance for the disabled by well trained personnel and volunteers. On the side of help receivers, their personal and subjective feelings are taken into account while making decisions. No one knows their needs better than their own. People's extensive participation can thus promote barrier free design genuinely. The third advantage is of course internationality, which is demonstrated by observations above, and also shown by publicity, signs and websites in versions of different languages.

Planning and policies are promising, but most of the stadiums are still under construction, so actual performance is not easy to predict. So far, what can be examined most is the introduction of taxis compatible with wheelchairs. But given the trend, one has reasons to foresee a Tokyo that is friendly to everybody in 2020.

## **4.2 Waseda University**

### **4.2.1 Structure and Scale**

Waseda University, founded in 1882, is a Japanese prestigious private research university located in Tokyo, and is doing its best to support students with any impairment. There is an Equality and Diversity Centre set in Waseda to "create and guarantee a fulfilling campus environment"(Equality and Diversity Centre, Waseda University), which is a combination of 3 subordinate offices. Office for Students with Disabilities is the one caring students who are experiencing difficulties with their studies for reasons of disabilities.

Affairs in the office are divided into two sectors, namely support department for students with physical disabilities and support department for students with developmental disorders. They share a manager and an accountant, and entail two specialists respectively with part-time one and full-time one. There are about three to five staff dealing with daily work and reception in each department, while in the department concerning physical disabilities there are about 35 to 40 student volunteers as supporters, whose main task is to assist those in need on a daily basis.

In theory, students with impairments of any sort ought to register in the office upon entry to school, and subscribe for regular aid or just come to the office to seek for one-off help. However, the number shows another story: many students are just unwilling to ask for help. In a university with about 5000 students in sum, there are meagre 30 that have gone through registration. Despite relatively low disability rate in young age groups, the figure can hardly reach 3.8%, the general rate of serious disability in a society provided by *Global Burden of Disease*. Among them only 6 persons are assisted regularly by supporters as well as staff in office.

#### **4.2.2 Operation**

Money is paramount. As a sector dealing with barrier free in an educational institution, funding of this office naturally derives from two origins: One is mentioned special offices in the Ministry, which mainly meets the needs of architectural construction of barrier free facilities. The other part comes from Japan Students Services Organization (JASSO), and from Promotion and Mutual Aid Corporation for Private School of Japan (for it is a private university). The amount in this part is determined by the number of disabled students and staff. As far as Waseda University is concerned, it generally managed to make ends meet in past years, but the aid per se does not cover all phases of students' life (commuting for example), and chances are that cost per capita or the number of help receivers increases.

Services the centre provides contain five categories: Academic support for students with disabilities, training for supporters, support for faculty, provision of various information and activities for raising awareness. Of course the first one is the pivot of the four others. There are various publicities and training programs to enable the centre, supporters and staff to better help the disabled students. Only in 2017, there were 408 participants in 10 faculty development and staff development seminars. Here students with physical impairments are also classified as four groups: hearing impairment, visual impairment, mobility impairment and short-term illness or injury. According services are summarized as the chart below.

Table 2 Supporting service in Office for Students with Disabilities, Waseda University

<b>Category of impairment</b>	<b>Support services</b>
<b>Hearing impairment</b>	PC on-screen captioning Summary notes Sign language interpreting Transcription of audible course materials
<b>Visual impairment</b>	Translation of text into braille Text date Sighted guide Reading service Assistance with taking notes
<b>Mobility impairment</b>	Assignment of classrooms Mobility support on campus Assistance with taking notes
<b>Short-term illness or injury</b>	Just the same services as above but in a short period

As is conveyed, some sorts of assistance do not need extra personnel, people in need can just come to the office and fetch certain assistive devices like special tablets, white canes or hearing aid systems. Some others seek for special arrangements, like assignment of classrooms, the office would reach to other departments in university for possible help in this case. Students with really serious disabilities may need specially assigned supporter to help him or her in courses. Supporters and students in need will be matched at the beginning of a semester, and there are regular chats in the office with monitors to get feedbacks from each other, about once a week.

In respect of the barrier free design and facilities in campuses of Waseda, they are checked and overhauled by disabled students, supporters and staff all together regularly, and the overall conditions are made into universal design maps, which will be elaborated later. Facilities can also be adjusted or added on reasonable demands.

#### **4.2.3 UD Map**

The most remarkable effort the office made must be UD map, short for universal design map, or accessibility map. Students with disability, especially physical one, together with staff in the office, will conduct thorough and exhaustive surveys in every campus of Waseda, to get first-hand information about barrier free design in the school. The data are thus objective but personal at the same time, for it bases not on some planning or blueprint but just on students' experience of finding or using the facilities, while reflects current conditions genuinely. As illustrated, contents on the map are copious and clear. Marks and symbols on the map can be categorized into two sorts, of which one is the specific location of a certain facility or office, being often abstract and indoor like nursing room, AED or ostomate device. The other category is linear, expressing accessibility of roads in campus, and whether a door has an automatic entrance without step for the disabled. Even there is a slope somewhere, it can also be indicated as difficult for wheelchairs to pass.

The map is an impressive feat not only because of the endeavour to integrate barrier free design in a certain institution into one piece of paper, but also because it deepens the meaning of accessibility per se, which goes far beyond from facilities or designs that can be used, to getting the information about existing facilities beforehand, so that the disabled can make wise choices in every activity.

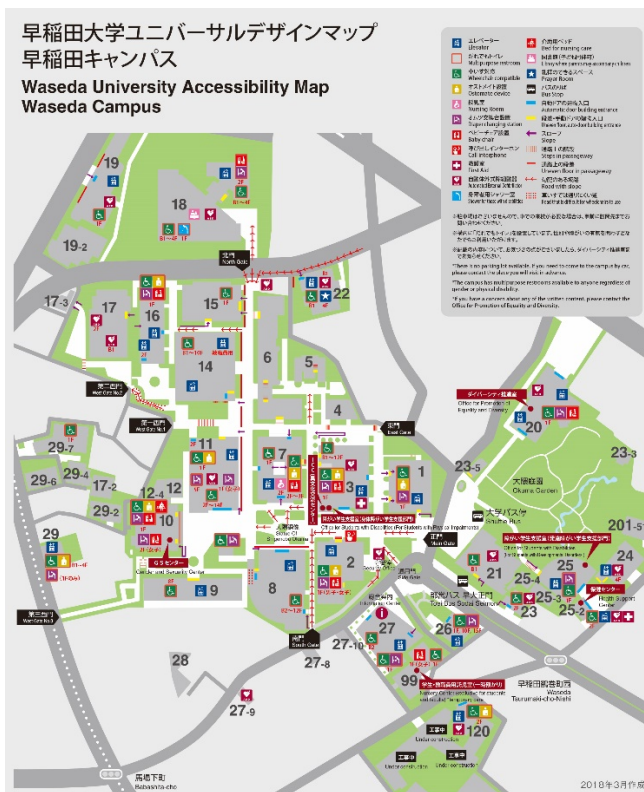


Figure 5 UD Map of Wasede campus

Source: By Office for Students with Disabilities



Figure 6 Roger system



Figure 7 PC Translator

#### 4.2.4 Electronic equipment

Another point worth expounding singly is abundant electronic devices applied in the office. In the era of digitization, barrier free is supposed to make changes, but the process tends to be tardy in the macro, public level due to vast cost. Academic institutions like university, in the contrary, can take advantage and make relevant efforts to provide more electronic services for individuals. There are various electronic assistive devices available for loan in the office. Some are just common, like tablets, desktop reading machine and electronic memo pad (Boogie Board), but others are a little more unique. Roger transmitter can magnify the voices of the lecturer on an intelligent basis, by two terminals held by the lecturer and the student with hearing impairment. Braille PDA is able to deal with braille by a small phone-like box. The UD Talk app in the tablets and PC translators can interpret voice into texts almost immediately (the latter requires assistance of human). It is hard to say technology applied is relatively sophisticated, but the attempt and effort behind make them forerunners.



## **5. Conclusion and Discussion**

### **5.1 Why Japan? Can China?**

To put it simply, there are two objective facts that mainly shape barrier free design in Japan: economic development and aging.

Income Doubling Program in 1960s brought Japanese onto Yoshida route, marking the beginning of serial economic booms including Jinmu Boom, Iwato Boom and Izanagi Boom. Industrial restructuring occurred frequently. Workers became richer and richer in an incredible rate while fiscal black became more and more significant. The economic growth rate even reached 12.0%, which is abnormal in a capitalist society. This just corresponds to the mentioned second stage of Japanese barrier free, which is fuelled by people's seek for convenient and cared life and supported by the skyrocketing economics per se.

The economic miracle of Japan in last century was no out of nowhere. After WWII, the birth rate in Japan remained high. There was a continuous baby boom with 8 million born in only three years between 1947 and 1949. The generation were referred to as "Mass Generation", who contributed greatly to the marvellous economic development as abundant labour force. They themselves even created another baby boom in 1970s. Intensive birth means overwhelming aging, and following sharp falling of birth rate as well as advancement of medical technology just aggravated the problem. According to United Nations' standards, if more than 10% of population are above 60 or 7% are above 65, the country or the region is referred to as aging, and if 10% are above 65, then SEVERE aging. Japan began to see its aging back to the beginning of 1970s, and the rate of those above 65 reached horrible 27.7% in 2017, while 13.8% reached their 75. Senior citizens are typically weak and slow mentally and physically, many additionally suffer from chronic diseases, which calls for special care, barrier free being the primary.

In this reading, China seems like a plus-size Japan with a 30 to 40 years of delay. Since Reform and Opening in 1978, China has also witnessed its rapid growth, and the economic aggregate even surpassed Japan several years ago. After basic needs are met to survive, people

also appeal for a society and an environment where they are well concerned, and where they can exploit everything without barrier. Besides, Chinese government is also extremely worried about severe aging. The rate of the senior above 65 has already reached 11.4% and is embracing its steady growth in recent years. However, the cause of aging in China is a little different. Family Planning policy starting from 1980s limited to one child in a family, the rate of birth thus plummeted, and the lack of the youth in this century, rather than the excess of the old generation caused aging in China. But given the large population base, people who need barrier free design are also considerable. To conclude, the similarity of China and Japan in terms of economics and age composition completely allows China to imitate some of the experience.

But there are more to dig on the level of public notions. The concept of equity and benevolence, as well as the elaboration on objects also moulds the development of barrier free design in this country. Japanese never stopped taking in Zen and Confucianism from ancient China. “All men are born equal” is a benevolent doctrine in Zen, emphasizing equal concern on everyone and equal care for everyone, which is an origin of modern welfare system; Confucianism, on the other hand, always stresses its care, or rather, reverence on the elderly. And not only does it compel filialness on younger generations in family, but also extend the obligation to the whole society. It can be said, that ethos of caring the vulnerable without any discrimination just derives from these old lessons. So we have every reason to expect the “teacher” herself to be more pragmatic and implement the notions down to earth.

Authentic Japanese culture also contributes to elegant universal designs. The “mono no aware” stands for Japanese extreme pursuit for delicacy and perfection, which is hard to explain, but generally speaking, a unique sensitivity of all the surroundings as well as the human perceptive connection with the objects. They appreciate beauty and create it with devotion, and are good at subliming daily things to spiritually perfect ones. For example, Sado turns an everyday beverage into a ritual event; Ikebana alters a household decoration into a fine art. So the barrier free design can be seen as a variant of mono no aware, an ultimate pursue for objects themselves. In China, however, too much emphasis on unessential parts is always deemed as

extravagance and never helpful for affairs. The acceptability of many things just stays in the “make do” level, without optimizing user experience. The idea might be a little obsolete in this day and age. Upturning living standards inverts the “unessential parts” to cores in the commercialized society where details determine success or failure, and they are also pivot in barrier free design in this welfare society, where special care is hardly special but essential.

## **5.2 Conclusion**

Barrier free design in Japan is multiscale and multidimensional, and people-centred. Barrier free design shall never be confined to some physical auxiliaries. Design of operation systems, application of advanced devices, the training of staff or like should all be taken into account. People with impairments of any sort are supposed to be assisted respectfully and specially, while not be treated with any discrimination. “Multi-dimension” carries another meaning for individuals, that being cared in every phase of life with distinct methods. Besides, barrier free design can go beyond intrinsic scales and levels and integrate as a whole to benefit everyone with more convenience and flexibility. Ultimately, it is happiness we create for people, rather than rigid errand to handle.

Barrier free design in Japan is future-oriented. Promising developments such as Globalization and technicalization are enriching the definition of future, while hardships like aging and resource depletion are glooming it. The field of barrier free should reflect by practical actions, including but not limited to removing language barriers, introducing digital devices and increasing mobility indoors. Japan has taken some small but meaningful steps, but still, together with other nations, has a long way to go.

It is feasible to replicate many of successful experiences of Japan to its gigantic neighbour, given the similarity of material conditions, economic soaring and the age structure. Moreover, two nations share some traditional notions and ethos, which also counts as feasibility of application. Still barrier of barrier-free exists, improvement of the laws and regulations, optimization of the operation system as well as the level of design itself are all future direction of efforts.

## 6. References

- Buhler, C., & Stephanidis, C. (2004). European co-operation activities promoting design for all in information society technologies - Introduction to the special thematic session. *Computers Helping People with Special Needs: Proceedings, 3118*, 80-87.
- Cheng, X. G., & Gao, H. L. (2012). The barrier-free design of kindergarten buildings. *Proceedings of the 2nd International Conference on Electronic & Mechanical Engineering and Information Technology (Emeit-2012)*, 23, 4.
- Horikoshi, T. (2005). Japanese government measures for promoting universal design (correction of digital divide). *Fujitsu Scientific & Technical Journal*, 41(1), 26-30.
- Jakubisova, M., & Rollova, L. (2017). BARRIER - FREE OR UNIVERSAL DESIGN OF TOURIST TRAILS IN THE FOREST LANDSCAPE? *Public Recreation and Landscape Protection - with Nature Hand in Hand, 2017*, 30-+.
- Kose, S. (1998). From barrier-free to universal design: An international perspective. *Assistive Technology*, 10(1), 44-50. doi:10.1080/10400435.1998.10131960
- Kose, S. (2008). Housing for an Ageing Society: Adapting Housing Design toward Universality is the Minimum Requirement for Inclusion. *Aging, Disability and Independence*, 22, 19-39. doi:10.3233/978-1-58603-902-8-19
- Rahim, A. A., Zen, I., Abd Samad, N. A., & Rahim, C. R. C. (2014). Universal Design and Accessibility: Towards Sustainable Built Environment in Malaysia. *Universal Design 2014: Three Days of Creativity and Diversity*, 35, 299-306. doi:10.3233/978-1-61499-403-9-299
- Saito, Y. (2006). Awareness of universal design among facility managers in Japan and the United States. *Automation in Construction*, 15(4), 462-478. doi:10.1016/j.autcon.2005.06.013
- Takahashi, G. (2014). Comparative Study of the History of Barrier-free Design and Universal Design in Japan and Overseas Countries. *ライフデザイン学研究*, 10, 283-297.
- Yilmaz, M. (2018). Public Space and Accessibility. *Iconarp International Journal of*

*Architecture and Planning*, 6, 1-14. doi:10.15320/iconarp.2018.46

Zeng, L., & Inc, D. E. P. (2015). Application of Intelligent Technology in Barrier-free Product Design for The Elderly. *2015 International Conference on Computational Science and Engineering Applications (Csea 2015)*, 465-469.

# Barrier Free Design in Japan: concept and practice

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International Symbol of Barrier Free

**Barrier free design** refers to serial concepts and equipment that extensively aid those with disability to conveniently, independently and safely used facilities during living. The aid ranges from signal clarify, physical facilities to mental guidance, whose beneficiaries can be everyone, especially those with handicap or inconvenience of any extent.

## 1 1950-1969

- the Act for the Welfare of Persons with Physical Disabilities
- Rudimentary stage
- Sporadic thoughts, regulations and activities

## 2 1970-1994

- "create communities with welfare" campaign in Japan
- The rapidist pace of development
- Barrier free goes global

## 3 1995-2006

- Heart Building Law
- Detailed, standardized and considerate

## 4 2007-Now

- Barrier Free Law
- Anti-discrimination statutes
- Comprehensiveness

## Technical Norms and Implementation

**Mobility** People with disability are seen as proactive participants of the society with colourful activities in community life and desire to explore the environment, rather than a specially cared group, rotting in a certain place.

**Uniformity** not only gives convenience for users, constructors and administrators, avoid some ambiguity, but more importantly contributes to mobility all over Japan.

**Maintainance** The neglect of maintainance.

Ministry of Land, Infrastructure, Transport and Tourism

Planning offices in each prefecture



Country Level



Local Level



Facility Level



Individual Level

Owners, managers or constructors of certain facilities

Facility users or help receivers

## Evolvement of Japanese Barrier Free



Special event, special groups

- Tokyo Organising Committee of the Olympic and Paralympic Games
- Ministry of Land, Infrastructure, Transport and Tourism
- Bureau of Olympic and Paralympic Games Tokyo 2020 preparation



## TOKYO 2020

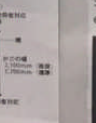
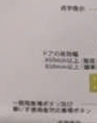
### Case study 1

Remove the Language Barriers



By exploiting what people do to prepare for an international event for all, we can know how the country is able to meet intensive needs of barrier-free in certain venues in a limited time period.

### People-centred



## Office for Students with Disabilities



STAFF

The manager  
Specialists  
Full-time officials  
Part-time officials  
Volunteers

- Academic support for students with disabilities
- Training for supporters
- Support for faculty
- Provision of various information
- Activities for raising awareness



Students with disabilities

**Physical Disabilities**  
Hearing impairment  
Visual impairment  
Mobility impairment  
Others

**Developmental Disorders**

ASD  
PDD  
AD/HD  
SLD



Some of the electronic devices

### Universal Design Map



## WASEDA UNIVERSITY

### Case study 2

Through Waseda university we can catch a glimpse of how barrier free is carried down-to-earth in a certain institution (to be precise, an educational institution), and how it makes various attempts to assist students multi-dimensionally.

## Conclusion and Discussion

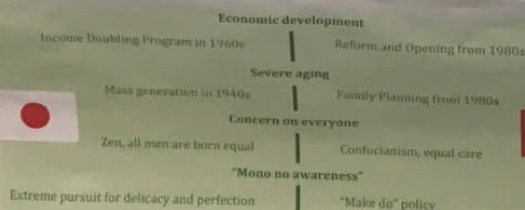
Multiscale / Multidimensional

People-centred / Future-oriented

Relatively replicable in China

Main References:  
Hokkaido, T. (2009). Japanese government measures for promoting universal design (connection of digital divide). *Future Scientific & Technical Journal*, 41(1), 26-30.  
Johansson, M., & Kallio, L. (2017). BARRIER-FREE OR UNIVERSAL DESIGN OF TOURIST TRAILS IN THE FOREST LANDSCAPE? Public Recreation and Landscape Protection - with Nature Hand in Hand, 2017, 36-40.  
Kane, K. (1998). From barrier-free to universal design: An international perspective. *Assistive Technology*, 19(1), 44-50. doi:10.1080/10400139708813116.  
Takahashi, G. (2014). Comparative Study of the History of Barrier-free Design and Universal Design in Japan and Overseas Countries. *ライフデザイン研究*, 10, 243-257.  
Villan, M. (2018). Public Space and Accessibility. *Insight International Journal of Architecture and Planning*, 6, 1-14. doi:10.15320/insight.2018.40.

## Comparison between two countries: Why Japan? Can China?



**Research on Japan's renewable energy development  
after the 2011 Tohoku Earthquake**

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Peking University**

**1 Introduction**

On March 11, 2011, magnitude-9 earthquake happened in Japan's main island. This earthquake is the strongest one in Japanese recorded history. After the Pacific coast of Tohoku Earthquake and the Fukushima Daiichi nuclear power plant Exposition, Japan's energy self-sufficiency became extremely low, from 20% in 2010, down to 6.0% in 2012. In this case, more energy is needed to make up the gap. One way to solve the problem is to import energy, that is why Japan imported more energy and became a deficit country for the first time in 2011 since 1980. Another way is to adopt more renewable energy. Renewable energy is energy that is collected from renewable resources, which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat. Japan launched the Basic Law on Energy Policy, and one of the aims is to improve the percentage of renewable energy. In the 2018 version of Basic Law on Energy Policy, one of the aims is to increase the renewable power percentage to 22%~24% by 2030, which is 10% in 2010 and 15% in 2015.

Various researchers have evaluated recent Japan's renewable energy development in various aspects including economy, environment, and policy. For instance, a feed-in tariff(FIT) is a system in which the electricity generated by renewable energy is purchased by electric power companies at a certain price for a specified period, and the costs are collected as a levy from electricity users, which is an encouragement for renewable energy production. After the 2011 Tohoku Earthquake, Ministry of Economy, Trade and Industry(METI) extended FIT which started in July 2012, including Photovoltaic system(PV), wind power, small hydro, geothermal and biomass, which helped to maintain an appropriate self-sufficiency rate in Japan. As for the Economic situation, Nakano(2017) showed that comparing the "Extended table for 2005" and the "Extended table for 2030", after bringing in renewable energy, the

changes of economic effects are apparent. Economic benefits gives people another reason to support renewable energy apart from the rise of nuclear power price to keep it safer. Apart from that, after the 2011 Tohoku Earthquake, renewable energy became increasingly important to reach the carbon emission reduction goal, although it seems unreachable because of promises made to reduce carbon emission from 1990 by 25% by 2020, approximately 80% by 2050.

This thesis is the farther study on the basis of the previous work, which paid less attention to the relationship between the development of renewable energy in Japan and the 2011 Tohoku Earthquake. The purpose of this study was to explain the result of the 2011 Tohoku Earthquake in energy prospect and how it changed the renewable energy development in Japan by study the recent experience of Japanese renewable energy, from both macroscopical and microcosmic aspects.

Clearly, in such type of study, a comparative historical research method in Qualitative Research will be used. The paper is structured as follows. The first section presents an analysis of the relevant research, focusing on aspects of Japan's renewable development including economic, environment, and policy. The second part presents the development of renewable energy in Japan, especially the difference between after and before the 2011 Tohoku Earthquake. The third part focusing on the policies concerning renewable energy in Japan, Superiority Weakness Opportunity Threats(SWOT) analysis will be conducted. The final section will be focusing on the challenges from the 2011 Tohoku Earthquake, including areas of natural environment, economy, and technology.

## **2 Literature Review**

The 2011 Tohoku Earthquake dramatically changed the designed structure of Japan's energy future, and already started to affect the energy structure, in reality, especially renewable energy development.

Firstly, Dewit(2011) argued that Japan should learn from those countries with successful experience in promoting the use of renewable energy like Germany. Ishikawa(2012) classified three ways to mend the gap of energy in Tohoku. By combining different percentages of thermal power and renewable energy, benefits for Tohoku, Kantou, and



nationwide will be different. However, one thing is for sure, which is full thermal power will result in the flow out of national wealth in Japan. Therefore, it is necessary to introduce renewable energy.

From the economic aspect, Nakano(2017) showed that comparing the “Extended table for 2005” and the “Extended table for 2030”, after bringing in renewable energy, the changes of economic effects are obvious. He calculated that “When the percentage price increases in each sector are multiplied by the domestic output in the “Extended table for 2030,”the total is 10.7 trillion JPY, which represents the total benefit of the FIT after reducing renewable energy power prices by suppressing overall price increases,” and “The net effect is approximately 4.4 trillion JPY after subtracting the opportunity cost.”

From the environmental aspect, before the 2011 Tohoku Earthquake, Tollefson(2011) emphasize the importance of energy conservation and emission reduction, therefore promises made to reduce carbon emission from 1990 by 25% by 2020, approximately 80% by 2050. Japan’s energy strategy focused on nuclear power, relying on it to reach the goal. After the 2011 Tohoku Earthquake, renewable energy became increasingly important to reach the carbon emission reduction goal.

As for the policies, Japan introduced a feed-in tariff in 2009. However, IEA(2010) acknowledged that this plan only limited to residential PV systems and only reward net electricity production of households. Dewit(2011) emphasized that most of the policies are used for vested interests themselves, and “Fukushima’s ruined and ruinous reactors are the most visible legacy of vested interests’ dominance of Japan’s energy policy.” After the 2011 Tohoku Earthquake, METI extended FIT which started in July 2012, including PV, wind power, small hydro, geothermal and biomass. A feed-in tariff makes sure to purchase produced power will at a fixed price for a specified period, which is an encouragement for renewable energy production.

This research aims to explain the result of the 2011 Tohoku Earthquake in energy prospect and how it changed the renewable energy development in Japan. By doing so, we can have a better understanding of the japan’s energy model and how it evolved within its system.

### **3 Step-by-step development of renewable energy in Japan**

Based on Basic Law on Energy Policy in 2002, Japan government will publish a new version of the Strategic Energy Plan every three years since 2003. 3E+S are the basic policies, and safety always comes first. 3E including energy security to further exceed the self-sufficiency before the earthquake(20%) with currently less than 10%, economic efficiency to reduce more than present cost, and environment, which mainly focusing on achieving reduction of CO2 emission goal.

Back in the late 19<sup>th</sup> century, Japan started its industrialization and policies made by the Meiji government. However, rapid growth cause pollution problem in the 1950s and 1970s. At that time, cities in Japan are among the most polluted cities around the world. Japan passed a series of new pollution reduction law in 1970, which lay a good foundation for renewable energy development.

In the following part, detail will be discussed mainly based on time sequence, considering the performance of other countries for comparison.

#### **3.1 Period before the Tohoku Earthquake**

In 2009, The Democratic Party of Japan(DPJ) came into power in September, and a scheme introduced to promote renewable energy development. However, The Federation of Electric Power Companies of Japan(the Denjiren) hold opposition toward this policy, and the DPJ failed for the resistance within METI. The combined percentage of electricity sources including Solar, Wind and Geothermal less than 1%, renewable energy are less investigated comparing to nuclear energy at that year.

In 2010, the DPJ launched its New Growth Strategy(NGS) to create low carbon society by different ways, a crucial element is the strengthening of Japan's industrial-technological capabilities in seven strategic areas up to 2030, and environment and energy are the first. Apart from the NGS, Industrial Structure Vision is also introduced. Industrial Structure Vision solid the foundation for further development. However, nuclear will be the cheapest way to achieve the Paris Agreement comparing to renewable energy. Therefore the third version of Strategic Energy Plan from METI states that nuclear power plant will provide 50% of the total electricity by 2030.

### 3.2 Period after the Tohoku Earthquake

Things turned around after the Tohoku Earthquake. Even though Japan had invested a lot in nuclear energy, people are considering to entirely abandon it. In 2012, DPJ is still in charge, to earn higher approval rating from their voter, they provide a new strategy saying that energy will be nuclear-free in 2030, which gives renewable energy a crucial position: 300 billion kW/h by 2030. Moreover, there will be 12.1 trillion yuan supply for solar power, and 10 trillion yuan will be provided for wind power, although wind power price in Japan is the highest in the world.

However, opponents argued that it is unrealistic and nearly impossible to do so. There are three major consequences for that:

1) A decline in the energy self-sufficiency ratio

A complete shut down of the nuclear power plants is easy, but to fix demand is highly relying on fuel import, which will cause the decrease of Japan's energy self-sufficiency ratio and even pose a threat to Japan's energy security.

2) An increase in electricity costs.

Close of the nuclear power plants will lead to a dramatic increase in cost, which might lead to the escape of Japan's industry. Opponents even called it "suicide of Japan's economy." since the abandon of nuclear will lead to -0.4% of GDP growth.

3) An increase in CO2 emissions

Promises made by Japan to achieve the goal of reducing CO2 emission, abandon of nuclear power makes this goal nearly impossible to reach. What is more, technology concerning is also placed that nuclear will be wasted and will not be carried on in the future.

Chaos happened showed the interest conflicts between companies, parties and individuals. Big companies are unhappy to see the abandon of nuclear power since they already invested it for years. However, small companies owners demand the opportunities to get into the market, and the abandon of nuclear power will increase their chances since it will increase the cost of the big companies. Parties make different policies for fund or voters. Individuals are unhappy about what happened in that disaster, but soon some find that it might cause them more than they think economically, so their opinions varied too. Even

inside the government, the METI is split into three parts: supporter, opponent and neutral when it comes to zero-nuclear, which makes it slow and inefficient to perform the policies when they are meant to be the pusher.

The LDP back in charge again at the end of 2012, which is the ruling party for a long time in history with the support of nuclear power and the development of related technologies. Soon after the LDP comes back, the first promise to conclude whether to restart nuclear power and establish an efficient electronic structure. In 2014, they announced nuclear power as “Important Basic Energy” in 4<sup>th</sup> Strategic Energy Plan, which aims to provide 20% to 22% nuclear energy, 22% to 24% of renewable energy. However, the goal for renewable power reset to 214 billion kW/h instead of 300 billion kW/h by 2030.

In 2018, renewable energy became the “Main Power” for the first time in the 5<sup>th</sup> Strategy Energy Plan to achieve the decarbonization in 2050 with economic independence, along with nuclear power.

### **3.3 Renewable energy development in Asia**

It is hard to tell if Japan is doing a good job or not if we ignore the achievement of its neighbors. In the following parts, renewable energy development in the different country of Asia will be discussed.

In terms of research and development support, Japan is the first. In 1974, Japan first launched Sunshine Project for the development of PV. More than ten years later, South Korea launched Special Accounts for Energy and Resources in 1985. Singapore and Thailand followed in the late 1990s. As for China, it started it was National Climate Change Program in 2007.

In terms of target setting and development plan, Japan is the first too. In 1996, Japan set up New Renewable Energy Target. However, the strategic energy plan in Japan launched in 2003, seven years after the goal setting. China launches Brightness Program at 1996, and 11 years later, China finally launched it is Medium and Long-Term Development Plan for Renewable Energy. South Korea followed Japan and China the next year by launching 10-year Energy Technology Development Plan in 1997 and published it is Basic Plan for New and Renewable Energy Development in 2001, only four years after it is goal setting. As for Thailand, it launched Strategic Plan for Renewable Energy Development in 2004, which

including its target and future development plan for renewable energy.

#### **4 Japan's energy policies for renewable energy**

In this section, instead of goals, we discussed specific policies to improve renewable energy development. The Agency for Natural Resources and Energy(ARNE) is a division in METI and the main body in Japanese government in charge of the renewable energy policy. Apart from that, society organization like the New Energy foundation of Japan formed in 1980, the Japan Council for Renewable Energy formed in 2007 are playing important rules in policies making.

There are three types of models when it comes to renewable energy support schemes. The first one is the Feed-in model, which is a 'pricing law', the electricity generated by renewable energy is purchased by electric power companies at a certain price. The costs are collected as a levy from electricity users. The United States first enacted it in 1978, then Europe in the 1990s. Asia started Feed-in model after 2000. Feed-in model started from South Korea in 2001 and China in 2003. Japan started it in 2009.

The second one is the quota model, mainly used in the United States. Governments decide the among of electricity capacity comes from renewable energy. There are two main types of the quota system, one is the certificate and tendering systems, which government set the goal and maximum prices and then the project developers bit for the contract. Another type of quota model is The Renewable Portfolio Standard, which on the contrary, set the minimum amount of capacity that comes from renewable energy, which adapted by South Korea in 2001 and Japan in 2003, then China in 2007.

The third one is Net Metering, which aims to allow consumers to install a small renewable system in their place and sell back the excess electricity to the grid, which is adapted by Japan in 1992.

What affects the whole picture is the Feed-in System and Quota Systems, since they encourage production directly, rather than the surplus in the Net Metering system, since 99% of the market is still controlled by major companies after the introduction of the Net Metering system in Japan. And here are advantages and disadvantages of the Feed-in System and the Quota System as the table below.

	Feed-in System	Quota System
Main Target	Small and medium scale producer	Large, centralized producer
Stability	Steady growth	Stop-and-go cycles
Stimulation	Good for extra installation	Set upper limits
Price	Adjust needed overtime	Cheapest resources come first
Flexibility	Low transaction costs	High transaction costs
Difficulty	Easy to entry	Complex design

Table 1: Comparison between the Feed-in System and the Quota System

Japan enable all three types of the model discussed above, Net Metering from 1992, Quota System from 2003 and Feed-in System in 2009. The possible reason why the Quota System comes first is that it is easier for electricity company to handle unstable renewable energy, especially inland wind power. Following the United States could be another reason, since the Quota System is used extensively in the US.

To further understand Japan's renewable energy development, we will discuss detail mainly in time sequence below. Sections are divided into two parts, policies before the Tohoku Earthquake and policies after the Tohoku Earthquake.

#### **4.1 Policies before the Tohoku Earthquake**

In 1974, Japan's first research and development program about renewable energy launched, which makes Japan's PV production among Tops in the world.

In 1992, utility companies launched their electricity tariff aimed to buy surplus electricity from solar PV and wind, which lead to significant market development. It is called 'voluntary net metering', which is the process that guarantees excess generated solar power electricity can be fed back into the grid.

In 1994, METI launched the biggest Residential PV System Dissemination Program at that time. A subsidy for domestic installation was introduced, which covered 50% of the extra installation cost. In 1997, subsidy went down significantly from 340K-en to only 90-en, which means a reduction of the installation cost.

In 1998, 'voluntary net metering' was revised for commercial development of wind

power. Price was great and the period length of contract limited to 1 year. Later, power companies try to cut down the price, but they modified it by offering a more extended period of the contract, which turned out to be a happy accident. In April 1999, they had to limit it to 150MW for the inquiry already passed 500MW, which was only 3MW in April 1998.

In 2003, local authorities followed up by giving financial support for PV. Apart from that, two significant pieces of legislation were announced. The first one is the revised Electricity Utilities Law, which including parts like power generation, electrical work, and safety inspections. In the following two years, changes made to encourage the producer with little capacity to enter the market. The second one is the Special Measures Law, which guarantees the actions would be made for the development of renewable energy. The Special Measures Law belongs to the quota system, which set up goals for the development. For instance, the goal for renewable energy is to reach 1.35% of the total electricity by 2010, which in today, seems like a limitation rather than a goal.

Japan's renewable energy development stalled since the lost of subsidizing policy in 2005. The government realized it and carried out FIT in 2009, which is an entirely different system that encourages the production by giving out the profit, instead of setting a goal of percentage. However, it only limited to solar power at that time.

#### 4.2 Policies after the Tohoku Earthquake

In April 2011, Act on Special Measures concerning Procurement of Renewable Energy Electricity by Electricity Utilities was launched, which states that the use of renewable energy sources is essential in securing a stable and appropriate supply of energy. In this case, FIT cover other renewable energies as well.

In 2012, the Doha Amendment to the Kyoto Protocol was committed. The Kyoto Protocol is a treaty that allows the trade of CO<sub>2</sub> emission allowance, since the cost for different operators varied, which allowed Japan to reach the goal of protecting the environment in an economically worthy way. Also in 2012, the Ministry of the Environment launched the new Innovative Strategy for Energy and Environment, which expanded six times the combined national installed capacity on offshore wind, geothermal, biomass and tidal power by 2030.

In 2013, plan to free the electricity market approved by the Japanese Cabinet, which

would break the monopoly position of power companies.

In 2017, FIT involved to Feed-in-Premium(FIP) and launched in Japan for the first time to reduce cost, and mechanisms were incorporated to encourage cost-effected introduction such as bidding system. What happened here is that the subsidize revenue is not fixed. Instead, the subsidize revenue is based on mean monthly trading price in the European Power Exchange. FIP encourage the storage of energy since the suppliers will get better benefits if they store the energy and sell it when the price goes up, which contributes to the integration of renewable energy sources and current electricity market. Even FIP brings extra costs for price adjustment, and it still works well in some European countries like Germany, some allowed switch between FIT and FIP for broader adaptation.

## 5 Main challenge

### 5.1 Natural Environment Challenge: the 2011 Tohoku Earthquake

More than 20K tweets are collected and analyzed to understand what this earthquake affect the country and how their people react to the earthquake.

The first thing is how much does it impact the society throughout the years after the 2011 Tohoku Earthquake. To do that, the number of tweets throughout the years are collected and showed below.

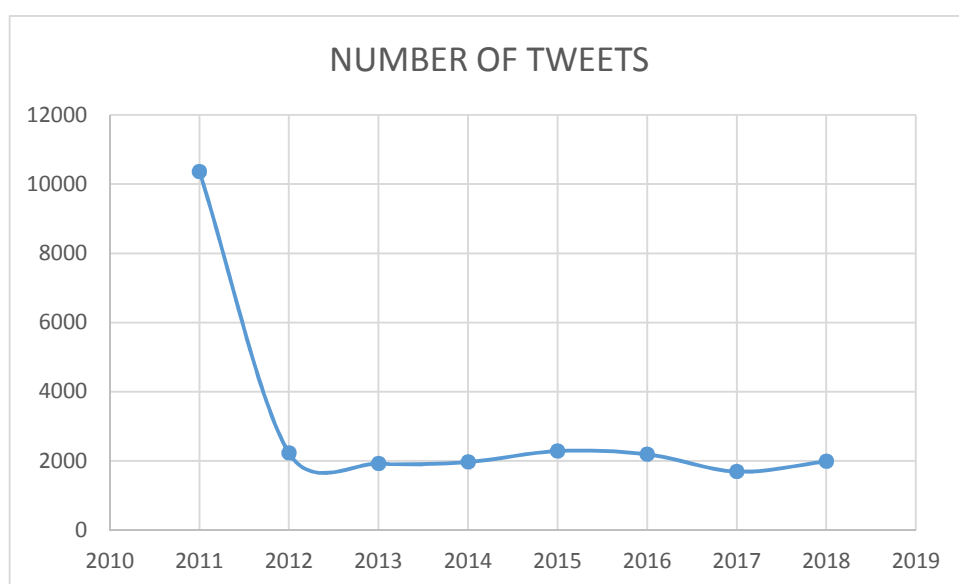


Figure 1: Number of tweets about the 2011 Tohoku Earthquake



As we can see in this graph, the number of tweets are high in 2011, more than 10K and almost all of them are tweeted after March 11 except 5 of them. The reason for that is there is another earthquake in the southeast area on March 9. Another thing is that people never forget what happened because the tweets in the following years are around 2 thousand and barely went down.

Apart from the number, how people reacted to this earthquake is also important. To deeper understand it, we need to analyze the emotion behind each tweet. There are many emotions, and it is complicated so the standard here will be two scores for each tweet, which are positive score and negative score, and the result are showed below.

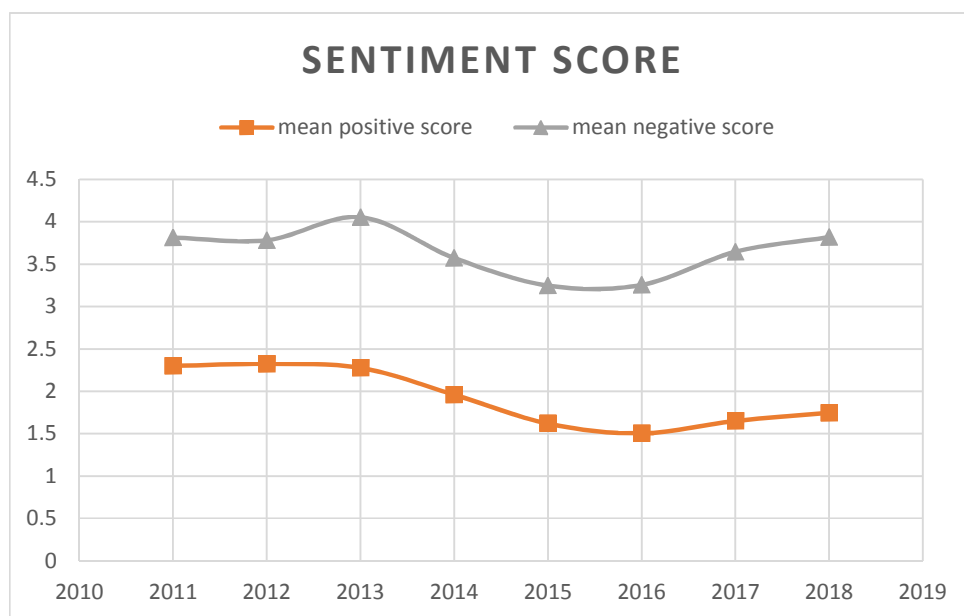


Figure 2: Sentiment score about the 2011 Tohoku Earthquake

Japanese token generator separates each tweet, each word is scored by two scores: a positive score between  $[0,1]$ , a negative score between  $[-1,0]$ , scores for each individual tweet is the sum of the scores for each word in this tweets. The sentiment score in the graph is the mean score of the tweets about the 2011 Tohoku Earthquake in that year. To be precise, “東北大地震” is used in this search to analyze the sentiment of Japanese.

As we can see in this graph, both sentiment score for positive and negative are the highest in 2011, and then it drops, and then it goes up again, part of the reasons might be the restart of the nuclear plant, which did considerable damage in this disaster.



with this disaster, and they will never forget.

## **5.2 Economic Challenge**

From the last part, we know that there still shadow inside people. Great damage made, especially in the economic field, which raised challenges for government, companies and individuals.

### **5.2.1 Challenge for government**

For the government, they are the organization to support all the people in this country, and they need to do what is the best for its people and the whole country. For the country, high dependency on other countries in terms of energy is not good for both economy and security. In 2011, people who survived from that disaster turned to support plans that limit the development of nuclear power. However, increased cost in energy cannot last for long. It is not only for Japan but also influences the energy price around the world. After 2012, the leader from the new ruling party restarted nuclear power plant and reestablished nuclear power as “Important Basic Energy”. Apart from that, it is crucial to bring down the price of renewable energy. To do that, Ministry of Economy, Trade and Industry implemented the revised FIT Law incorporating a mechanism to encourage cost-effective introduction such as bidding systems.

### **5.2.2 Challenge for companies**

For the companies, the cost went high after the 2011 Tohoku Earthquake. The physical damages made by the disaster is massive especially for those company who have only one part supplier to save the cost. However, the following businesses are even worse. A lot of them start to retrieved from Japan since the electronic price is going up. For those company in Fukushima, products are harder to sell, food is among the worst. Things are not going well with the electronic company too, with less nuclear power, they will suffer a great many of financial loss. Things even went worse in 2017, when purchasing price for renewable energy is based on market price, which is bidding price. However, the good thing is, the outstanding company will win and survive, which makes the remained Japan’s electronic companies stronger.

### **5.2.3 Challenge for individuals**

For those who produce energy inside there house, things are not that bad, and the saved

electricity will be the tool to adjust PTD(power transmission and distribution) and energy retail, which means you can sell your saved electricity. However, for the majority, extra electronic fees are collected, and it could go up to more than 10K each month soon if Japan highly depends on renewable energy. People start to question that it is the best solution, which makes a balance between environment and economy are crucial.

### **5.3 Technical Challenge**

Will it be worth it to continue to maintain the electricity generator after the contract period when there is no following contract made. The key to this question is technology, and if the technologies in 20 years later are good enough to reduce the cost and increase the efficiency, things still got a chance. Otherwise, it is questionable.

## **6 Conclusion**

The 2011 Tohoku Earthquake is one of the biggest disasters in human history, our data shows that people will never forget it, at least not in the near future. Therefore people are looking forward to a safer way when it comes to energy. Besides, China, as Japan's neighbor, is extremely hungry for energy, which makes Japan concerned about its energy future.

From the discussion above about the reaction of people, we can better understand how renewable energy developed after the 2011 Tohoku Earthquake and combined with current situation and plan to eventually draw the conclusion that the development in renewable energy of Japan is speeding up in recent years mainly in terms of solar thanks to FIT, and the percentage will continue to go up in the future mainly in terms of solar and biomass, but costs are higher than expected. Besides, renewable energy became increasingly crucial in the Strategic Energy Plan as the significant power source to achieve the optimal energy mix by 2030 and the decarbonization towards 2050. At last, a series of challenges are raised in an environment, economy and technology are discussed, and hopefully, it will be solved in a suitable way for each side.

Finally, Innovation type of thinking is essential for further development in the future. One of the reasons that Japan have not pushed the development of renewable energy in the history is that the LDP is too relying on the nuclear power, which is a strategic consideration since the 1988 Japan's civilian nuclear cooperation agreement. The past energy strategy is

based on the fast development of the economy, which might not be suitable for the economically and environmentally balanced development society in the future. Therefore new energy types including renewable energies and new energy supply system should be considered. There are some suggestions:

- 1) Continuing to investigate renewable energy, since they will benefit in the future
- 2) Explore energy options to avoid 'Depend on Heaven'
- 3) Research on energy storage might help better integration and maintain stable
- 4) Allow flexibility on policies since one might not fit all the potential suppliers
- 5) The development plan should consider the situation without subsidy
- 6)

Hopefully, renewable energy in Japan will further develop shortly and set an example for the following countries in terms of development path and technology.

## References:

- Ellabban, O. , Aburub, H. , & Blaabjerg, F. . (2014). Renewable energy resources: current status, future prospects and their enabling technology. *Renewable & Sustainable Energy Reviews*, 39(2), 748-764.
- Nakano, S. , Arai, S. , & Washizu, A. . (2017). Economic impacts of japan's renewable energy sector and the feed-in tariff system: using an input-output table to analyze a next-generation energy system. *Environmental Economics & Policy Studies*, 19(3), 555-580.
- Ishikawa, Y. (2012). Economic Effects of Installing Renewable Energy in the Tohoku Region:Analyses of mega solar and wind power generation using the interregional IO table. Retrieved from <https://econpapers.repec.org/paper/etirpdjp/12014.htm>
- DeWit, A. (2011). Tsunami: Japan's post - Fukushima Future. *Foreign Policy*, pp.213-214.
- Tollefson, J.(2011). Japan face power struggle. *Nature* 472, 143-144 (2011). Retrieved November 2, 2018, from <https://www.nature.com/news/2011/110412/full/472143a.html>
- IEA (2010). IEA - Global Renewable Energy Policies and Measures Database. [online] Iea.org. Available at: <https://www.iea.org/policiesandmeasures/renewableenergy/>.

- Feed-in Premiums (FIP). (2014, December 08). Retrieved January 26, 2019, from  
[https://energypedia.info/wiki/Feed-in\\_Premiums\\_\(FIP\)](https://energypedia.info/wiki/Feed-in_Premiums_(FIP))
- U.S., Japan Extend Nuclear Agreement. (2018). Retrieved January 26, 2019, from  
<https://www.armscontrol.org/act/2018-09/news-briefs/us-japan-extend-nuclear-agreement>
- METI. (2018). JAPAN'S ENERGY 2017. Retrieved January 26, 2019, from  
[http://www.enecho.meti.go.jp/en/category/brochures/pdf/japan\\_energy\\_2017.pdf](http://www.enecho.meti.go.jp/en/category/brochures/pdf/japan_energy_2017.pdf)
- METI. (2017). Japan's Energy White Paper 2017. Retrieved January 26, 2019, from  
[http://www.meti.go.jp/english/report/downloadfiles/energy\\_hakusho\\_201711.pdf](http://www.meti.go.jp/english/report/downloadfiles/energy_hakusho_201711.pdf)
- METI. (2018). Strategic Energy Plan. Retrieved January 26, 2019, from  
[http://www.meti.go.jp/english/press/2018/pdf/0703\\_002c.pdf](http://www.meti.go.jp/english/press/2018/pdf/0703_002c.pdf)
- About Japan's Feed-In Tariff (FIT). (n.d.). Retrieved January 26, 2019, from  
<https://www.ichigo-green.co.jp/en/operation/purchase.php>
- EIA. (2018, November 28). Japan has restarted five nuclear power reactors in 2018.  
Retrieved from <https://www.eia.gov/todayinenergy/detail.php?id=37633>
- John Sandeman (2010) Feed - In Tariffs: Accelerating the Deployment of Renewable  
Energy, International Journal of Environmental Studies, 67:3, 463, DOI:  
10.1080/00207230701737011
- Dent, Christopher M. (2014). Renewable energy in East Asia : towards a new  
developmentalism. Abingdon, Oxon ; New York, NY : Routledge
- Pillay, S. (2017). 清洁能源：重塑日本力量. Retrieved January 26, 2019, from  
<https://www.nst.com.my/news/exclusive/2017/11/307535/clean-energy-reinventing-japanese-power>
- 地震の年表 (日本). (2019). Retrieved January 26, 2019, from  
[https://ja.wikipedia.org/wiki/地震の年表\\_\(日本\)](https://ja.wikipedia.org/wiki/地震の年表_(日本))

# Appendix1 - Data of Tweets analysis

year	number of tweets	mean positive score	mean negative score
2011	10363	2.300560209	3.814449382
2012	2232	2.323435397	3.782217362
2013	1926	2.276710526	4.054473684
2014	1971	1.960697121	3.572938673
2015	2287	1.619127396	3.247276212
2016	2195	1.504710478	3.255399816
2017	1693	1.650626424	3.646640091
2018	1988	1.746054519	3.819225251
all	24655	2.198804105	3.659915143



After the 2011 Tohoku Earthquake, Japan is facing problems:

- A complete shut down of the nuclear power plants is easy, but to fix demand is highly relying on fuel import, which will cause the decrease of Japan's energy self-sufficiency ratio and even pose a threat to Japan's energy security.

- Close of the nuclear power plants will lead to a dramatic increase in cost, which might lead to the escape of Japan's industry. Opponents even called it "suicide of Japan's economy", since the abandon of nuclear will lead to -0.4% of GDP growth.

- Promises made by Japan to achieve the goal of reducing CO<sub>2</sub> emission, abandon of nuclear power makes this goal nearly impossible to reach.

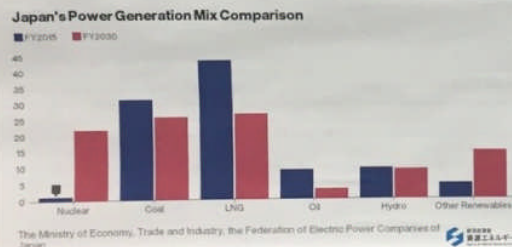
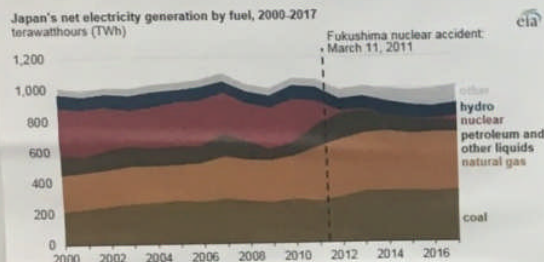
The figure consists of four panels. The top-left panel is a screenshot of a Japanese Twitter post from 'gloomynews' mentioning '大地震' (Great Earthquake) and '地震' (Earthquake). The top-right panel is a line graph titled 'NUMBER OF TWEETS' showing a sharp decline from approximately 15,000 tweets in 2010 to around 2,000 in 2011, followed by a gradual recovery. The bottom-left panel is a screenshot of a Japanese Twitter post from 'nicovideo' mentioning '地震' (Earthquake) and '津波' (Tsunami). The bottom-right panel is a line graph titled 'SENTIMENT SCORE' showing two lines: 'Positive Sentiment Score' (red line with circles) and 'Negative Sentiment Score' (black line with circles). Both scores show a slight dip in 2011, with the negative score remaining higher than the positive score throughout the period.

**NUMBER OF TWEETS**

Year	Number of Tweets
2010	15000
2011	2000
2012	2000
2013	2000
2014	2000
2015	2000
2016	2000
2017	2000
2018	2000

**SENTIMENT SCORE**

Year	Positive Sentiment Score	Negative Sentiment Score
2010	0.4	0.6
2011	0.4	0.6
2012	0.4	0.6
2013	0.4	0.6
2014	0.4	0.6
2015	0.4	0.6
2016	0.4	0.6
2017	0.4	0.6
2018	0.4	0.6



**Electricity Demand**

Thorough Energy Savings  
about 156.1 billion kWh  
(-17% compared to before measure)

Economic growth  
1.7%/year

**FY 2013**  
Electric Power  
966.6 billion kWh

**FY 2030**  
Electric Power  
980.8 billion kWh

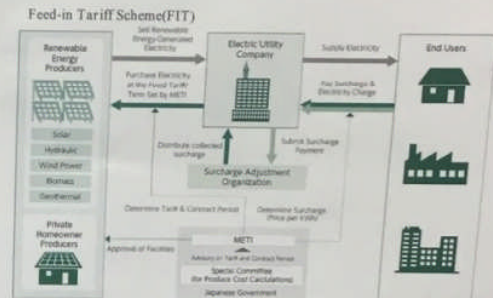
**Composition of Power Sources**

(Total amount)  
about 1,065 billion kWh

- Renewable 22~24%
- Nuclear 22~20%
- LNG 27%
- Coal 26%
- Oil 3%
- Geothermal 10~11%
- Biomass 2~4.6%
- Wind 1.7%
- Solar 7.0%
- Hydroelectric 3.2~6.2%

	Feed-in System <sup>1</sup>	Quota System <sup>2</sup>
Main Target	Small and medium scale producer	Large, centralized producer
Stability	Steady growth	Stop-and-go cycles
Stimulation	Good for extra installation	Set upper limits
Price	Adjust needed overtime	Cheapest resources comes first
Flexibility	Low transaction costs	High transaction costs
Difficulty	Easy to entry	Complex design

2. The quota system is a system that government decide the amount of electricity capacity comes from renewable energy.



**Installed Capacity by Renewable Energy**  
 The chart shows a significant increase in installed capacity from FY 2012 to FY 2014, with a 26% increase in FY 2014 alone. The capacity is measured in GW.

Fiscal Year	Installed Capacity (GW)	LEV (¥/kWh)
FY 2012	~1.5	¥57
FY 2013	~2.0	¥55
FY 2014	~2.5	¥52.22
FY 2015	~3.0	¥58.25
FY 2016	~3.5	¥57.85
FY 2017	~4.0	¥56.86

**Trends in LEV after Introducing the FIT**

Fiscal Year	LEV (¥/kWh)	FIT (¥/kWh)
FY 2012	1.8	2.3
FY 2013	2.1	2.7
FY 2014	2.1	2.7
FY 2015	2.1	2.7
FY 2016	2.1	2.7
FY 2017	2.1	2.7

**Thanks to the introduction FIT in 2012, the installed capacity of renewable energy is growing rapidly.**  
 Meanwhile, the purchase costs reached 2.7 trillion yen (about \$21.9 billion) and the levy burden to average households amounts up to 666 yen/month (about \$6.11).

**In order to maximize introduction of renewable energy while minimizing national burden, we implemented the revised FIT Law incorporating a mechanism to encourage cost-effective introduction such as bidding systems etc.**

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- Due to people's distrust towards nuclear power, renewable energy became increasingly crucial in the Strategic Energy Plan as the major power source to achieve the optimal energy mix by 2030 and the decarbonization towards 2050.
- Thanks to FIT, it's growing steadily mainly in terms of solar and will continue to grow mainly in terms of solar and biomass, but costs are higher than expected.

- 1) Continuing to investigate renewable energy, since they will benefit in the future
- 2) Explore energy options to avoid 'Depend on Heaven'
- 3) Research on energy storage might help better integration and maintain stable
- 4) Allow flexibility on policies since one might not fit all the potential suppliers
- 5) The development plan should consider the situation without subsidy



# **Research on Experience from the Fukushima Nuclear Accident to the Development of Nuclear Power in Japan**

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**Peking University**

## **1. Introduction**

Energy issue has been an essential issue in the history of human beings. From the utilization of natural plant fibers as fuel to the massive exploitation of fossil fuels and the development of renewable energy, the progress of human society and energy development are considered to be significantly complementary. Along with the increase of global population and individual consumption, the demand for energy has been increasing in the past centuries. According to the proven resources and the consumption worldwide, the fossil fuels are still enough in the 21st century (Shafiee & Topal, 2008). However, the atmosphere pollution and the global climate change caused by fossil fuels have become serious international problems.

In recent years, nuclear energy been promoted as a low-carbon technology that may help to mitigate climate change (Bickerstaff et al., 2008). A nuclear power plant does not emit large amounts of exhaust fumes and greenhouse gases such as carbon dioxide into the atmosphere. If human access the controllable nuclear fusion technology and turn scientific success into commercial electrical power, nuclear fusion materials extracted from seawater, deuterium and tritium, could supply the world with energy for millions of years (Verberck & Taroni, 2016).

However, the utilization of nuclear energy also has considerable disadvantages. The two main problems are the disposal of nuclear waste and the safety of nuclear power plants. Highly radioactive waste will be left after nuclear reaction. Meanwhile, as complex maintenance is required in the operation of a nuclear power plant, in the event of human error or natural disasters, the nuclear power plant will be unable to operate normally and even cause serious consequence. There have been two disastrous nuclear accidents in history, the 1986 Chernobyl nuclear disaster in Soviet Union, and the 2011 Fukushima nuclear disaster in

Japan. These catastrophic nuclear accidents impacted human's confidence in the safety of nuclear energy.

As there are almost no fossil fuels reserves in Japan, the nation's energy structure is heavily dependent on imports. According to *General Energy Statistics 2017* published by Agency for Natural Resources and Energy of Japan (ANRE), indigenously produced energy only accounts for 12.9% of the total primary energy supply in Japan. Since the middle 20<sup>th</sup> century, Japan has developed nuclear power technology to reduce the dependence of its energy structure on imports. Over the past several decades, Japan has built 57 nuclear power plants, once accounting for 15% of the nation's electricity generation.

However, nuclear energy is a sensitive topic in Japan's society. The first reason is that Japan is the only country in the world that has suffered from nuclear weapons. Another one is the Fukushima Nuclear Power Plant (NPP) accident in 2011. The Fukushima NPP Accident was so serious that the public attitudes towards research and development of nuclear energy in Japan changed dramatically. Whether the government or the public is pessimistic about the future development of nuclear energy technology.

This research mainly focuses on the nuclear energy situation in Japan and the process and cause of the Fukushima NPP Accident. The purpose is to conclude experience from the accident to the Japan's development of nuclear power in the future. However, the field trip to Fukushima and the questionnaire are unable to be conducted because of the limitation of time and condition. Most part of the research is based on relative literature.

The first part of the paper will introduce a comprehensive situation of nuclear power in Japan including its development history, necessity in the national energy structure and attitudes from the authorities and public. The second part will provide the process of the Fukushima NPP Accident in detail and analyze the main causes of it. The final part will conclude the analysis and give some suggestions to the Japan's development of nuclear power in the future. These suggestions will conclude both technical and humanistic aspects.

## **2. Literature Review**

ANRE, an agency in the Ministry of Economy, Trade and Industry (METI), publishes *General Energy Statistics* every year. This official document provides the Primary Energy Supply, Energy Transformation & Own Use and Final Energy Consumption in most fields in Japan. According to this series of documents chronologically, statistics analysis will be conducted and we can acquire a comprehensive view on the Japanese energy situation. The development trends of fossil fuels, renewable energy and nuclear power can be estimated and the conclusion to the necessity of nuclear power in the national energy structure can be obtained from them.

ANRE also publishes *Annual Report on Energy (Energy White Paper)* every year. This series of documents can be found on ANRE official website started in 2011. These official documents provide the achievements in the energy field during the past year. They also indicate the Japanese new energy policy in the future. Changes in the attitudes of the Japanese authorities towards nuclear power can be concluded by reviewing the Energy White Paper in the past decade. The trends in the Japanese energy industry can also be found directly.

ANRE in the *FY2011 Annual Report on Energy* indicated that the Fukushima NPP Accident caused by the Great East Japan Earthquake significantly destroyed public trust in the safety of nuclear power (ANRE, 2011). Actually, even before the accident less than 35% of Japanese people were supportive of developing nuclear power, which was resulted from the series of nuclear incidents and accidents that happened throughout the 1990s and 2000s (Poortinga et al., 2013). It was apparently that the Japanese public had been suspicious of the operation and management situation of nuclear power plants in Japan. The public perception should be of great importance in influencing the government's decision on energy policy and management of energy system. The research will reveal how the Japanese public perception formed and changed in the past several decades and how it affected Japan energy policy.

As the Fukushima Nuclear Accident Independent Investigation Commission (NAIIC) concluded in its official report, the Fukushima NPP accident was undoubtedly a “manmade” disaster. A detailed analysis of the process and causes of the nuclear accident has been conducted in this report. It indicated that all of the main bodies related to the nuclear power

plant, such as the operator (TEPCO), the regulatory bodies (NISA and NSC) and the government body promoting the nuclear power industry (METI), failed to appropriately develop the most basic security requirements (NAIIC, 2012). Based on the analysis in this report, this paper will conclude the main problems existing in the operation and management of nuclear power plants by Japanese government agencies and electric power companies, and give some corresponding suggestions.

It is also important to conclude the factors that should be considered in the design and construction of nuclear power plants. Baba concluded that the accident of Fukushima NPP was essentially a severe accident caused by a prolonged loss of power and heat sink for emergency cooling, which have not been considered in the system design in Japan (Baba, 2013). All of the Japan's nuclear power plants were built on the seashore. The main purpose of these locations is to ensure the safety of nuclear reactors in emergencies and to facilitate the export of nuclear waste to other countries. However, the risk of tsunami is obviously not fully considered in this way of construction. Based on this, the paper will conclude the technical problems existing in the design and construction of Japanese nuclear power plants and profound some suggestions.

On July 3, 2018, the Abe cabinet approved *the 5th Strategic Energy Plan*, spelling out the basic direction of Japan's energy policy. The latest iteration of the basic plan, its first revision in four years, sets forth targets for Japan's energy mix in, as well as addressing issues concerning long-term energy options with the year 2050 as their focus. This year's plan includes a statement that the government will aim to make renewable energy Japan's main source of power by 2050 and a policy to proactively tackle introduction and expansion of renewables. The 2030 targets, however, have been left unamended, with the energy mix set at 20% to 22% nuclear power, 22% to 24% renewable energy, and 56% thermal power. In this plan, nuclear power continues to be considered "a significant base load power source" (ANRE, 2018). In the long term, it is positioned as an option for decarbonization at the practical-use stage.

Whether from the perspective of energy security or reducing carbon emissions, the Japanese government has not abandoned its nuclear energy plan. Therefore, the conclusions drawn from the Fukushima Nuclear Accident will provide important experience for Japan's future development of nuclear energy, which is also the significance of this research.

### **3. Japan's Energy Situation**

#### **3.1 Energy structure**

Throughout the calculation and analysis on the *General Energy Statistics* chronologically, we can find the changes in the Japan's energy structure before and after the 2011 Fukushima Nuclear Accident. Fig. 1 shows the proportion and trend of three main energy sources in Japan's primary energy supply. Fossil energy (mainly including coal, oil and natural gas) has always been the most important component of Japan's energy structure. It accounts for more than 80% of primary energy supply before 2011 and even more than 90% after 2011. Renewable energy has always been the most concerned energy in developed countries all over the world. However, in Japan with better technological conditions, the development of renewable energy is still not optimistic. Renewable energy accounts for 4.60% of Japan's primary energy supply in 2017, raised from 1.21% in 2000, with an average annual increase of only 0.2 percentage points. Because the development of renewable energy requires high economic and technological conditions, it is difficult to achieve breakthrough development. Its growth must be a slow and gradual process. By 2011, nuclear power accounted for about 10% of the primary energy supply and over 50% of the indigenously produced energy. After the Fukushima Nuclear Accident, the Japanese government closed almost all the nuclear power plants in the country. Some nuclear power plants will be closed permanently, while most of them are in the stage of overhaul and trial operation, which have not been put into normal use.

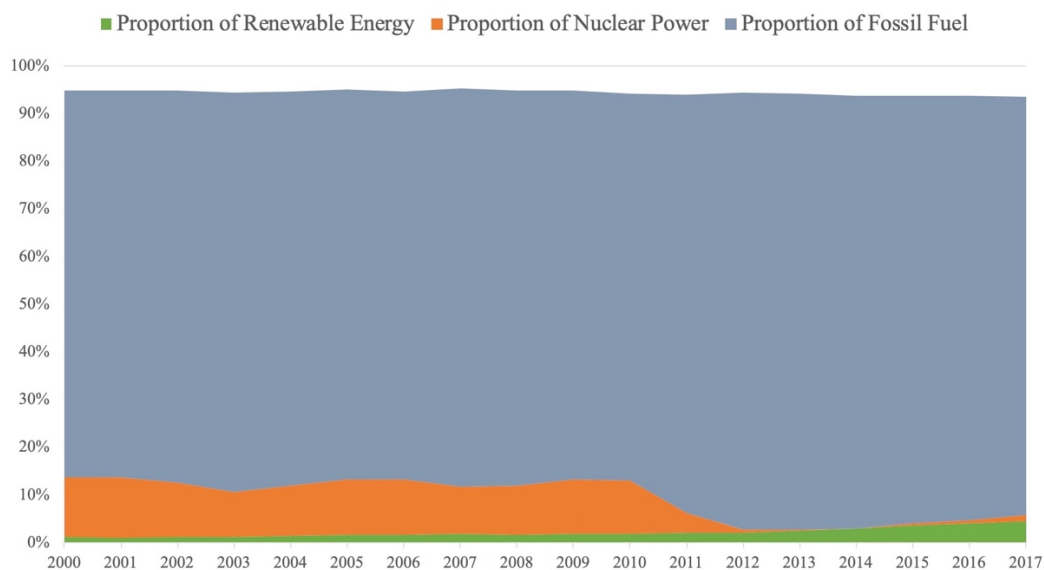


Fig. 1. The proportion of main energy sources in Japan

Japan's energy supply mainly depends on imports. Fig. 2 illustrates that the proportion of imported energy in primary energy supply was about 85% before 2011, and it rose sharply to about 95% after 2011, up by about 10% percentage points. From this we can find that the energy gap caused by the closure of all nuclear power plants in Japan after 2011 is entirely compensated by imported energy. Considering Japan's geographical location, it is impossible to import energy in the form of electricity, so the growth of imported energy is partly fossil energy. This statistic is consistent with the increase of fossil energy by about 10%.

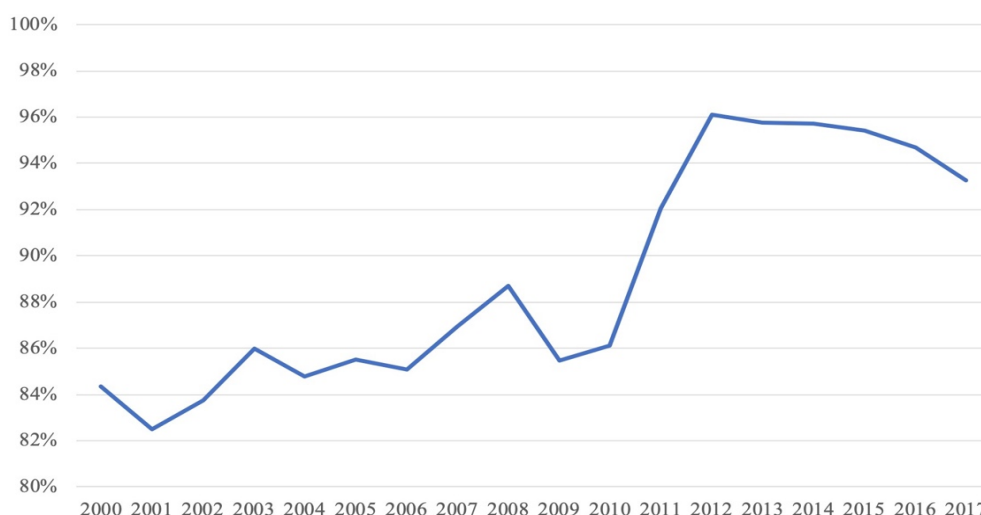


Fig. 2. The proportion of imported energy in Japan

At the same time, we notice that the proportion of imported energy has been declining yearly since 2012. By 2017, the proportion of imported energy has dropped from 96% to 93%.

We reasonably speculate that the decline in Japan's imported energy proportion may be related to Japan's accelerated development of renewable energy after the Fukushima Nuclear Accident.

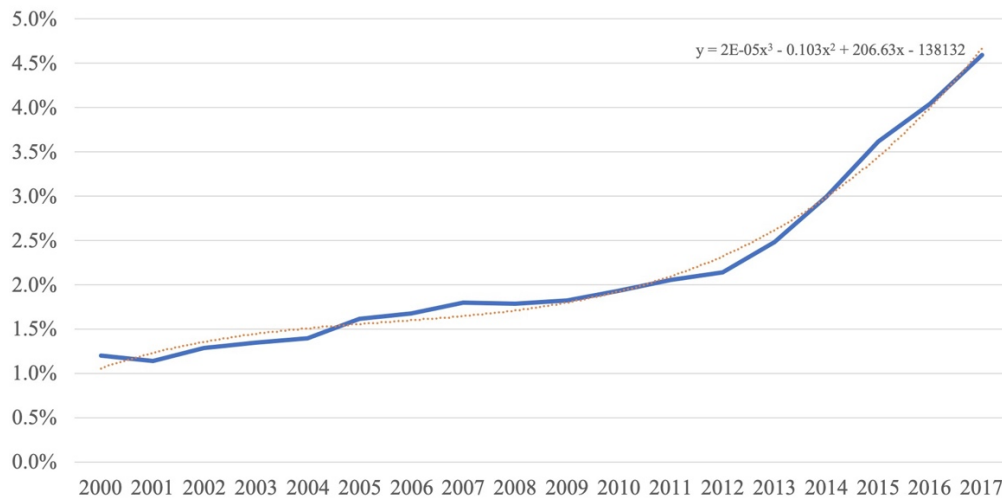


Fig. 3. The proportion of renewable energy in Japan and its fitted trend line (2000-2017)

Fig. 3 illustrates the trend of the renewable energy proportion in Japan's primary energy supply from 2000 to 2017. Through data analysis, we can find that the third-order polynomial can be used to better fit the statistics. The analytic formula of the fitted trend line is as follows:

$$y = 0.00002x^3 - 0.103x^2 + 206.63x + 138132$$

$$R^2 = 0.9893$$

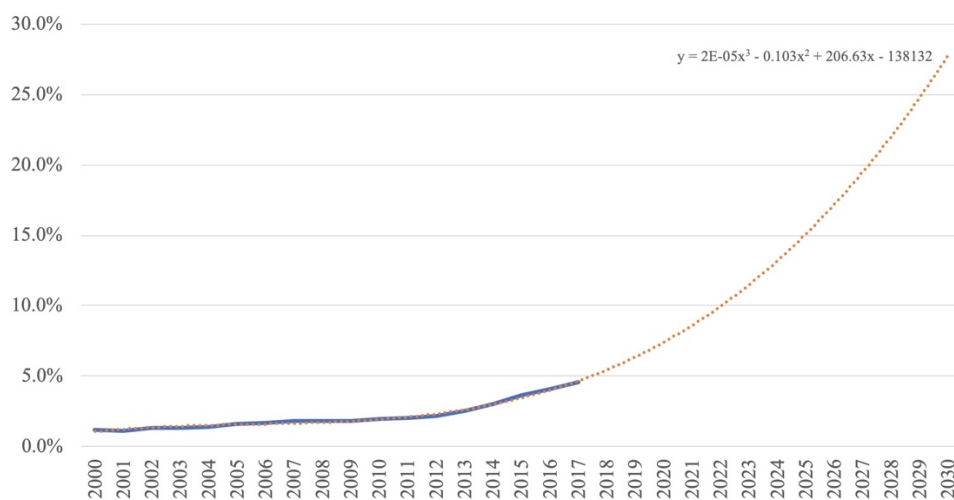


Fig. 4. The proportion of renewable energy in Japan and its fitted trend line (2000-2030)

From Fig. 4, it can be predicted that if Japan's renewable energy continues to maintain its current development trend, it will be able to account for more than 25% of the total primary energy supply in 2030, which will be a considerable proportion. Although the development of renewable energy cannot proceed as expected due to the limitation of technical level and cost constraints economically, its future is still worth looking forward to.

### **3.2 Problems from the energy structure**

At present, the main energy problems demonstrated in Japan's energy structure are carbon emissions and energy security issues. Japan's energy supply is highly dependent on fossil energy. After closing a large number of nuclear power plants in 2011, Japan's dependence on imported fossil fuels has further increased. Fossil fuels account for more than 80% of Japanese total primary energy supply before 2011 and even more than 90% after 2011, which would undoubtedly exert higher pressure on Japanese decarbonization.

In addition, Japan's dependence on imported energy has increased, which poses a serious threat to Japan's national energy security. The stability of imported energy is influenced by many uncontrollable factors, such as the situation of international crude oil market, the political conditions of petroleum exporting countries and the security situation of import transformation routes. Once the crude oil market shakes, the political conditions of petroleum exporting countries deteriorates, or the sea areas of transformation routes goes into war, Japan's imported energy supply will not be effectually guaranteed. For example, the oil crises happening in 1973 and 1979 caused the Japanese economy to record its first negative growth rates in the post-war history (Vivoda, 2012).

### **3.3 Energy policy**

These two main problems of carbon emissions and energy security have been taken into consideration seriously by the Japanese government for long. The government have enacted ambitious long-term domestic targets that go well beyond the Kyoto Protocol for themselves (Poortinga et al., 2013). In order to enhance energy security, the government is engaging in research and development activities, including the development of production technology intended to conduct survey and exploration activities concerning conventional resources such



as oil and natural gas, and commercialize non-conventional resources, such as methane hydrate and seafloor hydrothermal deposits (ANRE, 2017).

Compared with renewable energy, nuclear power has more mature technology, lower construction cost of power plants, and larger power generation capacity, for which the Japanese government attaches great importance to it. It was regarded as an effective means to decarbonize and improve energy security of Japan. The Japanese government's *Strategic Energy Plan* were to increase the proportion of nuclear in total electricity generation from 24% in 2008 to 40–50% by 2030, according to the Ministry of Economy, Trade and Industry (METI) (Ferguson, 2011).

After the 2011 nuclear accident, under the impact of the accident and the pressure of the Japanese media and public, renewable energy has undoubtedly become the most inclined direction of Japan's energy policy. However, there has been large controversy among Japanese politicians about whether to resume the operation of nuclear power plants and develop new nuclear technology. Due to the weakness of renewable energy in total electricity generation, the Japanese government has never announced any plans to abandon nuclear power. The latest official document on energy policy, *the 5th Strategic Energy Plan*, was published on July 3, 2018. The document announced its 2030 targets of domestic energy, with the energy mix set at 20% to 22% nuclear power, 22% to 24% renewable energy, and 56% thermal power (ANRE, 2018). If this goal is to be achieved, Japan must resume the operation of some nuclear power plants and set up schedules to build new nuclear power plants equipped with the 4th generation nuclear technology.

### **3.4 Public perceptions of nuclear power**

Poortinga, Aoyagi and Pidgeon conducted some survey on public perceptions of nuclear power in Japan and Britain. Their report gives public conditional support for the construction of new nuclear power plants, while informing them that nuclear power plants would contribute to climate change mitigation or help to improve energy security. The results of the survey showed that conditional support for nuclear power in Japan dropped from just over 30% in 2007 to just over 20% in 2011 (Poortinga et al., 2013).

In conclusion, the 2011 Fukushima Nuclear Accident significantly destroyed public trust in the safety of nuclear power, and even before the accident the Japanese public were less supportive of nuclear power than other developed countries such as Britain, even if it would contribute to climate change mitigation or help to improve energy security (ANRE, 2011; Poortinga et al., 2013). This fact shows that the Japanese people's opposition to nuclear power plants is not entirely caused by the Fukushima Nuclear Accident. Throughout the 1990s and 2000s, there were a series of nuclear incidents and accidents, which made the Japanese public be suspicious of the operation and management situation of nuclear power plants in Japan.

We take the two nuclear power plants in Fukushima for example. In 1978, a critical accident occurred at Fukushima Daiichi Nuclear Power Plant, but the accident was concealed until 2007. In August 2005, the magnitude 7.2 earthquake caused the water in the spent fuels pool (SFP) where nuclear waste was stored spilling. In 2006, the Unit 6 reactor of Fukushima Daiichi Nuclear Power Plant had a radioactive material leakage accident. In 2007, Tokyo Electric Power Company (TEPCO) admitted that it had tampered with data and concealed security risks in 199 periodic inspections of its three nuclear power plants since 1977. Among them, the data measured by the main steam tube flowmeter of Unit 1 reactor in Fukushima Daiichi Nuclear Power Plant were tampered with 28 times from 1979 to 1998. In June 2008, a small amount of radioactive cooling water leaked from the nuclear reactor at Fukushima Nuclear Power Plant, but the officials said it did not cause damage to the environment and people. This series of accidents and incidents reflects the huge management problems of Japan's nuclear power plants, which led to the loss of public understanding and trust. However, even after these accidents, some of which triggered by an earthquake, the regulators of the industries failed to establish appropriate emergency procedures (NAIIC, 2012).

#### **4. The process and causes of Fukushima Nuclear Accident**

##### **4.1 During the earthquake and the tsunami**

On March 11, 2011, when the earthquake happened, three nuclear reactors (Units 1, 2 and 3) were in operation at TEPCO Fukushima Daiichi Nuclear Power Plant located on the

Pacific coast of Fukushima Prefecture. Unit 4 reactor was under decomposition inspection, while Unit 5 and Unit 6 reactor were under regular inspection. Because the fuels in the Unit 4 were just moved into SFP after the reactor stopped, it had high decay heat and needed steady cooling (Baba, 2013).

At the moment of the earthquake, the control rods of Units 1, 2 and 3 reactors were automatically hoisted and entered the shutdown procedure. However, the transmission lines from the TEPCO Shinfukushima Transformer Substations to the Fukushima Daiichi Nuclear Power Plant are in contact with each other due to the shaking of the earthquake, resulting in short-circuit and disconnection (NAIIC, 2012). The earthquake also caused the substation and circuit breakers of the NPP out of order. These problems made the NPP lose the support of external power supply. From the perspective of obtaining electricity from outside, the Fukushima Daiichi Nuclear Power Plant has actually become an isolated island. In this case, as a system to complete the entire shutdown procedure and smooth transition, and maintain a stable shutdown state, the nuclear power plant can only rely on its own equipment capabilities.

When a reactor of nuclear power plant in operation stops operating, it is not just lifting the control rods to entirely stop the chain fission reaction in the reactor core. Although the fission reaction has stopped, radioactive isotopes generated by the fission still keep decaying and release a large amount of decay heat which are gathered in the reactor core. This decay heat still needs to be discharged in time. Usually, it takes about 20 hours for transition from fission reaction state to stable shutdown state (NEA, 2006). Even in a stable shutdown or nuclear fuel preservation state, the decay heat of radioactive isotopes needs to be discharged at any time.

In the absence of external power supply, the Fukushima Daiichi Nuclear Power Plant started emergency diesel generators (EDGs) to maintain cooling power. About 40 minutes after the earthquake (15:27 p.m.), the first wave of tsunami with a height of 4-5 meters attacked Fukushima Daiichi Nuclear Power Station and swept everything along the shore and hit on the seawall of 5.5 meters. Fortunately, it made little impact on the NPP. However, the second wave of tsunami with a height of 14-15 meters whizzed through the 5.5-meter-high

seawall in 10 minutes (15:36 p.m.), engulfing all coastal buildings and structures, reactors, turbines and other related buildings, until it reached the coastal highlands and gradually stopped its momentum. The tsunami flooded into the ground floor and the basement where EDGs installed and caused 12 of the 13 EDGs completely disabled (IAEA, 2011).

This illustrated that the design location of Fukushima Daiichi Nuclear Power Plant and the design height of the breakwater supporting the nuclear power plant were far from the effect of preventing possible tsunami.

In this case, Fukushima Daiichi Nuclear Power Plant can only rely on its backup 125 kV DC power, which can supply the most necessary safety and control equipment. After the AC power is completely lost, the DC power supply of each unit can maintain about 8-10 hours of power supply (IAEA, 2011). The DC power supplies of Units 1, 2 and 4 is located in the basement of the steam turbine plant. The DC power supply operation panels of Units 5 and 6 are located in the basement interlayer of the steam turbine, while the power supply is located in the basement of the steam turbine. The power supply and operation panel of Unit 3 are all located in the basement interlayer. These DC power supplies wasn't affected by the earthquake, but the DC power supply of Unit 1, 2 and 4 was completely damaged by the tsunami (IAEA, 2011; NAIIC, 2012). Correspondingly, the DC power supplies of Unit 3, 5 and 6 was not damaged due to their relatively high position. Unit 3 maintained its power supply until the exhaustion and lost DC before dawn of March 13, 2012 (NAIIC, 2012).

The layout of these DC power sources is the same as that of emergency diesel motors. It is only for a single event but lack of comprehensive consideration. The location is also lack of diversity. In addition, although the DC power supply of Unit 3 withstood the impact of the tsunami safely, the location of the basement interlayer caused great difficulties for the replacement or charging of the power supply, which resulted in Unit 3 one of the most essential reasons for the eventual deterioration of the accident.

In this state, the circulating water pump is in a stop state, unable to supply water to the reactor interior and the nuclear fuel storage pool in order to take away heat, so that the nuclear fuel in the reactor cannot be cooled.

In order to solve the power outage situation at Fukushima Nuclear Power Plant, the Japanese government urgently transports truck-type generators by helicopter from nuclear power Plants all over the country. However, it was only found at Fukushima Nuclear Power Plant that the power outlet did not match and could not be used.

In this process, the cooling water of the core of the nuclear reactor boils because of the heating of the nuclear fuel, and the water level drops continuously. Finally, nuclear fuel comes out of the water, leading to the melting of nuclear fuel. The high temperature produced by nuclear fuel makes the zirconium alloy, the coating material, react with water to produce hydrogen. At this time, the pressure in the reactor rises sharply because of the hydrogen and oxygen produced by the reaction of water vapor produced by the boiling of cooling water and zirconium water. Despite receiving a request from Prime Minister Naoto Kan for deflation and decompression, TEPCO has been obsessed with the issue of nuclear material leakage and has been slow to start. It was too late to make up one's mind when things got worse. Because of the high radiation, the operator cannot approach the manual venting valve (the electric valve failed due to power failure).

Finally, on March 12nd at reactor No. 1, 14th at reactor No. 3 and 15th at reactor No. 2, hydrogen leaking out of the reactor shell exploded, destroying the reactor plant (the explosion of reactor No. 2 did not cause obvious damage to the plant). Meanwhile, the nuclear fuel in the reactor melted down. Large quantities of nuclear material leak into nature through the atmosphere and groundwater.

At the same time, the hydrogen released from reactor No. 3 enters the plant of reactor No. 4 through pipeline and causes new hydrogen explosion there, which threatens to damage the spent nuclear fuel storage pool where spent nuclear fuel rods are stored in reactor No. 4.

## **5. Experience from the accident to the future**

### **5.1 Improving the Level of Disaster Assessment**

In 2002, according to the tsunami assessment of Japan Civil Society, TEPCO estimated the maximum height of the tsunami near Fukushima Daiichi Nuclear Power Station to be 5.7

meters, and took corresponding measures on this basis. In June 2008, TEPCO estimated the scale of the tsunami based on the data of the earthquake in 869 A.D. and the views of the National Earthquake Survey and Research Department. As a result, it is concluded that the tsunami height near Fukushima Daiichi Nuclear Power Station is 10.2 meters and the height of the south side of the breakwater is 15.7 meters. However, in fact, TEPCO does not attach importance to its inferences. It wasn't until 2011, four days before the earthquake, that TEPCO reported the results to the government's Nuclear Power Safety and Security Hospital. The security institute only verbally requested TEPCO to submit a safety evaluation report based on the new estimates, and to implement the corresponding modifications as soon as possible.

When the East Japan earthquake occurred in 2011, the tsunami actually reached a height of 14-15 meters. If we could take measures according to this estimate, it would not cause the power failure of the whole plant, that is, it would be possible to avoid the Fukushima Nuclear Accident. When restoring the operation of nuclear power plants or building new nuclear power plants, it is necessary to fully assess the level of natural disasters that may occur.

## **5.2 Improving System Backup and Emergency Plan**

In case of emergency, the reactor at Fukushima Daiichi Nuclear Power Station needs external power supply to maintain shutdown. For the case that the nuclear power plant loses the support of external power supply due to earthquake and other disasters, before the earthquake, TEPCO has made an estimate and taken corresponding measures. The method is to use emergency diesel generators. In order to ensure safety, 2-3 generators are installed as backup system in each reactor. However, since these generators are all installed in the same basement, once the tsunami enters the basement, all generators stop working because of water inflow. The significance of installing backup generators is not reflected here.

The so-called "backup" means to assume the functions of the original system in the case of damage to the original system. That is to say, the premise implied in setting up the backup system is "the cause of the damage of the original system, cannot cause the damage of the backup system". Fukushima nuclear power plant will put emergency diesel generators in the

same place. Seawater pumps for generator cooling are also damaged by the tsunami. It looks like backup work has been done, but in fact it is totally useless. Therefore, it is very important to consider the disaster situation and set up the backup system reasonably.

### **5.3 Establishing nuclear waste treatment facilities**

During the period of Fukushima nuclear accident, the most exciting thing was to deal with the accident of spent nuclear fuel storage pool attached to reactor 4 of Fukushima Nuclear Power Station. Although Unit 4 reactor did not work at the time of the earthquake, hydrogen diffusion from Unit 3 reactor caused the explosion of Unit 4 reactor plant and exposed the spent nuclear fuel storage pool of Unit 4 reactor to air, while the water temperature in the pool was close to the boiling point (84 degrees). In order to alleviate the crisis, the Japanese government has launched helicopters to throw seawater and spray water into the pool with fire hoses, all without success. Finally, the concrete pump truck donated by Sany Heavy Industries of China was used to put water into the spent fuel storage tank and resolve the crisis.

Crisis of Unit 4 was caused by the large amount of spent nuclear fuel stored in spent fuel storage pools. The reason why a large amount of spent nuclear fuel is preserved is due to a special situation: Japan does not have its own nuclear waste disposal facilities, and can only keep nuclear power plants before exporting nuclear waste. The nuclear waste generated by Japan's nuclear power is transported to Britain or France for various separation and treatment, where the remaining highly radioactive liquid is encapsulated in glass solidification, and then returned to Japan. In 1993, 30 years after the first nuclear power plant in Japan began to operate, the Japanese government finally decided to build a nuclear fuel processing plant in six villages in Upper North Prefecture, Aomori Prefecture. The plant's construction budget is 760 billion yen, with a maximum processing capacity of 800 tons per year and a storage capacity of 3,000 tons of uranium. It was originally planned to be put into use in 2010, but there were many problems during the trial operation, so it had to be postponed continuously (22 times so far). The latest release was officially launched in March 2016 (published in

October 2014). The cost of construction has reached 219.3 billion yen, 2.8 times the original budget.

Because Japan does not have nuclear waste disposal facilities, in order to reduce the risk and cost of nuclear waste in the transport process, Japan's nuclear power plants are all built on the seashore. In Japan, where plate activity is intense, there is a possibility of a tsunami at any time. Building nuclear power plants on the seashore is definitely not a wise decision. Japan should speed up the establishment of nuclear waste disposal facilities. If it wants to continue to develop nuclear energy in the future, it must first improve the supporting facilities and not compromise because of the current situation.

## Reference

Agency for Natural Resources and Energy (2011-2017). *Annual Report on Energy (Energy White Paper)*. Available at: <<http://www.enecho.meti.go.jp/en/category/whitepaper>>

Agency for Natural Resources and Energy (2000-2017). *General Energy Statistics*. Available at: <[http://www.enecho.meti.go.jp/statistics/total\\_energy/results.html#headline2](http://www.enecho.meti.go.jp/statistics/total_energy/results.html#headline2)>

Agency for Natural Resources and Energy (2018). エネルギー基本計画. Available at: <[http://www.enecho.meti.go.jp/category/others/basic\\_plan/pdf/180703.pdf](http://www.enecho.meti.go.jp/category/others/basic_plan/pdf/180703.pdf)>

Baba, M. (2013). Fukushima accident: What happened?. *Radiation Measurements*, 55, 17-21.

Bickerstaff, K., & Lorenzoni, I., & Poortinga, W., & Pidgeon, N. F., & Simmons, P. (2008). Reframing the nuclear debate in the UK: radioactive waste and climate change mitigation. *Public Understanding of Science*, 17, 145–169.

Ferguson, C. D. (2011). The need for a resilient energy policy. *Bulletin of the Atomic Scientists*, 16.

International Atomic Energy Agency (2011). *IAEA Fukushima Daiichi Status Report*. Available at: <<https://www.iaea.org/newscenter/news/iaea-fukushima-daiichi-status-report-2>>



Nuclear Energy Agency (2006). *Nuclear power plant life management and longer-term operation*. Paris: Organisation for Economic Co-operation and Development.

The National Diet of Japan, & the Fukushima Nuclear Accident Independent Investigation Commission. (2012). *The official report of the Fukushima Nuclear Accident Independent Investigation Commission: Executive summary*. Available at: <[https://www.nirs.org/wp-content/uploads/fukushima/naaic\\_report.pdf](https://www.nirs.org/wp-content/uploads/fukushima/naaic_report.pdf)>

Poortinga W., & Aoyagi, M., & Pidgeon, N. F. (2013). Public perceptions of climate change and energy futures before and after the Fukushima accident: A comparison between Britain and Japan. *Energy Policy*, 62, 1204-1211.

Shafiee, S., & Topal, E. (2008). When will fossil fuel reserves be diminished?. *Energy Policy*, 37, 181-189.

Verberck, B. & Taroni, A. (2016). Nuclear Fusion. *Natural Physics*, 12(5), 383-435.

Vivoda, V. (2012). Japan's energy security predicament post-Fukushima. *Energy Policy*, 46, 135-143.

# Research on Experience from the Fukushima Nuclear Accident to the Development of Nuclear Power in Japan

Wang Haoyu, Peking University

## Introduction

Energy issue has been an essential issue in the history of human beings. From the utilization of natural plant fibers as fuel to the massive exploitation of fossil fuels and the development of renewable energy, the progress of human society and energy development are considered to be significantly complementary.

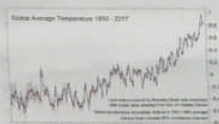
Along with the increase of global population and individual consumption, the demand for energy has been increasing in the past centuries. According to the proven resources and the consumption worldwide, the fossil fuels are still enough in the 21st century (Shafiee & Topal, 2008).



Picture 1-1 Fossil Fuel



Picture 1-2 Renewable Energy



Picture 1-3 Global Average Temperature



Picture 1-4 Fusion Reactor EAST built in Hefei, China

However, the atmosphere pollution and the global climate change caused by fossil fuels have become serious international problems.

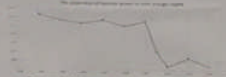
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However, nuclear energy is a sensitive topic in Japan's society. The first reason is that Japan is the only country in the world that has suffered from nuclear weapons. Another one is the Fukushima Nuclear Power Plant (NPP) accident in 2011. The Fukushima NPP Accident was so serious that the public attitudes towards research and development of nuclear energy in Japan changed dramatically. Whether the government or the public is pessimistic about the future development of nuclear energy technology.

## Energy Situation in Japan

The pictures on the right demonstrate the proportion of nuclear energy and import energy in total energy supply. There is a dramatic decrease, nearly 10%, in the proportion of nuclear power from 2010 to 2012, because Japanese government closed almost all nuclear plants in Japan after the 2011 Fukushima nuclear accident.

Probably, we can also see a similar 10% increase in the proportion of import energy, which indicates that the energy gap caused by the closure of NPPs in Japan was entirely compensated by imports.



Picture 2-1 The proportion of nuclear power



Picture 2-2 The proportion of import power

The changes happening on the proportion of energy revealed some negative information of the energy situation in Japan. First of all, the proportion of import energy in total energy supply has increased to about 95%. It indicated that Japan's energy structure is more dependent on imported energy sources, which was a fatal disadvantage of national energy security.



Picture 2-3 Current Status of the NPPs in Japan

Secondly, most kinds of renewable energy are in form of electricity, which means it's impossible for Japan to import renewable energy from other countries. For this reason, it's predictable that the increase of import energy after 2011 resulted in a higher carbon dioxide and toxic gases emission in Japan, which contributed to the Global Warming and atmosphere pollution.

Due to the immature technology, renewable energy is still unable to occupy a essential position in Japan. Therefore, the Japanese government is planning to restart some of the closed nuclear power plants and build more new generation nuclear power plants to reduce the dependence of the national energy structure on imported energy.

## Fukushima Nuclear Accident

The earthquake and tsunami of March 11, 2011 were natural disasters of a magnitude that shocked the entire world. According to the *Official Report of Fukushima Nuclear Accident Independent Investigation Commission* published by the National Diet of Japan, although triggered by these cataclysmic events, the subsequent accident at the Fukushima Daiichi Nuclear Power Plant cannot be regarded as a natural disaster. It was a profoundly manmade disaster – that could and should have been foreseen and prevented.



Picture 3-1 Fukushima Daiichi Nuclear Power Plant Accident



Picture 3-2 Timeline following the earthquake and tsunami

The operator (TEPCO), the regulatory bodies (NISA and NSC) and the government body promoting the nuclear power industry (METI), all failed to correctly develop the most basic safety requirements—such as assessing the probability of damage, preparing for containing collateral damage from such a disaster, and developing evacuation plans for the public in the case of a serious radiation release.

## Experience & Suggestions

### Technical

- Fundamental reforms must take place. These reforms must cover both the structure of the electric power industry and the structure of the related government and regulatory agencies as well as the operation processes.
- Appropriate location of future new generation nuclear power plants to avoid tsunami and radioactive harm on residents.

### Humanistic

- Rebuild public confidence on nuclear power safety.
- Consider and protect human rights when restarting the closed nuclear power plants and building new nuclear power plants.

## References

- Agency for Natural Resources and Energy (2011-2017). *Annual Report on Energy (Energy White Paper)*. Available at: <http://www.enecho.meti.go.jp/en/category/whitepaper/>
- Baba, M. (2013). Fukushima accident: What happened? *Radiation Measurements*, 55, 17-21.
- Bickernuff, K. C., & Gossens, L. (2008). *Reframing the nuclear debate in the UK: radioactive waste and climate change mitigation*. *Public Understanding of Science*, 17, 145-169.
- The National Diet of Japan, & de Fukushima Nuclear Accident Independent Investigation Commission. (2012). *The official report of the Fukushima Nuclear Accident Independent Investigation Commission: Executive summary*. Available at: [https://www.nis.go.jp/wp-content/uploads/fukushima/naie\\_report.pdf](https://www.nis.go.jp/wp-content/uploads/fukushima/naie_report.pdf)
- Poortinga, W., & Aoyagi, M., & Pilgoun, N. F. (2013). Public perceptions of climate change and energy futures before and after the Fukushima accident: A comparison between Britain and Japan. *Energy Policy*, 82, 1204-1211.
- Shafiee, S., & Topal, E. (2008). When will fossil fuel reserves be diminished? *Energy Policy*, 37, 181-189.
- Verberck, B. & Taroni, A. (2016). Nuclear Fusion. *Natural Physics*, 12(5), 383-435.

**From culture to awareness of social responsibility:  
inspiration from CSR in Japan**

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## **1 Introduction**

Rapid economical growth is always accompanied by a number of social issues including environmental issues, resource problems, business scandal, and human rights issues, which are becoming increasingly severe in China recently. Although improvement has been emphasized in both technological and regulatory aspects, the result is far less than promising and further efforts are needed in this field. On the other hand, Japan also underwent similar course back to the second half of 20<sup>th</sup> century, while the social issues appeared have already been conquered and Japan enjoy its good reputation as a developed country with clean cities, civilized society, and well-behaved residents.

A common phenomenon could be observed in both histories of western countries and Japan that, when aggressive industrialization led to a series of social issues, the voice of advocacy to moral goodness was unusually loud. Consequently, the concept of CSR leaped in front of the historical stage. CSR, the acronym of Corporate Social Responsibility, has been gradually exalting its status in modern society and successfully became a popular business terminology since the beginning of 21<sup>st</sup> century (Bader-Johnston, 2008). The concept began to take form in the 1950s, when there were three core ideas: the idea of corporate managers as public trustees, the idea of balancing competing claims to corporate resources, and the acceptance of philanthropy as a manifestation of business support of good causes (Frederick, 2006). As time goes by, the content of CSR swelled and a universal definition seems hard to make. Efforts from several international Non-Governmental Organizations (NGOs) in clarifying, implementing, and enhancing CSR were much appreciated (Zhao, 2018) On one hand, according to the United Nations Global Compact, the world's largest corporate sustainability initiative, gives ten principles to evaluate whether an enterprise is benefiting the

society, which are altogether from four dimensions, i.e., human rights, labor, environment and anti-corruption. The full context is shown in the *Table 1*. While on the other hand, the ISO 26000, less specific, suggested that CSR is a critical factor for business to operate effectively and sustainably in the society and the environment they rely on (International Organization for Standardization, 2018). Another explanation is from Reputation Institute, who summarized CSR in 9 factors as clarified in the *Table 2* which are divided into three aspects, i.e., citizenship, governance, and workplace (CSR and reputation management best practices, 2016).

Aspects of CSR activities	
Human rights	support and respect the protection of internationally proclaimed human rights
	make sure that they are not complicit in human rights abuses
Labour	uphold the freedom of association and the effective recognition of the right to collective bargaining
	eliminate all forms of forced and compulsory labour
	contribute to effective abolition of child labour
	eliminate discrimination in respect of employment and occupation
Environment	support a precautionary approach to environmental challenges
	undertake initiatives to promote greater environmental responsibility;
	encourage the development and diffusion of environmentally friendly technologies
Anti-Corruption	work against corruption in all its forms, including extortion and bribery

*Table 1 The ten principles of the United Nations Global Compact*

Citizenship	Supports good causes
	Positive societal influence
	Environmentally responsible
Governance	Open & Transparent
	Behaves Ethically
	Fair in way it does business
Workplace	Rewards employee fairly
	Employee well-being
	Equal opportunities

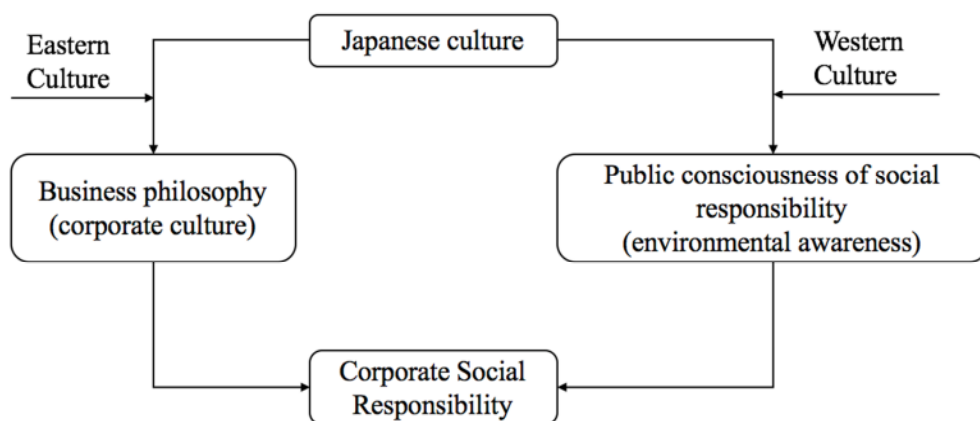
*Table 2 Explanation of CSR from Reputation Institute*

CSR has become frequently mentioned in Japan since the concept has been introduced

into Japan in the year of 2003, which is called ‘CSR *gannen*’ (the first year of CSR). According to the ‘International Survey of Corporate Responsibility Reporting 2008’ by KPMG (a professional service company and one of the Big Four auditors, along with Deloitte, Ernst & Young (EY), and PricewaterhouseCoopers (PwC)), the percentage of top 100 companies publishing CSR report in Japan reached 88%, making it the top among the world.

The author has been tracking down the reasons why CSR has received much attention in Japan during the half-year study in *Waseda* University, Tokyo. Conclusion has been drawn that individual consciousness of social responsibility in Japan has already been at a high level even before the introduction of the concept of CSR. Thus, compared China with Japan’s case, China’s lack of social responsibility in both individual and corporate level become obvious. In finding the approaches to improve these two consciousness, it seems cultural factors have taken up substantial roles. In addition, a sum of evidence could be found that concepts similar to CSR have been long-existed in several business philosophies in Japanese history. For instance, the idea of ‘*sanpo-yoshi*’ (which means ‘three-way satisfaction’ in Japanese) by *Ohmi* merchants and Ishida’s thought are believed to be the origin of CSR in Japan. Such business philosophies were solidified within the framework of the substantial core value underlying in Japanese society which was a unalienable part in Japanese culture. To sum up, the purpose of this paper is to validate that cultural factors have a significant positive impact on the current development of CSR in Japan.

A brief structure of the paper is revealed in *Figure 1*. The author is attempt to illustrate two approaches through which did Japanese culture has affected the development of CSR in Japan. Firstly, culture lurked in the formation of Personal Social Responsibility (PSR) in Japan, following which did the social responsibility established within the enterprises after World War II. Claimed that argument is made to show the close connection between PSR and CSR. Secondly, detailed business philosophies in Japanese history are introduced and the relations between them and Japanese culture are explained in logical statements.



*Figure 1 A brief structure of the paper*

## 2 Methodology

The early construction including the central idea of this paper was generated from the author's possessing comprehension of Japan, lessons that providing this part of pre-knowledge were taken under the Japanese Linguistic Department in Peking University during the previous semesters in China. From the half-year experience in Tokyo, having conversation with the students and teachers from Waseda University, the author found public consciousness of social responsibility is indeed palpable in Japan. Although it is not brought up to the surface in most of the time, the notion has radically permeated into Japanese people and has been the fundamental instruction in their daily life.

Existing literature study incorporating academic articles, journals, and resources from internet in English, Japanese, and Chinese was conducted massively, in order to grasp sufficient knowledge from a variety of perspectives about culture and social responsibility in Japan both in currently and historically. Since the author majored in field of Economics, finance, to be precise, certain economic thought and terminology might be used in the paper. Several conclusions from earlier econometric research has been used. Furthermore, the author would like to use the previous comprehension of Japanese culture to show why CSR in Japan is rapidly developing in recent years and why Japan society is perfect for developing CSR. Logical statements are going to be the auxiliary instrument to declare the link between PSR and CSR, as well as the relations between culture and business philosophies. Such statements aim at presenting the thinking procedure of the author, and smooth the illustrations within the

paper. Additional information is gained from presentation delivered by Mr. Seguchi, the chief researcher at Canon Global Institute, expert of Chinese economy. Special thanks shall be given to Professor Hirakawa for providing the information sources as well as many inspiring suggestions throughout the entire process of author completing this paper.

Section three and section four are respectively illustrating the mechanism by which cultural factors is essential in the development of CSR in Japan in 21<sup>st</sup> century. In section four, several concepts which are resonant with the notion of CSR are introduced, as the real example to show that CSR has been long-existed in Japanese culture. In conclusion, methodology applied in this study comprises of investigation about literatures, real-life observations and qualitative analysis. The hypothesis – verification method is applied in the paper.

To clarify, the conceptual framework of CSR in this paper is constructed with reference to guidance given by ISO26000, following the former researcher Zhao (2018). Six aspects, i.e., human rights, labor issues, consumer issues, environmental issues, fair operating practices, community involvement and development are included.

### **3 From culture to PSR, and to CSR**

A brief introduction to Japanese culture is necessary in the beginning of this paper to bring a fundamental understand about its outstanding characteristics. Japanese culture is unique. Compare to the characteristics of originality and consecutiveness in Chinese culture, Japanese culture adversely have the features of openness, subjectivity and hybrid.

The reason of the uniqueness could be traced down to its special location, an isolated island in eastern Asia. Agricultural civilization in Japan appeared thousands years later than it in China, Africa and Europe. Ienaga Saburo said that when the civilization on Japanese archipelago stayed in the Stone Age, Metal Age had been embraced, and spread widely among the civilization on the neighboring continent. As its influence grew, metal utensils were brought to Japan. Yayoi culture appeared consequently. Instead of naturally evolved, the civilization in Japan was dragged into further phase through foreign cultural invasion even in

the prehistoric age, and Japan had been keeping a receptive attitude toward advanced foreign culture.

The openness described the fact provided above that Japan kept absorbing external cultural in its historical process. However, besides openness, as suggested by Tang (2012), there exists the feature of subjectivity in Japanese culture. The subjectivity means the original content of a culture varied more or less when it entered Japanese society. Three factors while Japan absorbing foreign culture could take account of its subjectivity (Tang, 2012): (1) selection would be done to drop the dregs and keep the essence; (2) only the most advanced contemporary culture would be absorbed; (3) the foreign country would coalesce into Japanese culture instead of merely adding in.

These basic characteristics make it plausible that Japanese culture is a hybrid of its own one mixed with the external culture. From Chinese Confucianism to *Yamato-damashii* (Japanese spirit), and from western liberal democracy to Meiji Reform in Japan are both the practice of the characteristics, although the external culture might diverge in some extent during the absorption.

### **3.1 The sustainability of CSR in Japan**

CSR is developing rapidly in modern Japanese society. Eweje and Sakaki (2015) argued that though not strictly required by law, disclosure of CSR initiatives has grown for corporations listed on the First Section of the Tokyo Stock Exchange (TSE). A significant number of Japanese corporations have established CSR-related departments, and Japan has become the country with the largest number of participants in Global Reporting Initiative (GRI), which is currently the most acknowledged reporting system of CSR in the world. (Hiroshi: 2004; Tabuniti and Suzuki: 2005)

However, the concept of CSR seems contradict to the original object of a company, which is to earn profit to pay its shareholders. From the perspective of a rational economist, considering CSR when making investment decision would increase the cost and reciprocally reduce the profit of a company. Such statement would lead to a conclusion that a non-profitable corporate is not sustainable. In fact, Hategan (2018) proved the positive effect





performance of a company resonates with individual's personal value, do the company accepted, fond, and respected by the individual. And this is how company's brand image, as well as the profit, improves. In a word, CSR is sustainable for companies only when PSR is well-developed among the society, that the public will be appreciated when CSR is taken into consideration when enterprises making investment decisions. As for Japan, the sustainability of development in CSR is promising since consciousness of social responsibility among the public is relatively high.

### **3.2 PSR and CSR in Japanese modern history**

The background information of high level PSR in Japan is provided in this section.

The occurrence of World War II led to a temporal culture dislocation in Japan. Due to shock of defeat, argued by Ishida (1974), Japan turned its focus on industrialization and economic development while putting profit on the climax of business pursuit. Thereby, conflicts raised between enterprises and the public when serious pollution issues (air, water, noise pollution) appeared and causing the infamous four major pollution disease (appeared mainly during the 1950s and the 1960s). The public was the victim. However, instead of the utility of the public, Japanese government was more supportive to the profits in the enterprises, and acted acquiescent to the pollution emission (Yu, 2018). The number of the patient (not counting the dead) of these four major pollution disease was 2,575 in December, 1970, increasing to 33,466 six years later, and reached about 90,000 by the end of 1982. Under the insatiable oppression, public consciousness of social responsibility revived. And from the 1960s, Japanese victims among the nation initiated large-scale petitions and protests. Formal legal actions were finally taken against polluting companies in around 1968. Statistic shows there had been 63 thousand Japanese residents prosecuted polluting companies. After decades of litigation, the plaintiffs, i.e., the public victims, won the case, which brought great influence to the entire Japanese society and marked the starting point for the government to regulate the rules and regulations on environmental protection, or say, social responsibility. In a word, the rebuild of CSR in Japan was actuated by the public whose PSR had resuscitated.

This resuscitation, suggested by Yu (2018), was led by the thoughts rooted in western

culture, such as human rights and legislation system, which were brought into Japan during the Meiji Reform started in 1868. The feature of openness in Japanese culture accelerated the its coalescent process with the new western culture, and made the public more receptive to novel concepts. In addition, collectivism led by Yamato (great harmony) spirit is inveterate in Japan. The shock of defeat in World War II in fact further strengthened the role of collectivism in Japanese society.

‘Collectivism’ is an opposite word to ‘individualism’, and was invented by western world to describe Asian society. Japanese society shows many of the characteristics of a collectivistic society: such as putting harmony of group above the expression of individual opinions and people have a strong sense of shame for not acting in the congruent way with others. For instance, the word ‘I’ and ‘you’, as well as the subject, are not commonly appeared in Japanese linguistic system. From which it could be identified that the individual’s sense of being is weak while the notion of ‘being a part of a community’ is dominant. Thus, when the pollution disease spread widely in the nation, the public somehow became an entity called victim, and the PSR was then awake by the suffer of the public not separately in individuals, but simultaneously among the whole entity. The process of the pollution control during the late 20<sup>th</sup> century can be considered as the course of Japan’s trim on the newly absorbed western culture, dropping the dregs and keeping the essences, and made it harmonious with its original one. The dregs were enterprises’ excessive pursue of profits, which was eliminated by the public using Yamato spirit as guidance and essences in western culture, i.e. the concept of human right and legislate system, as weapon.

So far the author explained the mechanism of how culture factors functioned in the formation of PSR, and propelled the renaissance of CSR.

#### **4 From culture to philosophies in Japanese history, and to CSR**

The current Western concept of CSR came to Japan around the time of the oil shocks of the 1970s (Bader, 2008) and was officially introduced in 2003. On the surface, CSR is a new-introduced concept along Japan’s consecutive learning from Western culture after World

War II. However, it is not challenging to find that the concept of CSR has much in common with certain business philosophies in Japan's early history. There was saying that the *sanpo-yoshi* concept and Ishida's philosophy are juxtaposed as the origin of CSR in Japan.

No unified definition has been given of business philosophy in academia, said by Asano (1991). However, common comprehension exists. Since the paper is a work more in the field of social science than philosophy, the definition shall be done following the principle of simplicity. To assuage the obscurity, business philosophy in this paper, point to a series of moral concepts, following which shall the businessmen make its commercial decisions. Note that the difference between corporate culture and business philosophy is that, the former simply rooted in a single corporate, while the latter is in the upper level as the common consensus among the contemporary businessmen. Business philosophy functions as the guidance of corporate culture in each enterprise.

As a component of aggregate social value in a nation, business philosophy is a part of the social culture. Thus, when cultural invasion occurred, the central value of the society varied accordingly, and so did the instructive philosophy in the commercial realm changed. As a matter of fact, the traditional Japanese culture and Chinese culture shared great resonance in ancient times. Japan highly respected Confucianism and used it as the basic documents of the education just like China. Yet, the Confucianism, as well as the Buddhism, was not totally the same in the two nations. Instead, a number of indigenous thoughts, such as Bushido in Edo Period, and Yamato spirit appeared independently even though the shadow of Confucianism still remained.

The following parts aim to illustrate some of the dominant business philosophies throughout Japanese history while giving examples of the application of them in real activities.

#### **4.1 Sanpo-yoshi – three-way satisfaction**

The concept of '*Sanpo-yoshi*' is always brought about when talking about CSR in Japan. The word could be translated to 'three-way satisfaction' and means good for three parties including sellers, buyers, and *seiken* (usually translated into society). Professor Tanimoto

(2013) from Waseda University argued that the term *seken* is not equal to an open society. Rather, it indicates a notion more like a relatively closed community.

*Sanpo-yoshi* is an eminent business philosophy and creed established by Ohmi merchants. Ohmi was an old Japanese regional name, around Lake Biwa in modern day Shiga Prefecture. Taking advantage of low price, they expanded their trading area in Japan's domestic market for three centuries, from the seventeenth century until the nineteenth century (Tanimoto, 2013). The major activities they had been conducted was to travel away from home with goods produced in Kyoto and Osaka, selling them in the other regions, while bringing raw materials from the regions they visited back to their base in the Ohmi region. The position of Ohmi in the center of Japan was a merit for its business activity, which is one of the necessary conditions for their achievement. One another reason was that they were highly appreciated in each administrative district of Japan due to the high quality of their products. Still, the crucial one was their spirit when expanding business. Away from home, they were new-comers and strangers to the local people and they were strongly aware of this kind of status. To earn trust from indigent community became essential consequently. A community where collectivism rooted would judge a group of outsiders monotonically. Therefore, in addition to think for the buyer, the seller, i.e. the Ohmi merchants, needed to take consideration for the whole community as well, to gain their credit. Profit made a concession reciprocally. Specifically, the Ohmi merchants focused on donation to local people and actively participated in infrastructure construction and philanthropic activities.

By the end of Edo period, Ohmi merchants became the most successful and influential merchant groups in Japan. Many of them have continued in business even in modern society, while some are famous enough to be familiar in the international stage, include Nippon Life Insurance Company, Takashimaya Company, Seibu Holdings Inc. and etc. (Tanimoto, 2013).

Tracking down the derive of *sanpo-yoshi*, the origin seems to be found at the concept of righteousness, trust, and harmoniousness buried in Confucianism (Bi, 2014), a part of Japanese culture since ancient time though introduced from China. The thoughts illustrated in the following paragraphs also have great connection to the Confucianism in Japanese culture.

#### 4.2 Baigan Ishida's *shonindo* and Sontoku Ninomiya's and *houtoku seishin*

Ishida and Ninomiya promoted hard work, self-sacrifice and fairness to legitimize the taking of profit from trade

Ishida Baigan (1685-1744) was a Japanese lecturer and philosopher, also former businessman, who proposed *shonindo* (code of the merchant), founded the *shingaku* (heart learning) movement which advocated all education include teachings in ethics and morality, and had a huge impact on the social structure of Japan back then. In the Edo era (1603-1868), samurai (Japanese warrior) were regarded as the most superior members of society after the imperial family and aristocrats, while merchants were relegated to the bottom of the hierarchy. However, this hierarchy began to crumble when Ishida developed the concept of *shonindo* as a counter to the ideology of *bushido*, (the way of the warrior) that legitimized the social dominance of samurai (Daiwa Securities Group, 2005). He first proposed *shingaku*, as heart learning, from combining the Shinto (traditional Japanese religion) with Neo-Confucianism and Zen Buddhism. *Shingaku* held that work that was disciplined, honest and efficient provided an important service to society, and therefore those engaged in business were morally equal to the *samurai*. His scripture expounded *shonindo* clarified that it is justifiable for a merchant to obtain profits through trade, but the monetary benefits cannot be regarded as the sole pursuit. He must also be thrifty, obedient, and not earn an ill-gotten gain. It should be admitted that Confucian's benevolence, along with trust and righteousness, was embraced in his thought though discrepancy exist between the Neo-Confucianism in Japanese culture and Chinese culture.

Ishida's thinking paved the way for later business philosophy that would come to dominate the Meiji era, the principle of *sanpo-yoshi* by Ohmi merchants and the *houtoku seishin* by Ninomy in the following paragraphs.

Sontoku Ninomiya (1787-1856) was a prominent 19<sup>th</sup> century Japanese agricultural leader, philosopher, moralist and economist. He born poor and unfortunately became an orphan at such a young age of 16. After several years of working in his uncle's land, he began his own agricultural business and achieved considerable wealth in his 20s. He later became famous for

reviving local economy chiefly through agricultural development, and was recruited by the government to run Odawara Domain then Sagami Province. However, Ninomiya's achievement in spiritual and ethical level of emphasizing the principle of co-operation and mutual support leading to mutual benefit, takes more importance than his accomplishment in material world. Following Ishida's *shingaku*, the applied ethical principles that matured out of Ninomiya's experiences also combined three strands of traditional teachings, i.e., Buddhism, Shintoism and Confucianism. None written philosophical work has been left by himself, yet his students transcribed his ideas. With the previously mentioned co-operative ethic performing as the pith, Ninomiya's business philosophy is called *houtoku seishin*, which is literally translated as 'repaying indebtedness', but best rendered as 'the spirit of altruism' (Daiwa Securities Group, 2005). Altruism is the principle and moral practice of concern for happiness of other human beings and/or animals, resulting in a quality of life both material and spiritual. Similarly, today's CSR is saying the enterprises should try their best to make contribution to the whole society, which is more like an expectation from the public or possibly the stakeholders. Discrepancy exists between the two notion, *houtoku* altruistic ideal is more initiative than CSR, though enough to show that CSR in Japan has its own cultural bases.

#### **4.3 The ongoing development**

From Shindo, Confucianism and Buddhism embedded in traditional Japanese culture, merchant creed and managerial philosophies, unified as business philosophies in the paper, are incubated from business leaders of various period. Philosophies never seized to be constantly inherited and reinforced. The importance of the merchants' self consciousness of being responsible to the society which implied by Ninomiya's statement 'Commerce without ethics is crime: Ethics without commerce is nonsense' (Onuki 2006), was further refined by Shibusawa Eiichi (1840-1931), who was the first president of First National Bank in Japan and was respected as the 'father of Japanese capitalism'. Zhao (2018) argued, Shibusawa interpreted Confucius saying, 'the noble person knows about integrity, the petty person knows about profits', as businessmen should emphasize more in long-term trust and reputation than

short-run profit. In the period leading up to the World War II, Matsushita Konosuke (1894-1989), a Japanese industrialist who founded Panasonic, known as ‘the god of management’, argued that:

‘possessing material comforts in no way guarantees happiness. Only spiritual wealth can bring true happiness. If that is correct, should business be concerned only with the material aspect of life and leave the care of the human heart to religion or ethics? I do not think so. Businessmen too should be able to share in creating society that is spiritually rich and materially affluent.’ (Matsushita, 1984: 87-88)

Inspired by Zhao (2018), the improving process is summarized in *Table 3* according to chronological order.

Subjective	Philosophy	Content	Relation to CSR
Baigan Ishida	Shingaku	The notion of enevolence, trust and righteousness from Confucianism	Community involvement & development
	Shonindo	Integraty, sparingness and obedience in business	Consumer issues
Ohmi merchants	Sanpo-yoshi principle	Cooperation and trust built in community base	Community involvement & development
		The notion of righteousness, trust and harmony from Confucianism	Consumer issues Fair operating practices
Sontoku Ninomiya	Hotoku spirit	Mutual benefit, cooperativity, altruism	Same as above
Eiichi Shibusawa		Good for the society and the nation Long-term trust base business Altruism	Same as above

*Table 3 A summary of philosophical origins of CSR in Japan*

## 5 Conclusion

Intergrating the two devious routes that account for the quick promotion of CSR in Japan in 21<sup>st</sup> century, a complete value forming mechanism is constructed. The World War II is viewed as a rupture of Japanese culture due to the massive pour-in of western culture. Eastern culture dominated Japan before that, with social structure remained closed and ‘trust-based’, and from Confucianism, Buddhism and Shindo derived a number of business philosophies,



such as *sanpo-yoshi* and *shonindo*, which had been unfortunately neglect over the wartime. After defeat in World War II, Japan rushed on industrialization to catch up with western countries while widely opened its gate. As a result, western concepts went fiercely into Japan. Nothing but profit raised to the central pursue of Japanese enterprises, which aroused serious social issues and caused pollution diseases infect among the nation. After great suffer, the public regenerated the consciousness of PSR and fight for human rights against the enterprises with legislation as their weapon. Under the strong claim from the customers, i.e., the public, did the CSR activities in enterprises and Environmental Law be enacted in late 20<sup>th</sup> century. More and more companies are willing to establish CSR departments and devoted into CSR activities nowadays, as an approach to bring additional harmony to the society and to raise its own goodwill. From the conclusion of earlier research, it could be verified by real data that carrying out CSR activities somehow often helps improve the operations and increase the profits of enterprise. This is relevant to the PSR existing among the society. Public with PSR is purposed to welcome enterprises with the managerial ethics of CSR more than those without. PSR and CSR are two inalienable component of social responsibility. On one hand, PSR helps established CSR while being the supervisor of CSR. On the other hand, the existence of companies' CSR activities could bring positive energy to the society, assisting the foundation of educational system, while instructing and emphasizing PSR in public. In a word, two factors are reciprocally functioning as the maintainer of each other in Japanese modern society.

The hypothesis could thus be verified that CSR is holding a perfect vision in Japan nowadays due to the uniqueness in Japanese culture. Furthermore, a sustainable development could be expected in future CSR in Japan due to the spiral-up mechanism between public social responsibility and corporate social responsibility in Japan.

## 6 Reference

### English

BADER-JOHNSTON. 2008. CSR in Japan: A Traditional of Mutual Benefit.

EWEJE, G. & SAKAKI, M. 2015. CSR in Japanese companies: perspectives from managers. *Business Strategy and the Environment*, 24, 678-687.

[en.wikipedia.org/wiki/Corporate\\_social\\_responsibility](http://en.wikipedia.org/wiki/Corporate_social_responsibility)

HATEGAN, C. & SIRGHI, N. & RUXANDRA & HATEGAN, V. 2018. Doing Well or Doing Good: The Relationship between Corporate Social Responsibility and Profit in Romanian Companies.

HIROSHI, H. 2004. Corporate social responsibility: the strength of Japanese corporations.

ISHIDA, EIICHIRO. 1974. Japanese culture: a study of origins and characteristics.

KAMEI, Z. & HIRANO, T. 2015. Issues and Prospects for CSR in Japan: Analysis of Japan's CSR Corporate Survey.

DAIWA SECURITIES GROUP & RICOH. 2005. The Way of the Merchant: Corporate Social Responsibility in Japan. *The Economist*.

LOPEZ DAVIS, S. & MARIN RIVES, L. & RUIZ DE MAYA, S. 2017. Introducing Personal Social Responsibility as a key element to upgrade CSR.

PAOLO, P. 2015. Reinforcing Intangible Assets through CSR in a Globalized World. *Journal of Management Policies and Practices*, June 2015, Vol.3, No.1, pp. 23-30.

TANIMOTO, K. 2013. Sanpo-yoshi and CSR.

TANIMOTO, K. & SUZUKI, K. 2005. Corporate social responsibility in Japan: analyzing the participating companies in global reporting initiative.

[www.tokyofoundation.org/en/articles/2015/issues-and-prospects-for-csr](http://www.tokyofoundation.org/en/articles/2015/issues-and-prospects-for-csr)

[www.unglobalcompact.org/what-is-gc/mission/principles](http://www.unglobalcompact.org/what-is-gc/mission/principles)

ZHAO, JIAXIN. 2018. CSR in Japan: Philosophies, Histories and the Future.

## **Japanese**

古賀純一郎. 2005. CSR の最前線. pp. 52-56.

大野正英. 2012. 「三步よし」の由来とその現代的意味

蟻生俊夫. 2015. 日本企業における CSR 実例分析

田中敬幸. 2014. 日本の CSR の特徴の変化

## **Chinese**

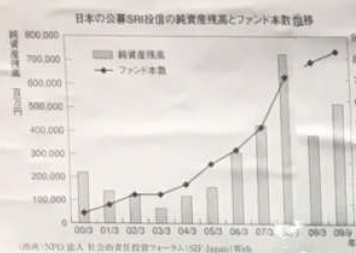
- 毕楠. 2014. 日本企业社会责任（CSR）理念的儒家思想基因及其传承.
- 蒲南英. 2018. 基于日本企业文化与日本民族精神的研究与探索
- 唐向红. 2012. 日本文化与日本经济发展关系研究.
- 庾荷霄. 2018. 1945-1975 年日本的公害治理研究.
- 钟洪武. 2008. 日本企业社会责任研究

# From Culture to Corporate Social Responsibility

- Inspiration from CSR in Japan -

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## > CSR is developing rapidly in modern Japan after 2003



## CSR in Modern Japan

### > Define CSR

- human rights
- labor issues
- consumer issues
- environmental issues
- fair operating practices
- community involvement & development

### > The sustainability of CSR is supported by PSR

- ① Profit is positive relevant to CSR activities in a high level (From Hategen's research, 2018: Doing Well or Doing Good The Relationship between Corporate Social Responsibility and Profit in Romanian Companies.)

Table 6. The results from the logistic regression model (in odds ratio).

	Dependent Variable: Profit (Dummy)						
	Wald chi2	CSR	Turnover	Impairment	Assets	Liabilities	Market Capitalization
	106.42 ***	14.48 (6.02) ***	1.61 (2.05) **	0.604 (-1.85) *	2.92 (2.08) **	0.33 (-2.88) ***	0.86 (-0.44)

z values are reported in parenthesis; and \*, \*\* and \*\*\* mean 10%, 5% and 1% level of significance, respectively.

## Personal Social Responsibility

## Introduce Western culture After WWII

## Eastern culture dominance Before WWII

## Business Philosophies

- ② Company's good will/brand image is positive relevant to CSR activities (From Paolo's paper, 2015: Reinforcing Intangible Assets through CSR in Globalized World.)

- ③ Personal Social Responsibility (PSR) is a key element to upgrade CSR: (From Davis's research, 2017: Introducing Personal Social Responsibility as a key element to upgrade CSR)

### > PSR and CSR in Japanese modern history

Japan initiated industrialization after defeated in WWII. The business philosophies had been instructing Japanese merchants temporarily disappeared. Enterprises began to focus only on profit. A series of social issues appeared consequently, causing severe and widely spread pollution diseases among the public in nation wide.

PSR recuperated spontaneously by cultural factor:  
Eastern culture (instructive idea):  
Confucianism  
YAMATO spirit  
collectivism  
Western culture (weapons/tools):  
notion of human rights  
legal system  
Environmental Law  
Environmental education

A bilateral circulation including both supervision and cooperation took shape among three factors, i.e., government, the enterprises, and the NGO simultaneously.

Conclusion:  
PSR is essential in the resuscitation, development and maintenance of CSR in Japan in modern society.

## Japanese Culture

### > Business Philosophies as the origin of CSR in Japan

Subjective	Philosophy	Content	Relation to CSR
Baigan	Shingaku	The notion of enlightenment, trust and righteousness from Confucianism	Community involvement & development
Ishida	Shonindo	Integrity, sparingness and obedience in business	Consumer issues
Ohmi merchants	Sampo-yoshi principle	Cooperation and trust built in community base The notion of righteousness, trust and harmony from Confucianism	Community involvement & development Consumer issues Fair operating practices
Sontoku Ninomiya	Hotoku spirit	Mutual benefit, cooperativity, altruism	Same as above
Eiichi Shibusawa		Good for the society and the nation Long-term trust base business Altruism	Same as above

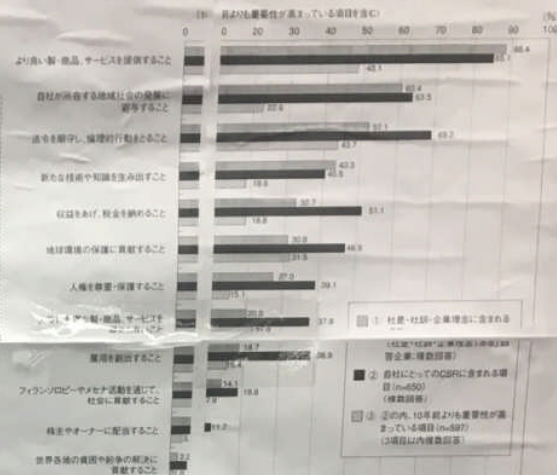
Conclusion:  
Similar concepts to CSR have been long-existed in Japanese history. It is plausible to view CSR as a cultural product of Japan.

### > Characteristics of Japanese Culture

- Openness: Japan kept absorbing external cultural in its historical process
- Subjectivity: (1) selection would be one to drop the dregs and keep the essence;  
(2) only the most advanced contemporary culture would be absorbed;  
(3) the foreign country would condescend into Japanese culture lining in.
- Hybrid: Needless to say, due to the openness and subjectivity embedded in Japanese culture, Japan combined traditional eastern culture from ancient time. Later, through Meiji Reform and World War II, western culture was introduced into Japan, digested and integrated into Japanese culture since then.

Conclusion:  
Cultural factors have a significant positive impact on the current development of CSR in Japan. The impact is mainly conducted by two separate ways: PSR in modern society and business philosophies in history.

(図表11) 企業・社会・環境と企業としての「企業の社会的責任(CSR)」の関係



中国人民大学日本教育研究所

# **The Non-Payment Situation of Japan's Public Pension and Reason Analysis**

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## **Introduction**

Japan stepped into aging society since the 1970s, the rapid aging trend brought challenges to the whole Japanese society. Among all the affected social aspects, Japan's pension aroused wide public attention due to query on its sustainability and scandals related.

Japan's pension has adopted a Pay-As-You-Go System since the 1950s, which means the government collects the premiums from current working generation to pay the retired generation's benefit. By contrast, there is another accumulation system called the Fully Funded System, under which assets from the current contributors are accumulated and paid back fully as benefits to the same contributors in the future. However, the reduced fertility rate and increased life expectancy in Japanese aging society make the number of retirees increasing relative to contributors, leading the fiscal sustainability of Japan's pension to uncertainty.

However, to make things worse, a huge scandal struck Japan in early 2004. Amounts of rather famous politicians were involved in the non-payment incident of mandatory pensions, some of them were even at the very helm, for example, Yasuo Fukuda(福田康夫) of the Liberal Democratic Party and Naoto Kan(菅直人) of the Democratic Party. According to a Kyodo News survey, 90 of the 725 politicians in both Houses of the Diet confessed to failing to pay contributions since the pension contribution became obligatory in 1986. Since Japan has been suffering from the serious implication of the rapid ageing on the future viability of its pension, this serious scandal relating to the pension system aroused widely public disappointment. Asahi

Shimbun conducted a survey in May 2004 after this crisis, and the result showed that the support for the government slipped by 5 percent over the previous month to 45 percent. As a matter of fact, not only the public figures, there is actually an increasing population chose to evade pension payment. MHLW<sup>1</sup>(厚生労働省) founded that the pension payment rate declined by 24.7% over the decade, from 85.7% in 1992 to 62.8% in 2002. It was self-evident that Japan's pension was under rather a tense situation.

Though the non-payment situation now is quite severe in Japan, there are not many reports about the incentives of non-payment. Therefore, the main research question is to find out reasons why Japanese people are gradually unwilling to joining public pension system. To achieve this goal, a range of books, papers and articles in related areas will be read.

The paper is structured as the followings. The first chapter is an introduction to Japan's pension system and its history. Secondly, the non-payment scandal in 2004 will be presented at length, including the social effects it generated. Then, the main reasons for non-payment will be analyzed detailedly. Finally, as today's hurdles are future opportunities, at the end of this research possible measures to cope with non-payment problem will be discussed, which is coherent with the aim of this research—looking for a better future for Japan's public pension.

## **Japan's pension system**

### *History of the Pension Reforms in Japan*

#### **I. Creation of Schemes**

Japan's pension had gone through enormous changes. It was first introduced as the Workers

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<sup>1</sup> MHLW refers to Ministry of Health, Labor and Welfare(厚生労働省), "The Condition on Participation and Pay of the KN in 2002," materials for sectional meeting on pensions in the Council on Social Security, <http://www.mhlw.go.jp> , accessed February 20, 2005. NOTE: Payment rate (%) months paid divided by months that participants have to pay\*100

Pension Insurance in 1942 and changed to Employees' Pension Insurance in 1944. When it was first launched, the structure was a single layer of remuneration-based proportional pension. In the revision of 1954, the Employees' Pension Insurance was restructured to a two-layer system, of a fixed rate part (the first tier) and a remuneration-based proportional part (the second tier), at that time, the pension system only covered employees of big companies. Later in 1961, the National Pension System for self-employed workers and agriculture, forestry, and fishery-related workers was established independently, the scope of the insured was extended. But due to the differences of work style and income between the insured people of these two systems, and also for other reasons, the insurance premium contribution, benefit payment, and others are handled by each different method.

## **II. Improvement of Schemes**

During the 1960s and 1970s, slight adjustments were conducted to improve the level of security. Pension benefits were improved in the 1960s and early 1970s, achieving the “20,000yen pension” (standard pension benefits of Employees' Pension Insurance is 20,000yen and the National Pension is 20,000 yen for married couples). Also, the Price Indexation System was introduced, guaranteeing the simultaneous rise of pension benefit and price level.

## **III. Measures for the Arrival of the Full-scale Aging Society**

Japan had stepped into aging society since the 1970s, correspondingly, the pension scheme had been revised several times to prepare for the forthcoming aging society.

In the revision of 1985, the Public Pension was established as a common system for all citizens. Meanwhile, adjustment of benefits was conducted which decreased the benefit rate gradually and extended the participation period up to 40 years. During the revision of 1989, the National Pension Fund was established on a regional base, and students were enforced to participate in the National Pension System.



Then, the 1994 pension reform aimed at restoring its financial soundness. It raised the contribution rate and changed revaluation system of salary, corresponding to the raise of disposable income after increases in tax and social insurance fee. It also planned to gradually raise the pensionable age of the flat-rate part of the Employee' Pension Insurance scheme benefit from 60 to 65. The 2000 reform decided to gradually raise the pensionable age of the whole the Employees' Pension Insurance scheme from 60 to 65, lower the level of the earning-related benefits by 5%.

Regarding the revision of 2004, the benefit payment and contribution were reviewed by introducing the insurance premium level fixation method and the macro-economic indexation. The premium rate for the Employees' Pension is raised by 0.354% every year to achieve 18.3% in the fiscal year 2017 and onward, and the monthly premium for the National Pension is raised by 280JPY every year from April 2005, which will be fixed at 16,900JPY in 2017 and onward. Additionally, the proportion funded by the national subsidy for the Basic Pension was raised from 1/3 to 1/2. The system of the Old-Age Pension for Active Workers was also reviewed, introducing the system of delaying pensionable age for those who are 65 years or over.

#### *Current Pension System in Japan*

After years of reforming, Japan now has formed the Public Pension system with universal coverage. In principle, the Public Pension System can be seen as a two tiers system, the first tier is the National Pension, also called the Kokumin Nenkin (国民年金), which is a public pension system participated by all people aged 20 to 59 who have an address in Japan, both Japanese and foreigners are required to enroll in. The second tier is employment-related pensions. Since January 1, 2010, the whole system is managed by the Japan Pension Service.



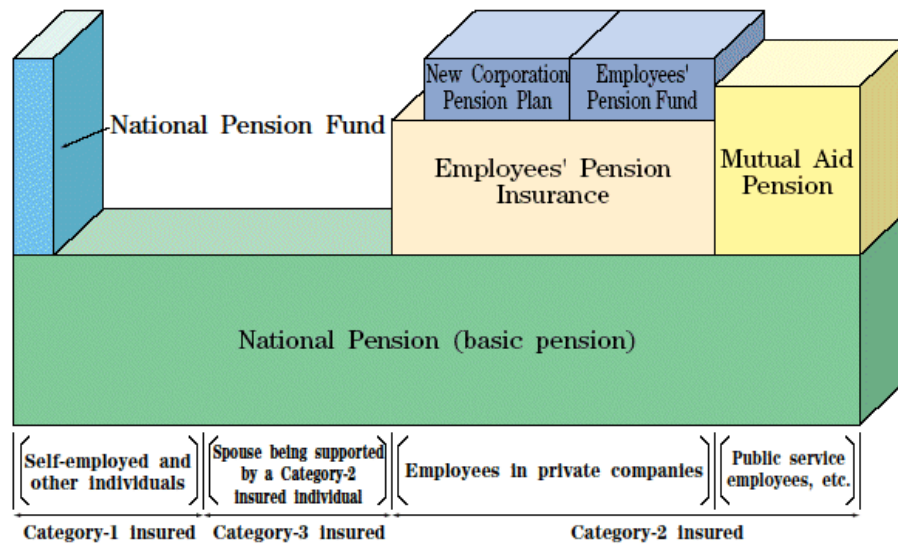


Table 1: The Public Pension System in Japan

As mentioned before, all registered residents of Japan aged 20 to 59 years must enroll in the National Pension System, in detail, all the insureds can be divided into three categories according to their financial and working status. Category II insured are employees of private or public companies that enrolled in the Employees' Pension Insurance as well as the National Pension by their employers. Category III insured are people aged between 20 and 60 years who are dependent on Category II contributors. And as for category I, they are registered residents who do not belong to Category II or III, mainly the unemployed, self-employed and employees of small companies. Category I and III are only compulsory to participate in the National Pension.

In terms of contributions, the contribution of the National Pension is a fixed amount for all insured, for example, 16,340 JPY/month in 2018. Especially, the category II insured need to pay a higher contribution since they are also enrolled in employment-based pensions, those premiums are calculated as a given percentage of income, presently, 18.3% of gross earning covering both the national and employees' pensions and is contributed equally by employee and employer. Category III's contributions are waived as their contributions are subsidized by all

Category 2 contributors. Besides, the method of paying contributions also varies, regarding category II, their pension contributions are deducted directly from the workers' salary by their employers, while others need to pay at banks, post offices or convenience stores by themselves, which will be discussed later as a possible trigger of non-payment.

There are three kinds of pension benefits offered by the national pension system, old age basic pension, disability basic pension and survivors basic pension. Taking the old age basic pension for example, one can receive its benefit at the age of 65. With 40 years of fully contributed coverage periods, one can receive a full benefit amount of 55,000 JPY/month in the fiscal year 2013 under the basic pension, if any non-payment or payment exemption happens, the benefit will be discounted. For Category II insured with employees' pension, they will receive more benefits proportional to his/her pensionable remuneration, the average monthly benefits for old-age employee's pension insured is 157,000JPY/month in 2013.

The financial resources of the National Pension comprise contributions of the National Pension, contributions from the Employees' Pension Insurance and National subsidy.

All in all, there are three major characteristics of Japan's Public Pension System. Firstly, the National Pension has a broad coverage scope, all the people live in Japan aged between 20 to 59 are compulsorily involved, which makes it a real national pension. Then, the Public Pension has its unique two tiers structure. The first tier, the National Pension, is for all citizens while the second tier is employment-related, providing a higher level of pension security for company employees. Last but not least, it adopts the intergenerational Pay-As-You-Go system, the premium paid by the insureds that year are all used to pay the pension benefits of the previous generation.

However, the sustainability of this arrangement relies on continued population growth. Since Japan has been undergoing tremendous demographic changes with a sharp decline in the birth

rate and an increasing life expectancy, the Pay-As-You-Go system now becomes a prominent issue of the whole pension system, people began to question the reliability of the Public Pension System and a credit crisis of it is triggered. Among all the incident, the non-payment scandal in 2004 stands out as a social focus of the credit crisis.

### **The Non-payment Scandal in 2004**

The scandal came to the fore because of the discovery of senior government and political figures playing the non-payment of premiums game. The first public figure revealed was Chief Cabinet Secretary Yasuo Fukuda (福田康夫), an influential character in the Liberal Democratic Party (LDP) of the Prime Minister Junichiro Koizumi. The LDP has been running Japan almost single-handed ever since the end of World War II. He was accused for not paying over 3 years and resigned soon later on 7 May 2004 to head off demands for the resignation of six other government minister, who had also been exposed for their non-payment into the pension scheme.

The whole situation grew out of control in April 2004. The opposition power viewed it as an opportunity to win power back before the elections. Naoto Kan (菅直人), the leader of the Democratic Party of Japan (DPJ), ridiculed Fukuda and other two cabinets as “three non-payment brothers” in his speech by saying “They themselves haven’t paid into the system, so asking the people to pay higher premiums into the national plan, that’s a joke. They are the three nonpayment brothers”, adding that “there might be a fourth or fifth non-payment brother”. However, thing became ironic when Kan himself had failed to pay into the National Pension for ten months in 1996, while he was in charge of the health and welfare ministry that oversees the pension program. Though he persisted that he would not follow Fukuda’s resignation, but on 10 May he succumbed and left DPJ in disarray after his resignation.

At the same time, the Koizumi government invested plenty of money into advertising campaigns to arouse people's payment awareness, and the advertising campaign costing was up to US\$6.5 million. They employed a famous Japanese actress Makiko Esumi (江角真纪子), who was on the advertisement saying that "If you pay now you will be paid later, do you want to end up crying in the future?", what made the matter worse was that she was revealed of evading payment too.

The most important and the highest ranking officer in the whole non-payment incident is Junichiro Koizumi (小泉纯一郎), the Prime Minister of that time. However, he has actually not missed any payments since the scheme became mandatory in 1986. Instead, he was delinquent in his payments during the first three months of 1962, when he was still a student. He then failed to pay from August 1969 to March 1970, at a time when he curtailed his studies in London after the death of his father, he was not employed at the time. He then failed to pay as a Diet member from April 1980 to March 1986. The framework of the current pension scheme was established in April 1964, but it was not fully established until 1985, therefore Koizumi claimed that he was not guilty of not paying, "I've always paid when I belonged to the plan. Not belonging and not paying is different". The confession has led some to clamor for his resignation. Then, on 12 May 2004, the New Komeito party, a junior coalition partner of the ruling LDP, announced that 13 of its lawmakers, including the party leader Takenori Kanzaki (神崎武法), had failed to pay their contributions. This was truly ironic because Kanzaki was very critical of Kan for his non-payment and the New Komeito party had proposed the basic draft of the government-sponsored pension reform bills.

The public disappointment was pushed to a higher level because people gradually realized that more public figures were non-payers. In fact, according to a Kyodo News survey released the same day, 90 of the 725 politicians in both houses of the Diet confessed to missing

contributions since it was obligatory in 1986. Political figures were supposed to set an example for the public since they were the rule maker, hence their evasion of the National Insurance payment added insult to injury more deeply. According to a nationwide survey conducted by the Asahi Shimbun in mid-May 2004, the support for the government slipped by 5% over the previous month to 45%.

### **Social Influences**

The non-payment scandals caused various negative impacts on Japanese society. Firstly and the most directly, this incident triggered political storms. Many political parties had published the list of unpaid party members, the Democratic Party of Japan had its leader resigned and removed the position of the non-payers to obtain public understanding. However, the Liberal Democratic Party under Koizumi's leading, which was the ruling party at that time, had refused to publicize its payment situation, which became a breakthrough for the party out of office to attack. Meanwhile, Japan was in a sensitive period of submitting pension bills to the Congress for consideration and waiting for the upcoming senate elections in July. Therefore, the non-payment scandal had aroused strong dissatisfaction among the Japanese people and distrust of the government started to grow.

More importantly, the sense of insecurity caused by the non-payment scandal pervaded the society. Many young Japanese started fearing that the system is headed for collapse and resent being required to make payment. As coming the news that many politicians had not made payments, even as they are now pushing a plan to raise premium and lower benefits, an increasing population have made a conscious decision not to contribute towards the pension scheme from fear that when the time comes for them to retire, the national coffers will be depleted so that they won't be able to get the money they had paid in. Chart 1 shows the changes

in the National Pension payment rate, which is measured by the months of payment divided by months that participants ought to pay, viewed from the downward trend, the future of National Pension payment seems not to be positive.

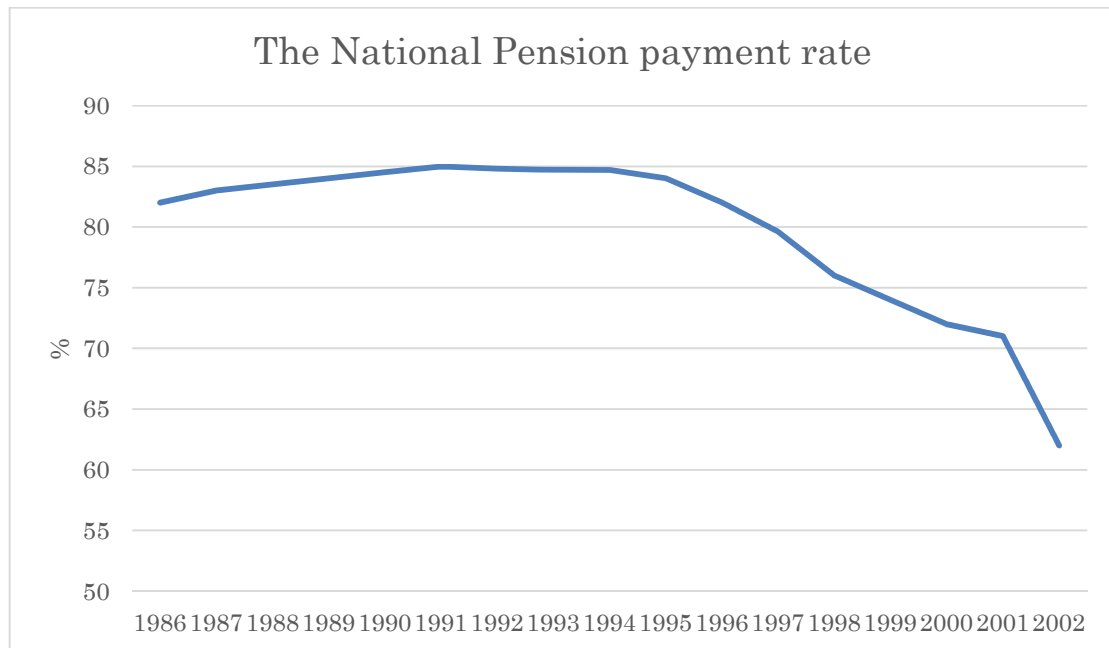


Chart 1: The National Pension payment rate from 1986 to 2002<sup>2</sup>

### Main reasons of the Non-payment

As for why a growing population that tend to evade the Public Pension payment, there are six major reasons as the followings.

#### *(1) Public pension deficit*

The aging society becomes an unstoppable trend in Japan because of a sharp decline in the birth rate and an increasing life expectancy. The birth rate of Japan had dropped to 1.27 in 2007 whereas the stability in population over time requires the fertility rate to be 2.1, which is called the population replacement rate. Moreover, Japan's average life expectancy has now reached the

<sup>2</sup> SOURCE: MHLW, "The Condition on Participation and Pay of the KN in 2002," materials for sectional meeting on pensions in the Council on Social Security, <http://www.mhlw.go.jp>, accessed February 20, 2005.

world's number one level. Another metric to show the effects of long life expectancy is the ratio of the working-age population aged 15-64 years to the elders in a society, which measures how many younger adults support one elderly person in society. Back in 1980, 7.4 young people supported on an elder and the ratio markedly declined to 2.8 in 2010. Moreover, it is projected that 1.3 young people will need to support one elderly in 2050.

Japan's tremendous demographic changes caused severe strains on its society and economy, and there is no exception for the Public Pension System too. Due to the severe aging trend in Japan, the income of Japan's public pension consistently shrinks while the expenditure continued to increase, the public pension fund can not make ends meet. Table 2 shows the income and expenditure situation of Japan's public pension from 2002 to 2009. Viewed from the income perspective, there was no apparent income increase in public pension, in 2003 and 2004 there even existed a trend of negative growth. However, expenditure grew faster in that period because of the aging society, the gap between income and expenditure had also been widening, increasing by 1.55 times within seven years.

Year	Public pension income	Public pension expenditure	The gap between income and expenditure
2002	26,355.5	39,171.1	-12,815.6
2003	25,461.8	40,282.1	-14,820.3
2004	25,652.4	41,620.0	-15,967.5
2005	26,324.2	42,769.4	-16,445.2
2006	27,243.5	43,780.9	-16,537.4
2007	28,202.9	44,733.8	-16,530.9
2008	28,818.6	46,026.9	-17,208.3
2009	28,248.3	48,155.7	-19,907.4

Table 2: the income and expenditure situation of Japan's public pension  
(billion JPY)

All in all, for Japan's public pension system, the income cannot cover the outcome, it not only adds to the government's burden but also increases the likelihood of a financial crisis. Moreover, the public lost confidence towards public pension due to the poor situation, leading to an increasing population who try to avoid their contributions.

*(2) Poor operation of public pension funds*

Unlike the deficit caused by the inevitable demography trend mentioned above, heavy losses in pension operation are more like unfavorable artificial factors due to poor management.

In 2004, pension plan adjustment abolished the old Government Pension Investment Fund and established a new Government Pension Investment Fund(GPIF), which was an independent administrative agency specialized in pension investment entrusted by the Minister of Health, Labor and Welfare, from the standpoint of pursuing professionalism in and making clear the responsibility for the investment of the reserve fund. The GPIF further entrusts most of the reserve fund to domestic or foreign high-performance external asset managers. Now, the Government Pension Investment Fund is the one who decided the basic portfolio (the assets allocation rate) of bonds, stocks or other items.

Domestic Bonds	Domestic Stocks	Foreign Bonds	Foreign Stocks
35%	25%	15%	25%
(±10%)	(±9%)	(±4%)	(±8%)

Table 3: Assets Mix of pension reserve fund

However, as reserve funds are derived from premiums of the Public Pension System, reserve



funds are required to be invested to earn necessary returns at low-risk over the long term. The aim of investment of Pension reserve funds is to stabilize the scheme of National Pension and Employee's Pension. Therefore, to ensure the security of pension operation, the Government Pension Investment Fund generally chooses the traditional and conservative fields which have a relatively lower risk to invest, including real estate and welfare facilities. Narrow investment scope and various government restrictions put pension operation under constraints, making it difficult to achieve the ideal results. For example, in 2002, the rate of return of pension fund operation was -8.46%, setting the highest record of annual loss, and it had suffered losses for three consecutive years. Besides as mentioned above, the reserve funds are eventually entrusted to plenty of assets managers, though it manages risk via risk diversification, it also causes difficulty in assets being efficiently used on a large scale, which might generate scale effect.

Additionally, the Japanese government began to implement the Zero Interest Rate Policy since 1999 after the burst of the Bubble Economy, which provided preferential interest rate to attract foreign investors and boost the Japanese stock market further. Anyway, the action did not acquire the desired results, Japanese stock market was still in a continuing downturn, so did the national pension funds investment. In short, bad management of public pension led to more confidence loss from the public.

### *(3) Unfair intergenerational burden*

Unfair intergenerational burden refers to the difference between the amount of contribution and benefit among different generations. To some extent, the benefit-contribution ratio reflects the citizens' obligations and earnings from the public pension scheme. Table 4 shows the ratio among people born in different years. For a person born in the 1940s, the pension scheme is relatively fair since the benefit-contribution ratio of public pension is 4.5 times and the ratio of employment-related pension is 6.5 times. However, when it comes to people born in the 1990s,

the ratios are 1.5 and 2.3, that is, they receive almost the same amount of benefits as the amount they contribute without appropriate value added, which is against the original intention of public insurance—providing the basic guarantee for the public.

Born year	Employment-related Pension			Public Pension		
	Contribution	Benefit	Ratio	Contribution	Benefit	Ratio
1940s	900	5500	6.5	300	1300	4.5
1950s	1300	5200	3.9	500	1400	2.7
1960s	2200	6200	2.9	900	1700	1.9
1970s	3200	8000	2.5	1800	2700	1.5
1980s	4500	10400	2.3	2300	2700	1.5
1990s	5900	13600	2.3	3000	3500	1.5
2000s	7700	17600	2.3	3900	4600	1.5

Table 4: the benefit-contribution ratio

Now the benefit-contribution ratio has reached a limit, if government continually lower this ratio by continually increasing contributions and decreasing future benefits, there will be more Japanese citizens refusing to join the public pension scheme, especially for the young generations who bear the heavier burden. Furthermore, the financial crisis will be deepened and so does the non-payment problem.

#### *(4) Better private arrangement*

The annual contribution of the National Pension is JPY792,000 currently, which is not a small amount of money even for politicians, who generally are rich people. Hence, those amount of money would be better off investing in private pension arrangement which is more cost-effective. Also, for those whose salaries are not paid directly by their employers, such as the self-employed and most of those in politics, their payments are left to their own through

convenient shops or bank transfer, which can be forgotten and evaded easily. In fact, many of the politicians in the non-payment scandal used it as excuses that they just forgot to pay carelessly rather than escaping by intention. Category II employees cannot do so, as their premiums are deducted directly from salaries, and thus there is no escaping the system.

Besides, though the system is mandatory, money is not automatically deducted from some workers' paychecks, as with Social Security in the United States. People have to register for the National Pension by themselves again when they change jobs or companies, and many forget to do so, whether deliberately or not. More importantly, the penalties for violations are very light, under most occasions, there is even no punishment. Most of the non-payers will just receive a reminder of payment, but they can ignore it easily. That is, though national pension contributions are mandatory, there is no actual consequence for not paying into the system. But the situation goes better recently, it is still true that fines would not be issued against everyone who failed to contribute, but Pension Service starts to seize assets in order to recover arrears.

	FY2015	FY2016
Collection Notices	43,757	50,423
Final Notices	84,801	85,342
Property Seizure Notices	7,310	13,962

Table 6: The warning and penalty of non-payments in 2015 and 2016

(5) *Increasing non-regular workers*

The growing dualism between regular and non-regular workers is of much concern regarding Japan's society. Regular workers refer to full-time employees whose contractual employment period is unspecified and who can work until the mandatory retirement age. Non-regular workers include part-timers, dispatched workers and fixed-term workers, most of them are housewives and working students, who mainly does hourly-paid simple jobs. Unlike the regular

workers, all non-regular workers have some type of fixed-term contract. Since the late 1990s, non-regular employment has steadily been increasing, now accounting for 34.4% of all workers employed in 2010, while regular employment is declining.

Compared with regular workers, the non-regular workers have a relatively lower wage, and the age-earning profile of non-regular workers is much flatter than that of regular workers, so the lifetime incomes of non-regular workers become significantly lower. Meanwhile, the job security of non-regular workers is tenuous. Since regular workers are heavily protected and hard to dismiss, non-regular workers almost always bear the brunt of job cuts even if they perform better than some of the regular workers. Also, as non-regular workers are divided into Category I, whose contributions are paid by themselves rather than deducted directly from salaries, it is likely that they are unwilling to pay a large number of pension contributions on time.

### **Possible Coping Measures**

The basic concept for reform should be to build a sustainable system matched with socio-economy and ensuring reliability for the system, based on this principle, further reforms could be carried out in the following ways.

For future development, firstly, the rise in pensionable age and pension contribution is necessary. Government should consider increasing the pensionable age to 70 years, since some other major countries are already scheduled to raise their pensionable age to 67-68 years (age 67 years by 2027 in the U.S., age 67 by 2029 in Germany, and age 68 years by 2046 in Britain). Then, an increasing contribution is better than decreasing benefits, because the pension benefits is the only income source for a majority of the elders and lower benefits would discourage work efforts by individuals and eventually hamper economic growth in the long run.

Then, reforms of the operation of the Government Pension Investment Fund are required.

That is, the scope of investment could be expanded, allowing funds partially invested into promising corporate bonds and stocks, keeping and increasing the value of pension funds with the help of the growth of enterprises. In addition, competition mechanism ought to be introduced in the authorization of asset managers, their investment performance should be evaluated regularly and investors who underperforms consecutively will be eliminated.

Furthermore, pension contributions might gradually transit into tax collection. Pension contribution is not mandatory, refusing to pay will only be condemned by public opinion, but taxation is compulsory and tax evasion will be punished by law, this change will reduce the non-payment incidents and relieve the financial tension of the government to some extent. From the other point, taxation is a method of redistribution, taking consumption tax for example, its target productions generally include some non-necessary luxury and high-end goods. Not only will it not affect the life quality of low-income people, but also it narrows the income gap to a certain extent, which accords with the nature of public pension more. Inevitably, raising the consumption tax is also required, perhaps to 15% or 20%.

Finally, the labor market ought to be reformed to foster growth. As the working-age population shrinks, it becomes ever more important for more women and older people to become part of the workforce. The elder should be encouraged to keep working as long as their health conditions permit, since the pensionable age is to be hiked perhaps to 70 years. Another way to increase the labor force is to allow the entry of more immigrant workers. However, introducing more women, the elders and foreigners to the workforce are far from enough, more important thing is that they should be fully trained and placed in formal positions, by which they will have a steady income and more willing to participate into the Public Pension.

## **Conclusion**

With the aging society grows faster, Japan's Public Pension System has been under serious credit crisis. The non-payment scandal is a core incident of the whole credit crisis, which caused various social effects including political volatility and growing distrust among the public, even leading to a downward trend of the National Pension payment rate.

When it comes to reasons of the credit crisis, the increasing public pension deficit and poor management of pension funds are the main factors. People, especially the young generation fear that they will not receive fair benefits after retirement though they contribute a lot, the sense of insecurity grows among the public. Additionally, other factors such as more cost-effective private insurance and the growing amount of non-regular workers also result in high non-payment rate. All in all, there is an increasing population tending to evade pension contribution because they start to distrust the sustainability of the Public Pension.

To deal with it, the Japanese Government should continually raise the pensionable age and contributions, since the life expectancy still increases in Japan, this could be a practical solution. Then, the restrictions on pension funds operation should be released to achieve the goal of maintaining and increasing assets value. Besides, transmitting the pension contribution to taxation might be feasible since the tax is compulsory and a method of redistribution, which is propitious to maintain income equity and social stability. Finally, the elders, females and foreigners should be encouraged to join the workforce, and appropriate treatment should be given so that they will be able to and willing to become pension contributors.

## **References**

Ali El-agraa, The japanese pensions scandals. *Pensions: An International Journal*, 14(3), 191-201. doi:<http://dx.doi.org/10.1057/pm.2009.8>

Auerbach, A.J.J.J., Gokhale, J., Kotlikoff, L.J., 1991. Generational accounts: a meaningful alternative to deficit accounting. In: Bradford, D.F. (Ed.), *Tax Policy and the Economy*, vol. 5. MIT Press, Cambridge, MA, pp. 55–110.

Kenichiro Kashiwase, Masahiro Nozaki and Kiichi Tokuoza. Pension Reforms in Japan. International Monetary Fund. 2012-12-04.

Kenzo Yoshida, Yung-Hsing Guo, & Li-Hsuan Cheng, The japanese pension reform of 2004: A new mode of legislative process. *Asian Survey*, 46(3), 381-400, 2006.

Naomi Miyazato, the optimal size of Japan's public pensions: An analysis considering the risks of longevity and volatility of return on assets, *Japan and the World Economy*, Volume 22, Issue 1, 2010, Pages 31-39.

Takayama, Noriyuki. The greying of Japan: an economic perspective on public pensions. Oxford University Press. 1992.

Yoshio Maya. Social Security Pension Re-examined: Incomes and Contributions in Japan[J]. *Geriatrics and Gerontology International*, 2004 (4): 232-234;

Japan Pension Service: <https://www.nenkin.go.jp/international/english/>

睢党臣,吴雪.日本公共养老金未纳问题研究及对中国的启示[J].*华东经济管理*, 2013,(1):150-153. DOI:10.3969/j.issn.1007-5097.2013.01.030.

张俊勇.试析日本养老金制度的困局[J].*南京人口管理干部学院学报*, 2008(03):68-71+76.

# The Non-Payment Situation of Japan's Public Pension and Reason Analysis

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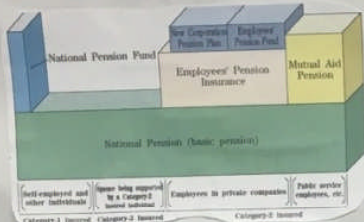
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## 1. Japan's Pension System

### History of Pension Reforms in Japan

- 1942**
  - First introduced in the Workers Pension Insurance
  - Single layer of remuneration-based proportional pension
- 1954**
  - The Employees' Pension Insurance was restructured to a two-layer system, of a fixed rate part and a remuneration-based proportional part
- 1961**
  - The National Pension System for self-employed workers was established
  - Two pension system coexisted
- 1970s**
  - Improved the level of security
  - The Price Indexation System was introduced, guaranteeing the simultaneous rise of pension benefit and price level
- 1985**
  - The Public Pension was established as a common system for all citizens
- 1994**
  - Kept the contribution rate
  - Gradually raised the pensionable age of the flat-rate part of the Employees' Pension Insurance scheme benefit from 60 to 65
- 2000**
  - Gradually raised the pensionable age of the whole Employees' Pension Insurance scheme from 60 to 65
  - Kept the level of the earnings-related benefits by 5%
- 2004**
  - The Public Pension was established as a common system for all citizens
  - Gradually raised the pensionable age
  - The pension funded by the national treasury for the Basic Pension was raised from 1/3 to 1/2

### Current Pension System in Japan



#### Major Characteristics:

- Universal Coverage:** Participated by all people aged 20 to 59 who have an address in Japan, both Japanese and foreigners are required to enroll in.
- Two-tiers Structure:** The first tier is the National Pension, also called the Kokumin Nenkin (国民年金), which covered all the citizens and the second tier is employment-related pensions.
- Pay-As-You-Go System:** Japan's pension has adopted a Pay-As-You-Go System since the 1950s, which means the government collects the premiums from current working generation to pay the retired generation's benefit.

## 2. The Non-payment Scandal in 2004



The first public figure been revealed was Chief Cabinet Secretary Yasuo Fukuda, an influential character in the Liberal Democratic Party (LDP), he was accused for not paying over a 3-year period, and resigned soon.

"Three non-payment"



Naoto Kan, the leader of the Democratic Party of Japan (DPJ), failed to pay into the National Pension for 10 months in when he oversaw the pension program.

"If you pay now you will be paid later, do you want to end up"

菅直人

The popular Japanese actress Makiko Esumi shot an advertisement to arouse people's payment awareness, but was also revealed of evading payment.

菅直人



The highest ranking politician in the whole non-payment incident is Junichiro Koizumi, the Prime Minister of that time, he was accused for non-paying into the national pension for 6 years.

江角真紀子

### The National Pension payment rate

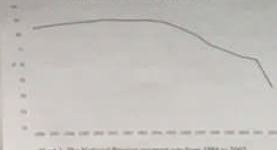


Chart 1 The National Pension payment rate from 1986 to 2002

Measured by the number of persons divided by number that participate ought

In fact, according to a survey, 90 of the 725 politicians in both Houses of the Diet confessed that they had missed payment to some extent. Moreover, there is an increasing population in Japan trying to escape payment, the National Pension Payment rate follows a downward trend

## 3. Main reasons of the Non-payment

### Public Pension Deficit

Year	Public pension revenue	Public pension expenditure	Net public pension balance
2002	28,215.8	36,271.2	-8,055.4
2003	28,461.8	40,262.1	-11,800.3
2004	29,402.8	43,626.8	-14,224.0
2005	30,204.5	47,389.8	-17,185.3
2006	31,045.5	51,150.9	-20,105.4
2007	31,882.8	54,911.8	-23,029.0
2008	32,719.8	58,672.8	-25,953.0
2009	33,556.8	62,433.8	-28,877.0

Table 2 The revenue and expenditure situation of Japan's public pension (billion JPY)

The aging society has become an uncontrollable trend in Japan because of a sharp decline in the birth rate and an increasing life expectancy. Due to the current aging trend in Japan, the burden of Japan's public pension administration will be heavier, the expenditure continued to increase, the public pension fund can not make ends meet.

The public lost confidence towards pension systems and it also adds to government's burden, increasing the likelihood of a financial crisis.

## ★ Poor Operation of Public Pension Funds

In 2002, the rate of return of pension fund operation was -8.46%, setting the highest record of annual loss, and it had suffered losses for three consecutive years.

- Narrow investment scope and various government restrictions put pension operation under constraints: to ensure the security of pension operation, the Government Pension Investment Fund generally chooses the traditional and conservative fields which have a relatively lower risk to invest, including real estate and welfare facilities.
- Bad performance of the Japanese stock market: after the burst of the Bubble Economy Japanese stock market was in a continuing downturn.

## ★ Unfair Generation Burdens

Born year	Employment-related Pension			Public Pension		
	Contribution	Benefit	Ratio	Contribution	Benefit	Ratio
1940s	900	5500	6.5	300	1300	4.5
1950s	1300	5200	3.9	500	1400	2.7
1960s	2200	6200	2.9	900	1700	1.9
1970s	3200	8000	2.5	1800	2700	1.5
1980s	4500	10400	2.3	2300	2700	1.5
1990s	5900	13600	2.3	3000	3500	1.5
2000s	7700	17600	2.3	3900	4600	1.5

Table 4: the benefit-contribution ratio

For younger people, they receive relatively smaller pension benefits while they do contribute a large amount. Therefore, the younger generation maybe unwilling to participate the public pension.

## ★ Increasing Non-Regular Workers

Since the late 1990s, non-regular employment has steadily been increasing, now accounting for 34.4% of all workers employed in 2010, while regular employment is declining.

### Characteristics of Non-Regular Workers:

- Lower Wages: mainly do hourly-paid simple jobs;
- Unstable income: the job security of non-regular workers is tenuous. Since regular workers are heavily protected and hard to dismiss, non-regular workers almost always bear the brunt of job cuts;
- Enrolled in Category 1 insured: their contributions are paid by themselves rather than deducted directly from salaries, it is likely that they are easy to forget and unwilling to pay a large number of pension contributions on time;

## ★ Better Private Arrangement

- Private insurances are more cost-effective;
- Loose legal constraints: though national pension contributions are mandatory, there is no actual consequence for not paying into the system. The penalties for violations are very light, under most occasions, there is even no punishment.

	FY2015	FY2016
Collection	43,757	50,423
Notices		
Final Notices	84,801	85,342
Property	7,310	13,962
Seizure Notices		

Table 6: The warning and penalty of non-payments in 2015 and 2016

## 4. Possible Coping Measures

- Continually raise the pensionable age and contributions: consider increasing the pensionable age to 70 years, since some other major countries are already scheduled to raise their pensionable age to 67-68 years (age 67 years by 2027 in the U.S., age 67 by 2029 in Germany, and age 68 years by 2046 in Britain).
- Reforms of the pension funds: the scope of investment could be expanded, allowing fund partially invested into promising corporate bonds and stocks. In addition, competitor mechanism ought to be introduced in the authorization system of asset managers.
- Transmitting pension contributions into tax collection: taxation is compulsory and tax evasion will be punished by law, this change will reduce the non-payment incidents. From the other point, taxation is a method of redistribution.
- Reforms of Labor market: encouraging the elders, females and foreigners to join the workforce, and appropriate treatment should be given so that they will be able to and willing to become pension contributors.

## 5. References

- International Labour Office. (2010). *World Social Security Report 2010: Secure futures for all*. Geneva: ILO.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.
- OECD. (2010). *Public Pensions in Japan*. Paris: OECD.



**An Environmental Sociological Study of the Fukushima Nuclear Accident:  
Causes and Changes**

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**Introduction**

Environmental sociologists study the relationships between environmental problems and the whole society consisting of different people, organizations, and social relations, trying to understand the cause and effect of environmental problems in the social structure and find possible solutions.

The Fukushima Daiichi nuclear leakage disaster happened on 11 March 2011 after serious earthquake and following tsunami in East Japan. It is the second disaster to be given the Level 7 event classification of the International Nuclear Event Scale after 1986 Chernobyl nuclear accident. The Fukushima disaster has provoked deep reflection on nuclear issues and change in nuclear power policy in Japan. This event provides a good case for us to study the impact of Japan's political and social environment on the nuclear issue.

In Japan, Funabashi (2012) and Hasegawa (2012) have studied on the sociological cause of the Fukushima nuclear accident and pointed out how the closed relationship of government, companies, media and academics has led to the long-term neglect of risks and ineffective governance. They have also proposed advice on energy transition to gradually reduce the proportion of nuclear power. Chinese researchers Wang and Xu (2012) focus on the effect of the accident and argue that risk events can be an important mechanism for safety re-construction.

In this research, state, economic, and civil society actors and their interaction through the Fukushima nuclear accident will be further studied to find out the how environmental consciousness changed in this period. The main purpose of this study is to evaluate the social factors of this environmental disaster. It aims to provide some enlightenment for the future

development of nuclear governance.

Official reports from major ministries and organizations will be studied to present their response to the crisis. A range of researches before and after the accident concerning different aspects of the accident will be examined. Through a large amount of literature reading, this research tries to analyze the behavior of different groups and evaluate their interactions, so as to explain the occurrence of events from a sociological perspective.

The paper is structured as follows. Followed is the literature review. Former studies on relevant to this essay will be reviewed in this part. The first chapter is a review of the Fukushima nuclear accident and the development of nuclear power in Japan, which provides background information and serves as a basis for further argument. In the second chapter the notion of “nuclear village” is proposed as a major understanding of the mechanism of this accident. The attitudes and behaviors of different actors before the accident will be studied, which aims to reveal the various social factors that lead to the disaster. In the third chapter the changes in the post-Fukushima era are presented to analyze the social impact of the accident. The last chapter presents the reflections and enlightenments that can be gained from the accident. The conclusion part will summarize the main findings and consider the limitations of this research.

### **Literature review**

Japan's environmental sociology formed in the period of economic boom of the 1980s. Serious pollution follows the economic development and various social parties gradually formed a consensus on the commonness of the environment, beginning to share the mission of building a livable ecological environment. The Japanese Association for Environmental Sociology was established in 1990, which accumulated environmental sociologists and generated many studies.

Environmental sociology studies in Japan started from the research on the pollution problems of domestic industry, therefore the occurred environmental problems have become an important motivation and orientation of the research. Iijima (1994) pointed out the two

most prominent features of environmental sociology in Japan. One was that it concentrated on the sociology of environmental “problems”. The other was the concomitant characteristic that it “has focused on the local community and the life of people and victims affected by environmental problems”.

After the high-profile accident of Fukushima nuclear leakage, Japanese environmental sociologists researchers have reflected on the cause of the disaster. Current studies have shown relatively low environmental consciousness among all interest groups, all of whom tend to ignore the loopholes in nuclear management for the benefit of economic development.

Funabashi (2012) declares that the Fukushima nuclear accident is a “man - made calamity”. He analyzed the social structure and the social process and ascribed the disaster to the “failure of multiple social safeguards”. The power companies and government institutions clinging on to a “nuclear complex” influenced institutional frameworks with their enormous economic power. Consequently, regulations defined by the government have not accounted for catastrophic accidents. Funabashi suggested promoting an energy paradigm shift and reforms of the decision - making process.

Hasegawa (2012) proposed the concept of “Atomic Circle” to describe a closed relationship between politicians, government, academics, industry and the media in this accident. He argued that the collusion of interest groups has left an actual vacuum of regulators on nuclear issues. Hasegawa also mentioned the monotony of energy as a reason of the government’s pro-nuclear policy.

Chinese researchers Wang and Xu (2012) focus on the effect of the accident and argue that risk events can be an important mechanism for safety re-construction. The subsequent emergency responses after the accident are viewed as a process where various forces jointly shape the society. After the outbreak of the disaster, the government's ruling risk has increased, the power of social groups and media has been highlighted, and expert groups have been given more opportunities to influence society.

Inspired the former studies, this analysis aims to clarify the complex relations among interest groups and to present the social cause of the accident. Changes in the post-Fukushima

era will be studied to consider the effects and influences of the disaster.

## **1. Introduction of the Fukushima Nuclear Accident**

### **1.1 The accident:**

On March 11, 2011, the largest earthquake in Japanese history struck the east coast of the country, at a measurement of 9.0 on the Richter scale. The aftermath of the quake, which was also one of the largest recorded worldwide, was felt across the country in the form of aftershocks, some reaching an intensity of 6.3. The earthquake is known in Japan as the Great East Japan Earthquake or the 2011 Tōhoku earthquake. The earthquake triggered a 13-to-15-meter-high tsunami that arrived approximately 50 minutes later, sweeping across the eastern coastline of Japan. The waves flooded the basements of the power plant's turbine buildings and disabled the emergency diesel generators. As a result of the natural disasters, the tsunami in particular, reactors of the Fukushima Daiichi nuclear power station of the Tokyo Electric Power Company (TEPCO) began to deteriorate. The tsunami cut off all electricity to the facility, causing a cooling system failure the of the Fukushima plant. A state of emergency was declared. This resulted in the meltdown of nuclear fuel rods in three of the vessels and hydrogen-air explosions, producing radioactive particles that spread into the sea and air.

The nuclear leakage accident produced huge impact in the international community. There was not only concern about the irreversible long-term global damage from nuclear radiation; but also rising anxiety about the potential catastrophe nuclear energy utilization could bring.

Initially, it was generally thought that the nuclear leakage had been a direct consequence of the tsunami. However, over time, a different perception emerged. It became clear that the accident could have been avoided. Increasingly, the media and the public believe that instead of being caused by natural disasters, the Fukushima nuclear accident is more of a man-made disaster caused by both the government and the operating firm, including human mistakes, poor designs, regulatory flaws. And one serious opinion held by the concerned people is that

the Japanese government and the nuclear industry had been over-confident about the safety of the reactors. In their view, the nuclear reactors had been designed and built to perfection, and it would be able to cope with any potential hazards. Their confidence was often reflected in the media releases. In fact, for a long time the industry and the government had been trying to convince the public that the nuclear actors in Japan were secure through commercials and TV publication.

## **1.2 Development of nuclear energy in Japan**

Japan's nuclear power program was officially launched when the Japanese government passed the Atomic Energy Basic Law in 1955, which set out the criteria under which peaceful development of nuclear technology was to be undertaken. Government development funding which commenced that year contributed to the inauguration of Japan's first nuclear energy plant, the Tokai nuclear power plant in 1966. While development was underway, the government tasked Japan's three largest utilities – Tokyo, Kansai and Chubu – with responsibility for technical training and development of long-term commercialization plans (Scott, Benjamin, 2010).

The Japanese government, through strategic management of its financial position, continues to play a central role in the development of nuclear power technology. From 1975 to 2001, for example, the Japanese government invested more than \$2 billion per year in nuclear energy research (ANRE, 2006). Prior to the Tohoku earthquake and tsunami on 11 March 2011, nuclear energy supplied 31% of Japanese electricity (ANRE, 2011). Before the accident, Japan had the world's third largest nuclear power capacity, with 55 reactors and 49,467 megawatts (MW) of installed capacity (Scott, Benjamin, 2010).

Existing Japanese nuclear power plants.

Name	Prefecture	Date commenced	Date operational	Units	Capacity (MW)	Type	Supplier	Operator
Tomari 1	Hokkaido	1984	1989	1	579	PWR	Mitsubishi	Hokkaido
Tomari 2	Hokkaido	NA	1991	1	579	PWR	Mitsubishi	Hokkaido
Higashi-Dori	Aomori	1998	2005	1	1100	BWR	Toshiba	Tohoku
Onagawa 1	Miyagi	1970	1984	1	524	BWR	Toshiba	Tohoku
Onagawa 2	Miyagi	NA	1995	1	825	BWR	Toshiba	Tohoku
Onagawa 3	Miyagi	NA	2002	1	825	BWR	Toshiba/Hitachi	Tohoku
Fukushima Daiichi 1	Fukushima	1967	1971	1	460	BWR	GE	Tokyo
Fukushima Daiichi 2	Fukushima	1969	1974	1	784	BWR	GE/Toshiba	Tokyo
Fukushima Daiichi 3	Fukushima	1970	1976	1	784	BWR	Toshiba	Tokyo
Fukushima Daiichi 4	Fukushima	1972	1978	1	784	BWR	Hitachi	Tokyo
Fukushima Daiichi 5	Fukushima	1971	1978	1	784	BWR	Toshiba	Tokyo
Fukushima Daiichi 6	Fukushima	1973	1979	1	1100	BWR	GE/Toshiba	Tokyo
Fukushima Daini 1	Fukushima	1975	1982	1	1100	BWR	Toshiba	Tokyo
Fukushima Daini 2	Fukushima	1979	1984	1	1100	BWR	Hitachi	Tokyo
Fukushima Daini 3	Fukushima	1980	1985	1	1100	BWR	Toshiba	Tokyo
Fukushima Daini 4	Fukushima	1980	1987	1	1100	BWR	Hitachi	Tokyo
Kashiwazaki Kariwa 1	Niigata	1978	1985	1	1100	BWR	Toshiba	Tokyo
Kashiwazaki Kariwa 2	Niigata	1983	1990	1	1100	BWR	Toshiba	Tokyo
Kashiwazaki Kariwa 3	Niigata	1987	1993	1	1100	BWR	Toshiba	Tokyo
Kashiwazaki Kariwa 4	Niigata	1988	1994	1	1100	BWR	Hitachi	Tokyo
Kashiwazaki Kariwa 5	Niigata	1983	1990	1	1100	BWR	Hitachi	Tokyo
Kashiwazaki Kariwa 6	Niigata	1991	1996	1	1356	ABWR	GE/Toshiba/Hitachi	Tokyo
Kashiwazaki Kariwa 7	Niigata	1992	1997	1	1356	ABWR	GE/Toshiba/Hitachi	Tokyo
Hamaoka 1	Shizuoka	1971	1976	1	540	BWR	Toshiba	Chubu
Hamaoka 2	Shizuoka	1974	1978	1	840	BWR	Toshiba	Chubu
Hamaoka 3	Shizuoka	1983	1987	1	1100	BWR	Toshiba	Chubu
Hamaoka 4	Shizuoka	1989	1993	1	1137	BWR	Toshiba	Chubu
Hamaoka 5	Shizuoka	2000	2005	1	1267	ABWR	Toshiba	Chubu
Shika 1	Ishikawa	1988	1993	1	540	BWR	Mitsubishi	Hokuriku
Shika 2	Ishikawa	1999	2006	1	1358	ABWR	Hitachi	Hokuriku
Mihama 1	Fukui	1967	1970	1	340	PWR	Westinghouse	Kansai
Mihama 2	Fukui	1968	1972	1	500	PWR	Westinghouse/Mitsubishi	Kansai
Mihama 3	Fukui	1972	1976	1	826	PWR	Mitsubishi	Kansai
Takahama 1	Fukui	NA	1974	1	826	PWR	Westinghouse	Kansai
Takahama 2	Fukui	NA	1975	1	826	PWR	Mitsubishi	Kansai
Takahama 3	Fukui	NA	1985	1	870	PWR	Mitsubishi	Kansai
Takahama 4	Fukui	NA	1985	1	870	PWR	Mitsubishi	Kansai
Ohi 1	Fukui	1970	1979	1	1175	PWR	Westinghouse	Kansai
Ohi 2	Fukui	NA	1979	1	1175	PWR	Westinghouse	Kansai
Ohi 3	Fukui	NA	1991	1	1180	PWR	Mitsubishi	Kansai
Ohi 4	Fukui	NA	1993	1	1180	PWR	Mitsubishi	Kansai
Shimane 1	Shimane	1967	1974	1	460	BWR	Hitachi	Chugoku
Shimane 2	Shimane	NA	1989	1	820	BWR	Hitachi	Chugoku
Ikata 1	Ehime	1971	1977	1	566	PWR	Mitsubishi	Shikoku
Ikata 2	Ehime	NA	1982	1	566	PWR	Mitsubishi	Shikoku
Ikata 3	Ehime	NA	1994	1	890	PWR	Mitsubishi/Westinghouse	Shikoku
Genkai 1	Saga	1970	1975	1	559	PWR	Mitsubishi	Kyushu
Genkai 2	Saga	NA	1981	1	559	PWR	Mitsubishi	Kyushu
Genkai 3	Saga	NA	1994	1	1180	PWR	Mitsubishi	Kyushu
Genkai 4	Saga	NA	1997	1	1180	PWR	Mitsubishi	Kyushu
Sendai 1	Kagoshima	1975	1984	1	890	PWR	Mitsubishi	Kyushu
Sendai 2	Kagoshima	NA	1985	1	890	PWR	Mitsubishi	Kyushu
Tokai Daini	Ibaraki	1973	1978	1	1100	BWR	GE	JAPC
Tsuruga 1	Fukui	1966	1970	1	357	BWR	GE	JAPC
Tsuruga 2	Fukui	1982	1987	1	1160	PWR	Mitsubishi	JAPC

Note on "Type" column: PWR=pressurized water reactor, BWR=boiling water reactor, ABWR=advanced boiling water reactor. Note on "Operator" column: JAPC=Japan Atomic Power Corporation.

Figure 1 Japanese nuclear power plants (Scott, Benjamin, 2010).

For energy-starved Japan, the nuclear energy program is a product of the aspiration to achieve national energy security. National planners also regard nuclear technology as an important export product, a tool that can not only free the country from energy dependence, but also expand its economic influence to the Pacific Ocean and the whole world (Kim and Byrne, 1996). The severe lack of domestic energy justifies the large-scale expansion of nuclear programs. Japan's support for nuclear technology has remained based on the principle that reliance on imported energy poses a greater national risk than nuclear plants.

In October 1990, the national *Action Program to Halt Global Warming* was adopted under the framework of reducing per capita carbon dioxide emissions (Michael, Nicholas,

Tomoyasu, 2017). Keidanren, Japan's main business organization, coordinated these goals closely with international industry, the political leaders of the LDP and officials from the METI to promote nuclear power as a solution to the global warming issue. The LDP's national leaders have pulled together a cold strategy of domestic and foreign policy to boost its international standing and domestic energy sector.

In the 1997 the Third Conference of Parties (COP3) and the UN Framework Convention on Climate Change (FCCC) held in Kyoto, nuclear power was at the center of the carbon reduction discussions. Hosting the COP3 meetings reinforced a viewpoint among Japanese elite and local environmentalists that global warming was the problem and nuclear energy would be the solution. This view has promoted the rationalization and rapid expansion of nuclear energy, and has been a major argument of the pro-nuclear camp until the Fukushima accident. The aim of the Japanese “New Energy Strategy” in 2006 was to expand the nuclear power program from 30 percent of total power generation to 40 percent by 2030, because nuclear power was viewed as being indispensable to Japan’s CO2 emission reduction efforts.

## **2. Social factors**

### **2.1 The nuclear village**

The “nuclear village” (Fam, Shun Deng, Gordon Xiong, Jieru Xiong, Ding Li Yong, and Daniel Ng, 2014) and similar notions have been proposed by several researchers, but named differently. Other versions include “Atomic Circle” (Hasegawa, 2012), and “Nuclear Power Village” (Akira Nakamura and Masao Kikuchi, 2011). They refer to the enclosed circle of politicians, bureaus, power companies, media, and other actors that contributed to the pro-nuclear climate, sharing the interest from the nuclear industry and resistant to criticism or change. By studying this group of actors, we can have a deeper understanding of how this disaster took place regardless of the prevention mechanisms.

#### **2.1.1 Government policy**

First of all, the Japanese state government has taken a risky pro-nuclear energy policy. Even though Japan’s electric utilities were privatized in 1951, the government retained control

over strategic issues such as the types of technologies to be promoted and developed (FEPC, 2008). The main ministries responsible for promoting nuclear energy, such as the MITI (ministry of international trade and industry) and the main political parties, and continued to build new nuclear reactors ignoring the anti-nuclear voices.

Politicians of the conservative Liberal Democratic Party (LDP) – the party in power from 1955 to 2009 except between August 1993 and June 1994, and from 2012 to today – supported nuclear policy in exchange for political funds from power companies. In the case of the Democratic Party of Japan (DPJ), the ruling party from September 2009 to December 2012, the main support bases are labor unions related to the power companies and electronic product and manufacturers. For this reason, before the Fukushima accident, the DPJ cabinet has not changed the pro-nuclear energy policy established under the LDP cabinet.

In addition, the METI (ministry of international trade and industry) offers an enormous number of subsidies that effectively influence local public opinion and push municipalities to accept various nuclear facilities.

### **2.1.2 Power companies**

Electric power companies, such as TEPCO (Tokyo Electric Power Company), in order to create a favorable social atmosphere, spend a lot of money on mass media for advertising and information manipulation. They also attempt to organize supportive networks of “persons of culture” by offering very high honorariums. This network also can serve to create favorable public opinion.

TEPCO is the largest private electric power company in the world and has maintained very strong political influence on the government, politicians and the media.

Before the accident, TEPCO had stressed that its nuclear generators were completely “fail safe”, in both design and operation. The company claimed that their facility would be immune to earthquake. In their assessment, the reactors would be able to withstand an earthquake more severe than the 1995 Kobe earthquake. They also emphasized that the vessels would be able to bear a tsunami as strong as the one that swept the area in 1960 originated from Chile (TEPCO, 2011).



Therefore, the power company insisted that its nuclear power plants were completely free from any functional failures or operational accidents (Yamaguchi, 2006). In fact, TEPCO has been stressing the safety of its plants in different modes and methods; However, after the accident, the company removed these statements from the Internet and elsewhere.

The collusion between politicians and big companies is an essential phenomenon in Japan's political environment. In Japan, there have been cases in which retired government bureaucrats in the nuclear regulatory agencies become employed by the electric power companies right after they leave office. To avoid public scrutiny and restrictions, the officials initially spend several years in corporate advisory positions. Eventually, they will be promoted to one of the company's leading executives. In return, it was a long-standing custom for the conservative Liberal Democratic Party to receive political contributions from these power companies. These power companies have numerous subsidiaries, and these subcontractors often form voter mobilizing machines for candidates. In many parts of the country, candidates for national legislatures often seek support from large power companies, in order to win elections. As a result, politicians are often attentive to the political interests of these power companies. It is not surprising, then, that the government had rather lax regulation on power companies.

### **2.1.3 Media: silence on nuclear hazards**

For the media, power companies are one of their largest advertisers. Therefore, the position of the media on nuclear power tended to cater for the power companies, and the media had actually become a tool for the pro-nuclear groups to influence public opinion.

In their propaganda, nuclear energy was legitimized as a means of energy self-sufficiency and effective response to climate change. Their efforts to promote the safety of nuclear plants have produced a social atmosphere that has served to suppress criticism against pro-nuclear policy.

However, reports on the risks of nuclear power are suppressed, which is not conducive to the objective understanding and correct utilization of nuclear power.

### **2.1.4 Japanese courts**

Japanese courts have failed to maintain autonomy and a sense of responsibility. Although many civic movements around the state have repeatedly filed lawsuits to halt construction of nuclear power plants, Japanese courts have continuously declined their demands and sided with government's nuclear policy.

In fact, as early as 10 years prior to the Fukushima accident, some physicists had expressed criticism and doubt, pointing out in an article that a big earthquake may cause serious damage to nuclear reactors (Ishibashi, 1997). Eventually, the scientists teamed up with anxious citizens. Together, they sued Chubu Electric Power to try to stop the company from operating a plant in Shizuoka, which sits on a fault that is prone to earthquakes. While the conflict of laws attracted widespread media attention, the anti-nuclear activists were quickly disappointed. In October 2007, the district court made a verdict in Chubu's favor.

The court found that the company had prepared adequate safety and protective measures against potential radioactive accidents. The ruling amounts to a positive signal for the industry to keep operating the reactors. In fact, Japan's Supreme Court has never ruled against any power company. In retrospect, this decision was crucial to the development of Japan's nuclear energy program. The national government and power operators are encouraged to expand the construction of nuclear power stations throughout the country.

#### **2.1.5 Environment Organizations and Civil Movements:**

Many Environment Organizations (EOs) were formed at the height of a national campaign against global warming and an ideology that minimized the risk of nuclear power relative to the threat of global warming.

With greater legal access to nonprofit status and growing support from government funding, their fields of action became shaped by networks of political organizations to favor a status that tend to maintain the current energy and environmental policy.

There have been grassroots activities in the metropolitan areas, especially after the Chernobyl Crisis. However, they have not succeeded in pushing their agenda across the country and gaining political influence over the government. Hence the movement was temporary and conditional in the few years following Chernobyl.

Compared with other industrial countries, Japan's anti-nuclear campaign had surprisingly little impact on the overall direction of nuclear power. With the state and industry remaining committed to promoting nuclear energy, Japan seemed unwilling to follow Western Europe and North America to scale back its nuclear program. The long-term goal of energy self-sufficiency and the state-industry consensus to promote nuclear energy, whatever the cost, outweighed the opposition of outside forces.

## **2.2 Findings**

The Fukushima Nuclear Accident has proved to be a man-made disaster. Through the above analysis in this chapter, we see the dereliction of duty within each actor and the complex relationship among them. Organizational, institutional, and interest linkages make them become a whole. Their attitudes and behaviors eventually form such a huge spiral, continuously reinforcing the nuclear energy use as well as increasing potential risks.

Members of the nuclear village are closely bound by common interests for promoting nuclear power as well as beliefs that are resistant to changes, becoming “an unstoppable force, immune to scrutiny by civil society” (The National Diet of Japan, 2012).

Concerned Japanese long have noticed that both the central government and the Liberal Democratic Party were too lenient in managing the electric power companies. In fact, instead of enforcing strict controls, the government has helped these utility enterprises advance the construction of nuclear power plants in various parts of the country. The government had plans to increase nuclear power to more than 50 percent of Japan's total energy consumption by 2030 (METI, 2010). To achieve this goal, the central government hoped to build nine reactors by 2020 and five more by 2030. As part of these projects, the government had enacted three different laws since 1974, all intended to extend substantial subsidies to local governments willing to provide spare land available for the power companies to construct nuclear reactors.

The situation is also exacerbated by the establishment's monopoly on decision-making and information. There is a flow of people and exchange of interests between political elites and capitalists. They even enter and become funders of some media and environmental

organizations, making it possible for them to influence public opinion and people's cognition and expression in terms of the nuclear issue. The closed group follows the single trend of promoting nuclear energy, turning a blind eye to the diverse opinions of the external world, which is an important reason for the long-term neglect of risks.

### **3. The post-Fukushima era**

#### **3.1 Positive consequences**

Struck by the impact of the disaster and strong public pressure, Japan had to halt the promotion of nuclear industry and made a major policy adjustment.

In response to the accident at TEPCO's Fukushima Daiichi Nuclear Power Station, in April 2014 the government of Japan passed the fourth Strategic Energy Plan for 2030 which stated the plans of reducing nuclear power dependency, reducing fossil resources dependency, and expanding renewable energy. In the medium to long term, reliance on nuclear power generation will be minimized. At the same time, Japan should further raise the awareness of energy conservation and develop and promote renewable energy (METI, 2011).

The revised version of the current energy strategic plan adopted in July 2018 includes the realization of the long-term energy supply and demand outlook for 2030. Japan promised to give the top priority to safety regarding nuclear power when realizing the 2030 energy mix plan and making its energy choices for 2050, by reducing its dependency on nuclear power as much as possible as it aims to expand renewable energy. (METI, 2018)

Despite the progress made in the introduction of renewable energy and the challenges of energy transition and decarbonization brought about by the use of Japanese technology and the strengthening of industrial competitiveness, self-sufficiency in resources remains low due to the closure of nuclear power plants. This could be a potential lure for Japan to resume the development of nuclear energy.

Although there have been nuclear accidents and protests before, the Fukushima Crisis was the first nuclear accident to have nationwide and even worldwide influence. It brought the potential risk of nuclear energy into public attention and turned out to be a great

opportunity to improve public environmental awareness.

Mass protests have taken off, especially in big cities. From the spring of 2011 to the end of the summer of 2012, after the terrible disasters and nuclear leakage, there was an escalation of mass civic mobilization. Demonstrations of 20,000 to 75,000 people were reported several times in Tokyo, with protesters chanting “Sayonara nuclear power”. Thousands of people marched in downtown area to call on Japan's government to abandon nuclear energy in the wake of the Fukushima accident. It was observed that two of the largest protests took place in Tokyo, in September 2011 and September 2012, involved 60,000 and 75,000 protesters respectively (Associated Press, 2011). In this way, the crisis served as a chance to increase people’s willingness to participate in citizen dialogue on post-disaster energy and environmental policy.

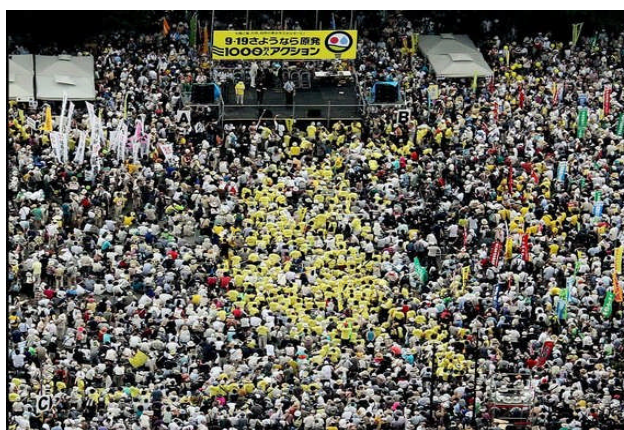


Figure 2 “sayonara nuclear power” protest in Tokyo (AP Photo/ Kyoto News, 2011).

### 3.2 Limited progress

One the other hand, old ills and long-standing ideas die hard. With the current technological conditions and Japan's unstable geographical environment, operating nuclear power plants is still a high-risk choice. If a great tsunami is again to come, it is not clear whether the nuclear power plants built in the coastal area to facilitate the transportation of waste would survive the coming test. The Fukushima disaster is possible to repeat. Facing the dilemma between immediate interests and an ambiguous future, the pro-nuclear community would probably favor the former over the latter. After all, with economic development, emission reduction targets and energy security considered, nuclear power industry tends to

come back. In fact, the current cabinet has already showed a tendency to restore the nuclear industry.

And to no surprise, silence of established groups continued in various ways. For many of them, the stagnation of nuclear power plants is not economically beneficial.

The power company and other actors try to moderate public opinion in preparation for the restart of the nuclear power industry. TEPCO, in a document sent to its shareholders, denies that any current or former board members hold responsibility for the Fukushima nuclear disaster triggered by the March 2011 earthquake and tsunami.

In the wake of the Fukushima accident, anti-nuclear groups and international environmental groups have played an important role in protests, while the vast majority of environmental groups in Japan remained silent. Indeed, established environmental organizations played a rather marginal role in these civil campaigns.

Among members of the antinuclear coalition that organized the national protests, only four organizations listed in the web-active groups database were found, compared to the total number of over 4,800 groups (Nakamura, Kikuchi, 2011).

## **4. Possible Measures**

### **4.1 Change of the current pro-nuclear energy plan**

In view of the existence of the nuclear village, abolition of domestic nuclear power generation at the earliest possible time would be a direct and easy way to avoid the hazard of nuclear leakage in Japan.

In order to alleviate the energy gap caused by the reduction of nuclear power, Japan has imported a lot of fossil fuels for power generation. For future energy development, Japan needs to continue to develop renewable energy and reduce the consumption of fossil energy to achieve a sustainable development.

### **4.2 Transformation of the political relations**

Japan has a centralized political structure. A triadic structure of politicians-bureaucrats-business elites at both the national and local level easily explains the

secret of stability in the Japanese politics. Such a structure also brings a lot of disadvantages, and nuclear disaster cannot be excluded from its influence. In such a closely-bound group, they have been responsibility for both decision-making and supervision, lacking checks and balances from a third party. This elite group has formed a strong trend for common interests, shielding itself from external criticism.

The politico-administrative relationships of Japanese government also called for an innovation after the Fukushima crisis (Nakamura, Kikuchi, 2011). For many years a group of leading bureaucrats had dominated the decision-making process. The LDP often rubber-stamped bureaucratic policies, while the DPJ worked hard to change this, sometimes implementing policies and programs without informing public officials. Yet their efforts to change the traditional situation seemed to have backfired. On the nuclear issue, it is clear that the party members lack managerial experience and expertise. As a result, their decisions are often inappropriate or ill-timed, creating confusion and chaos.

#### **4.3 Liberalization of public opinion**

To create an open public sphere, people should be allowed to express their demands and opinions on environmental policy and nuclear problem.

An open speech environment first requires the participation and expression of various groups. In this regard, the voices of various social movements, non-profit organizations and groups should be encouraged to enrich the public sphere.

The media also plays an important role in society by promoting the free circulation of information. The media should be free to express their opinions and should not be restricted by the interests of advertisers. Institutional reform of the media may be needed to enhance its independence from authority. Social media is also playing an indispensable role in contemporary society. Social media can promote democracy and political participation, which needs to be utilized.

Lastly, in order to ensure the quality of debate and discussion in the public, experts and scholars engaged in research activities must provide adequate and accurate information concerning social problems and policy-making.

## **Conclusion**

This paper has observed the social, political and economic factors behind the Fukushima nuclear accident from the perspective of environmental sociology. An important viewpoint is that the formation of the nuclear village has intensified the closure within the pro-nuclear camp, leading to the long-term neglect of risks. Based on this point of view, I took the division of different interest groups as a clue and analyzed the attitudes and behaviors of different actors before the accident. The interactions among these actors presented complex interest connections.

It is found that members of the nuclear village are closely bound by common interests for promoting nuclear power and beliefs that are resistant to changes. The reliance on nuclear energy, long-time neglect of risk, the strengthening and adherence to the rules, ultimately created a powerful climate that turned a blind eye to danger.

Changes in the post-Fukushima era have been studied. Basically, the emergence of the disaster is a good opportunity for institutional repair and improvement, it promotes the enthusiasm of the public, social organizations and other groups to participate in public discussion and decision-making. This could help shape a shift towards more transparent policies.

However, progress has been limited. Given the importance of the establishment in political life, it is difficult for them to change their position to the detriment of their own interests. This paper found that power companies, relevant departments of the nuclear power industry, as well as some media and environmental organizations all adopted conservative speaking strategies after the accident. They are trying to soften public opinion in the hope of lightening the burden on future nuclear power development.

This paper has suggested several measures, including changing present pro-nuclear energy policy, transformation of the political relations, and liberalization of public opinion. Due to the existence of nuclear villages and the huge risks of nuclear power development, it is the most direct way to cease the domestic nuclear power industry in Japan to avoid nuclear leakage accidents.



Considering Japan's current energy needs and economic development needs, it seems too difficult for the government to abandon nuclear power. Therefore, to pursue a more open and democratic decision-making environment and strengthen public supervision over policies may be a fundamental measure to prevent the nuclear village from making errors in the operation of nuclear power generation.

## References

Administration Review 71, no. 6 (2011): 893-899.

ANRE, 2006. Energy in Japan 2006: status and policies. Agency for Natural Resources and Energy, Ministry of Economy, *Trade and Industry*, Japan, pp. 1–28.

Associated Press. 2014. “Thousands March Against Nuclear Power in Tokyo.”

(<http://usatoday30.usatoday.com/news/world/story/2011-09-19/japan-anti-nuclear-protest/50461872/1>).

Byrne, J., Hoffman, S.M. (Eds.), *Governing the Atom: The Politics of Risk*.

Transaction Publishers, London, UK, pp. 271–297.

Choi, Jinbong and Seohyeon Lee. “Managing a Crisis: A Framing Analysis of Press Releases Dealing with the Fukushima Nuclear Power Station Crisis.” *Public Relations Review* 43, no. 5 (2017): 1016-1024.

Dauvergne, Peter. “Nuclear Power Development in Japan: ‘Outside Forces’ and the Politics of Reciprocal Consent.” *Asian Survey* 33, no. 6 (1993): 576-91.

Fam, Shun Deng, Gordon Xiong, Jieru Xiong, Ding Li Yong, and Daniel Ng. “Post-Fukushima Japan: The Continuing Nuclear Controversy.” *Energy Policy* 68, (2014): 199-205.

FEPC, 2008. Electricity review Japan: 2008. The Federation of Electric Power Companies of Japan (FEPC), Tokyo, Japan.

Foster, Malcom. Nuclear Power Protests in Tokyo, Japan (PHOTOS). Associated Press. 2011.

[https://www.huffingtonpost.com/2011/09/19/nuclear-power-protests-tokyo-japan\\_n\\_969385.html?slideshow=true](https://www.huffingtonpost.com/2011/09/19/nuclear-power-protests-tokyo-japan_n_969385.html?slideshow=true).

- Funabashi, H. 2012. "Why the Fukushima Nuclear Disaster is a Man - made Calamity". *International Journal of Japanese Sociology*, 21: 65-75.
- Hasegawa, K. 2012. "Facing Nuclear Risks: Lessons from the Fukushima Nuclear Disaster". *International Journal of Japanese Sociology*. 21: 84-91.
- Iijima, N. 1994, "Environmental Sociology in Japan and Environmental Problems in Asian Societies", *International Journal of Japanese Sociology*, vol. 3, no. 1, pp. 121-130.
- Kim, J.D., Byrne, J., 1996. The Asian atom: hard-path nuclearization in East Asia. In: *Mainichi Shimbun*, December 5, 2013. Government to retain nuclear power promotion organization.
- <http://mainichi.jp/english/english/newsselect/news/20131205p2a00m0na011000c.html>.
- METI.2011 Annual Report on Energy. <http://www.enecho.meti.go.jp/en/>.
- METI.2018. The 5th Strategic Energy Plan.<http://www.enecho.meti.go.jp/en/>.
- Michael C. Dreiling, Nicholas Lougee, Tomoyasu Nakamura; After the Meltdown: Explaining the Silence of Japanese Environmental Organizations on the Fukushima Nuclear Crisis. *Social Problems*, Volume 64, Issue 1, 1 February 2017, Pages 86–105.
- Nakamura, Hidenori. "Political and Environmental Attitude Toward Participatory Energy and Environmental Governance: A Survey in Post-Fukushima Japan." *Journal of Environmental Management* 201, (2017): 190-198.
- Nakamura, Akira, and Masao Kikuchi. "What We Know, and What We Have Not Yet Learned: Triple Disasters and the Fukushima Nuclear Fiasco in Japan." *Public Administration Review* 71, no. 6 (2011): 893-99.
- TEPCO. 2011. TEPCO Corporate Brochure 2011. Tokyo: TEPCO.
- Valentine, Scott Victor and Benjamin K. Sovacool. "The Socio-Political Economy of Nuclear Power Development in Japan and South Korea." *Energy Policy* 38, no. 12 (2010): 7971- 7979.
- Wang Shuming, Xu Wentao. 2012. "On Major Environmental Pollution Accidents and Remodeling of Contemporary International Society: The Sociological Reflection on Fukushima Nuclear Accident", *Journal of Nanjing University of Technology (Social*

*Science Edition* ), vol. 11, no. 2, pp. 12-17.

Yamaguchi, Satoshi. 2006. Atomic measures in nuclear power plants. *Res Energy Administration*, no. 515: 1-10.

# The Development of Japanese Environmental Consciousness in the Fukushima Nuclear Accident: from the perspective of environmental sociology

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The Fukushima nuclear accident proved to be a man-made disaster.

In this research, state, economic, and civil society actors and their interaction are studied to examine the environmental consciousness in the Fukushima nuclear accident.

The Fukushima nuclear disaster caused by the Tohoku earthquake and tsunami in March 2011.

## The “nuclear village” & pro-nuclear atmosphere

### ➤ Government: a very risky pro-nuclear energy policy

The main ministries responsible for promoting nuclear energy, such as the MITI (ministry of international trade and industry) and the main political parties, ignored the anti-nuclear protests and continued to build new nuclear reactors.

### ➤ Environment Organizations: silence

Many EOs were formed at the height of a national campaign against global warming and an ideological context that minimized the risks of nuclear energy relative to the threat of global warming.

### ➤ Power companies: profit over safety

TEPCO is the largest private electric power company in the world and has maintained very strong political influence on the government, politicians, academics and the media. They spend a lot of money on mass media for advertising and information manipulation.

### ➤ Media: silence on nuclear hazards

Power companies are one of their largest advertisers. Their efforts to promote the safety of nuclear plants have produced a social atmosphere that has served to suppress criticism against nuclear policy.

### ➤ Courts : failed to maintain autonomy

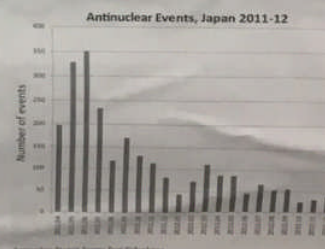
Although many residents' movements in various regions have repeatedly filed lawsuits to stop the construction of nuclear power plants, Japanese courts have continuously rejected the demands of residents' movements and sided with government nuclear policy.

## Findings

- ✓ Members of the nuclear village are closely bound by common interests for promoting nuclear power and beliefs that are resistant to changes, becoming an unstoppable force, immune to scrutiny by civil society.
- ✓ Japan's reliance on nuclear energy, a triadic structure of politicians-bureaucrats-business elites, and adherence to the rules ultimately created a powerful climate that turned a blind eye to danger.
- ✓ Long-time neglect of risk, regulatory failures and delay in emergency operations eventually lead to the disaster happening.

## Post-Fukushima era

- A turning point in Japan's nuclear and energy policies
- Silence among established environmental organizations continued
- Growing antinuclear civic movement
- Silence among established environmental organizations and media continued



## Measures

- ◆ -Changing present pro-nuclear energy policy toward a more transparent and democratic one
- ◆ -Strategic energy transformation: long-term denuclearization, energy conservation, reduction of fossil fuels and active expansion of renewable energy
- ◆ -Liberalization of public opinion (organizations, media, social media...)

### Main references

Fan, Shun Deng, Gordon Xiong, Jieru Xiong, Ding Li Yong, and Daniel Ng. "Post-Fukushima Japan: The Continuing Nuclear Controversy." *Energy Policy* 68, (2014): 189-205.  
 Funabashi, H. 2012. "Why the Fukushima Nuclear Disaster is a Man-made Calamity." *International Journal of Japanese Sociology*, 21: 65-75.  
 Hasegawa, K. 2012. "Facing Nuclear Risks: Lessons from the Fukushima Nuclear Disaster." *International Journal of Japanese Sociology*, 21: 84-91.  
 Nakamura, Hidenori. "Political and Environmental Attitude Toward Participatory Energy and Environmental Governance: A Survey in Post-Fukushima Japan." *Journal of Environmental Management* 201, (2017): 190-198.

**Intensified Competition in Overseas Port Investment Between China and Japan:  
Under “The Belt and Road” initiative” and “Free and “Open Indo-Pacific Strategy”**

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**1. Introduction**

“The Silk Road Economic Belt and the 21st-century Maritime Silk Road”, also known as “The Belt and Road (B&R)”, was launched by Chinese government in 2013. It mainly involves infrastructure investments in countries in Europe, Asia and Africa. “Belt” refers to the routes for road and rail transportation, whereas “road” refers to the sea routes in Indo-Pacific region. While in Japan, in collaboration with the strengthened Asian Development Bank (ADB), Prime Minister Abe claimed Japanese government will provide approximately USD 110 billion for “Quality Infrastructure Investment (QII)” in Asia over the next five years since 2015. Furthermore, in August 2016, Prime Minister Abe announced the “Free and Open Indo-Pacific (FOIP) Strategy” to promote the rule of law, freedom of navigation, free trade, etc.

It is noticeable that infrastructure investment makes essential role in both B&R and FOIP. Competition in infrastructure investment between two countries has been continually mentioned and discussed.

Port investment, however, is different from normal infrastructure. It has more geo-political influence. For instance, deep-water port, like Gwadar port in Pakistan, tends to be thought to be potential military bases for warship and submarines. It then involves in competition in diplomatic relations, which is thus more exposed to the media. The fact is that China has invested an increasing number of overseas ports in southeast countries since 2015. The *Economist* (2017) presented the fact that Chinese companies had confirmed seaport investments or port ownership in 34 countries by September 2017, with 12 planned

investments in another eight countries, which is doubted as “string of pearl” strategy enhancing Chinese political influence in this area.

The characteristic of this intensified competition in port investment has not been fully analyzed. So the main question in the research is “what is the characteristic of the intensified competition”. To facilitate research conduct, four sub-questions are put forward:

Q1: How two countries’ overseas port investment increases by year?

Q2: What are the popular invested countries and regions?

Q3: What’s the type of the companies involved?

Q4: What are applied business models?

Therefore, the main purpose of this essay is to analyze the phenomenon that both China and Japan are currently paying more attention to invest overseas ports. And ports often involves in politics issue, making it distinguished from other infrastructure. Even if the First China-Japan Third Party Market Cooperation Forum has been launched, it still requires a more complex system focusing on port investment to keep balance between politics and economics.

The paper is structured as follows. The first chapter gives an introduction of the paper. The second chapter shows the fact that Chinese overseas port investment increasingly goes up and presents a brief introduction of B&R and FOIP, QIL. The third chapter illustrates three analysis methods, namely data analysis, case analysis and interview. The fourth chapter displays characteristic of China’s and Japan’s port investment in four parts using a geographical map, attached with some more specific graphs. The fifth chapter applies cases analysis of ports in Sri Lanka. The sixth chapter includes two interviews with an economist and an admiral. The seventh chapter gives some suggestions for cooperation considering that the First China-Japan Third Party Market Cooperation Forum has been held in 26 October 2018. In the final chapter, a conclusion is drawn.

## **2. Background**

### **2.1 Media Coverage of Chinese ports investment**

Suokas (2018) calculated the number of ports, showed that China invests in 42 overseas ports under Belt and Road project until July, 2018. Furthermore, according to Nottebooma & Yang (2017), “China Merchants Holdings International (CMHI) and the terminal branch of the new China COCSO shipping group are the main actors in the internationalization of the Chinese terminal operating business”. They also mentioned that individual Chinese ports were taking actions to strengthen their role on the international scene.

Chung (2018) evaluated the political calculations of participating in the MSR for regional states. Regional powers including India and Japan, held fear of expanding Chinese influence within some small countries including Pakistan and Sri Lanka. Singh (2015) held negative attitude toward Chinese investment in ports in Southeast Asia, worried that those ports are used as potential naval bases. As Singh wrote in the essay, from India’s perspective, China’s naval build-up aimed at undermining Indian influence in the India Ocean Region.

## **2.2 Port investment**

With regard to port investment, what is different from other infrastructure is that it has both geo-economic and geo-political influence in host countries. Ports, especially deep-water ports, tend to be thought to be potential military bases for warship and submarines. Besides, when deciding to accept which countries’ investment, invested countries will consider diplomatic relationship and political effect as essential factors. For instance, Khan (2013) analyzes the imperatives of Gwadar Port through geo-economic perspective. He thinks that Gwadar seem to fall under China’s “Go West” and Pakistan’s “Look East” policy. As for Pakistan, it naturally benefits from the huge amount of investment while the Port of Gwadar helps China to extend its presence in Arabian Sea and Persian Gulf from where China imports 60 per cent of its energy. He also believes that they cannot compete with India in the region all alone and needs active Chinese cooperation.

*The Economist* (2017) explained the main factor contributing to Chinese ports’ demand. It is thought that China is the world's largest exporter and second-largest importer—its economy

is intertwined with global trade. Japan in the 1980s and South Korea in the 1990s also invested heavily in overseas ports as they expanded their global trade footprint.

Yu (2017) analyzed the motivation of Chinese companies, most of which are state-owned. They have been proactive in implanting B&R, and they have already made huge investments in transportation and other infrastructure projects located in the Silk Road countries. Investment in ports is a case in point.

### **2.3 B&R (MSR)**

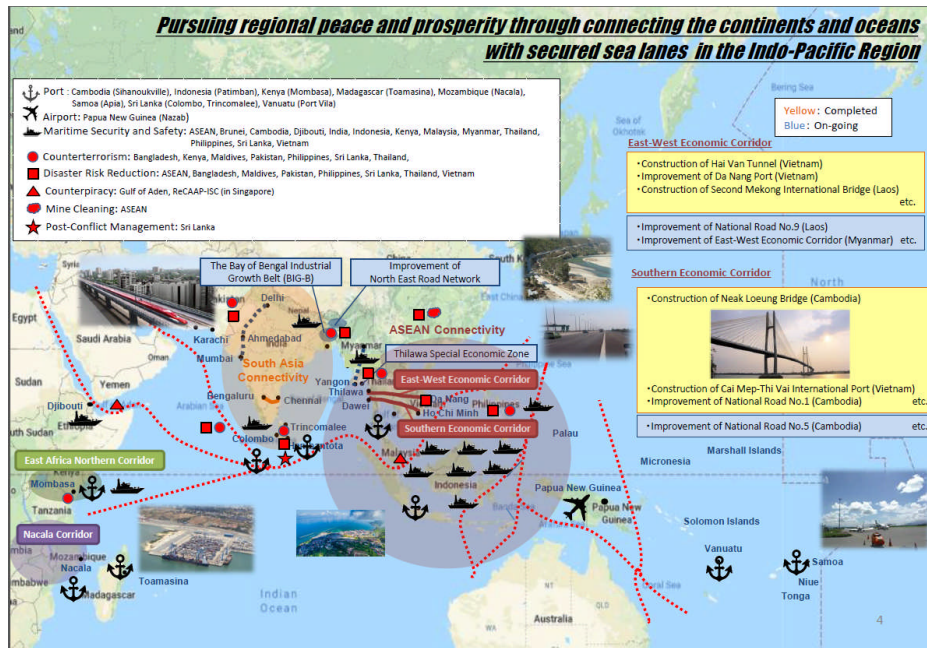
According to *推动共建丝绸之路经济带和 21 世纪海上丝绸之路的愿景与行动 (2015)* announced by the State Council in China, MSR is a complementary initiative aimed at investing and fostering collaboration in Southeast Asia, Oceania, and North Africa, among which infrastructure investment, including port, railways and dams, in these countries is attached much importance.

The last 5 years witnessed a dramatic increase of China's port investment in countries along MSR, like Sri Lanka, Thailand and Vietnam. It is understandable that China urges for this initiative. First, China is currently going through an essential economic reform-Chinese Supply Side Reform, which aims at controlling excessive supply of the industrial raw material, like steel and concrete. B&R could provide more chances for Chinese companies to make use of its excessive raw materials and avoid waste. Secondly, owning overseas ports means that China could save much money within thousands of overseas trade lines and ensure energy security within oil's transportation lines.

### **2.4 FOIP**

In August 2016, Prime Minister Abe announced the "Free and Open Indo-Pacific Strategy" at TICAD VI held in Kenya. Japan emphasizes that Japan will respect and promote international standard of Quality Infrastructure: Openness, Transparency, Economic Viability and Financial Soundness of Recipient Countries.





**Figure 1: Map of specific projects in FOIP**

Resource: 外務省(2018), *Free and Open Indo-Pacific*,

[https://www.mofa.go.jp/policy/page25e\\_000278.html](https://www.mofa.go.jp/policy/page25e_000278.html)

A map (Fig. 1) is provided to mark specific projects, in which remarkable ports investment are included. There are totally eight projects of port construction. These ports are Sihanoukville(Cambodia), Patimban (Indonesia), Mombasa(Kenya), Madagascar(Toamasina), Nacala(Mozambique), Apia(Samoa), Colombo and Trincomalee(Sri Lanka), and Port Vila(Vanuatu) respectively. Additionally, other port investments being completed or on-going are also added.

It is obvious to see that this strategy attaches much importance to peace, stability and prosperity, in the Indo-Pacific region. Marine security, marine resource protection and maritime law enforcement are claimed as main corporation fields with aimed countries. It is reasonable to suspect that this strategy of Japanese government is to potentially compete with B&R announced by China. Because of the dispute of the South China Sea, the latter is recently criticized by western countries to expand its politics influence and even military force in Indo-Pacific region. Regional countries prefer peace and stability in comparison to dispute, therefore enhancing the attractiveness of FOIP.

## 2.5 QII

On May 21<sup>st</sup> 2015, Prime Minister Abe announced “Quality Infrastructure Investment (QII)” on the occasion of the 21st International Conference on the Future of Asia. Japanese government claimed to provide approximately USD 110 billion for “Quality Infrastructure Investment (QII)” in Asia over the next five years (外務省, 2015).

After QII was announced, Japanese government is noticeably expanding its content and influence on the international communities in the past four years. On September 19 2017, a side event on the promotion of high quality infrastructure investment was held at the United Nations headquarters in New York together with Japan, the European Union (EU) and the United Nations. Japanese Minister for Foreign Affairs Kono pointed out the importance of “high-quality infrastructure” investment that will contribute to sustainable development, and also highlighted the “high-quality infrastructure export expansion initiative” and “free and open India and the Pacific Strategy” and discussed the importance of improving the international standards for “high quality infrastructure” concepts. The latest progress came from the G7 Charlevoix Summit (June 9, 2018) when G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment was announced.

## 3. Method

There method will be applied: data Analysis, case analysis and interview.

### Data Analysis



**Figure 2: Flow chart of data analysis**

### ① Data Collection

China: Data of Chinese overseas ports are not recorded systematically, so project information is recorded individually and then accumulated into a database. Majority of information could be found on website of companies, as well as official website, with media coverage as supplementary materials.

Japan: Database has been provided by Japan International Cooperation Agency (JICA) and all of ODA projects are recorded. Searching scope is refined with keywords ‘ports’, followed by deleting invalid and repeated records.

## **② Variables Record**

Since sub-questions have been decided, only related variables are recorded in original database. These variables refer to “Name of port”, “Year”, “Country / Region”, “Company”, “Business models”, “Investment amount” and “Rent period”.

## **③ Graph Producing**

Graphs with different topic are then produced.

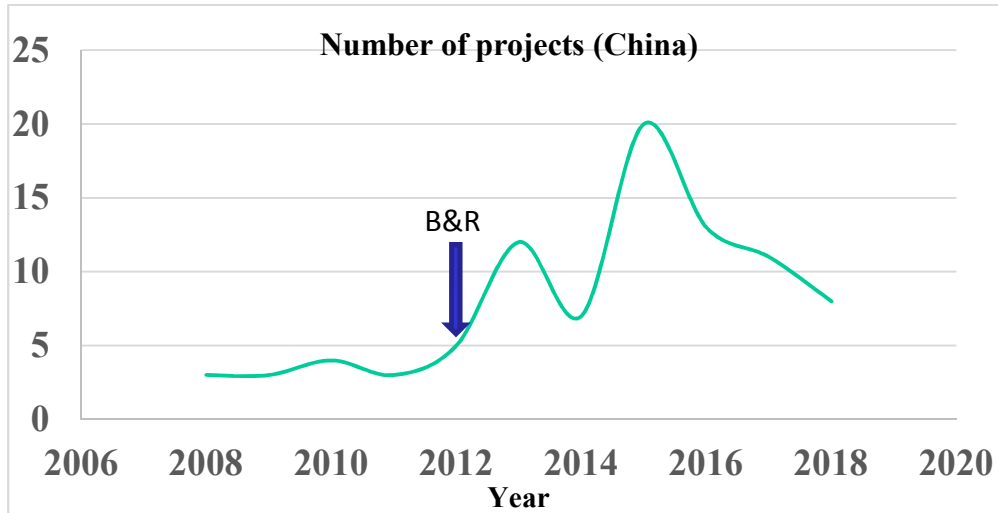
## **④ Data Comparison**

Data for two countries is compared and analyzed.

# **4. Result**

## **4.1 Change of the number of projects over time**

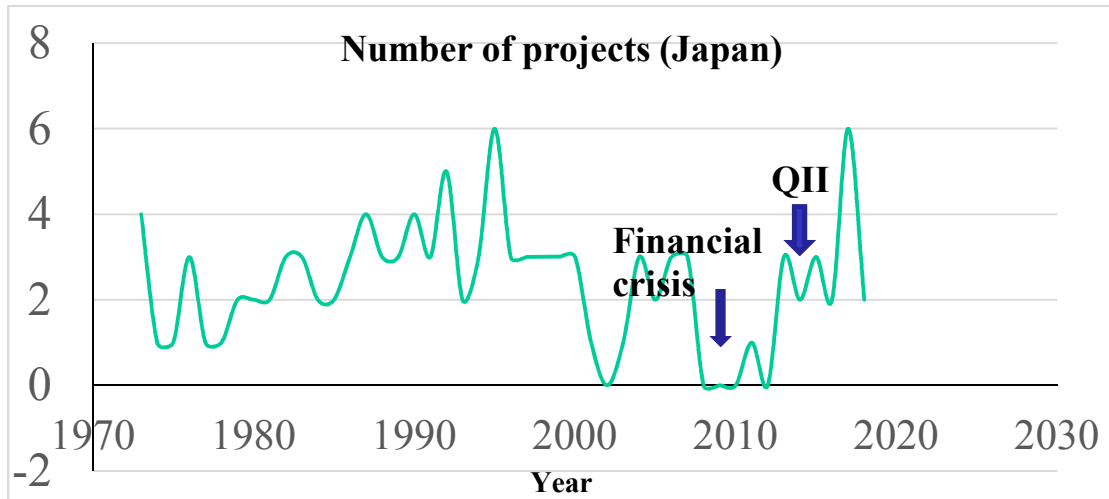
Since data for invest volumes is not recorded for every project and varies dramatically from projects, in the paper only change of the number of projects is analyzed. Note that data before 2008 is barely collected. It is reasonable that China would not show interests in overseas port investment due to its economic structure with its focusing policy of absorbing foreign capital until 2008, when a financial crisis swept the globe and resulted in recession of port industry. Actually, the financial crisis affected the pattern of global port industry and China began to attempt to invest foreign ports. The fact that Piraeus Port in Greece was purchased for stocks by COSCO in 2008 can be listed as a convincing example.



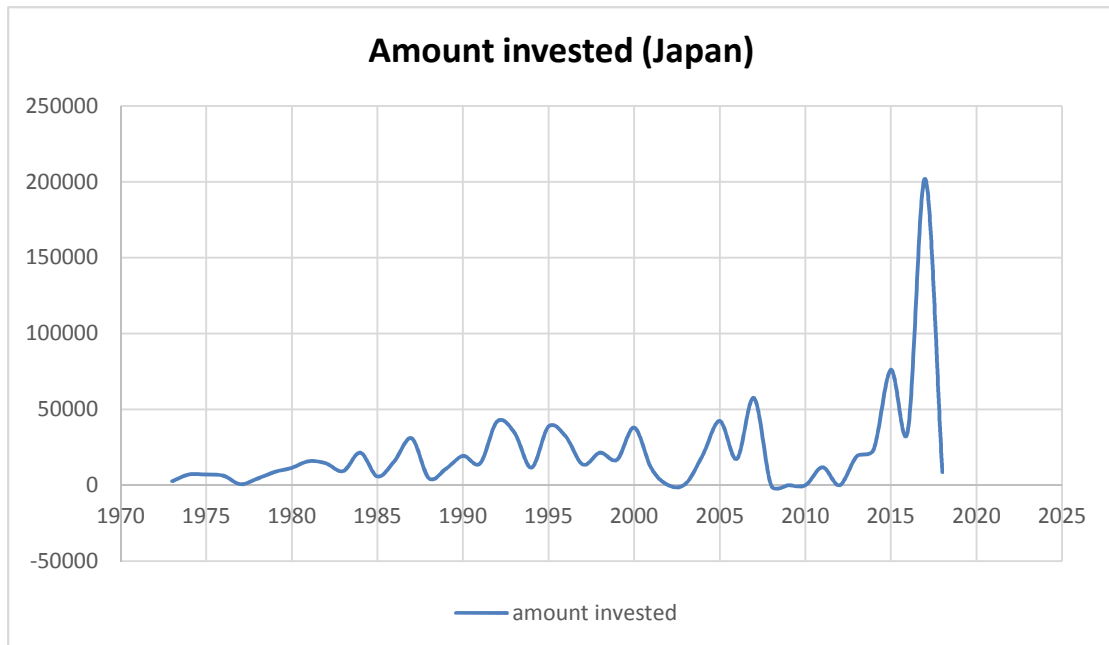
**Figure 3: Change of number of Chinese overseas projects over time**

According to figure 3, three stages can be classified. Stage A (2008-2012): in this period, the number of projects kept steady with the figure staying at below 5. Stage B (2013-2015): There was a dramatic increase with noticeable fluctuation from 2012 to 2015, when the figure reached its peak at 19. Stage C (2016-2018): A drop can be seen from the line graph on stage C, in which Chinese companies invested nearly 10 ports every year. Note that the data for 2018 may be underestimated on account of some unannounced results of bidding.

In conclusion, China began to naturally invest overseas ports since 2008 when the financial crisis resulted in bankrupt of many ports companies, which were took over by Chinese enterprises. Ports investment increases dramatically since 2013 but then gradually goes up. This increase can be explained as encouragement by B&R. In fact, when searching for port projects in the Internet, those projects are claimed as one item and even flagship project among B&R. But it is expected that, with changing from policy-driven force to market-driven force, the number of projects would probably decrease and reach a more reasonable interval.



**Figure 4: Change of number of Japanese overseas projects over time**



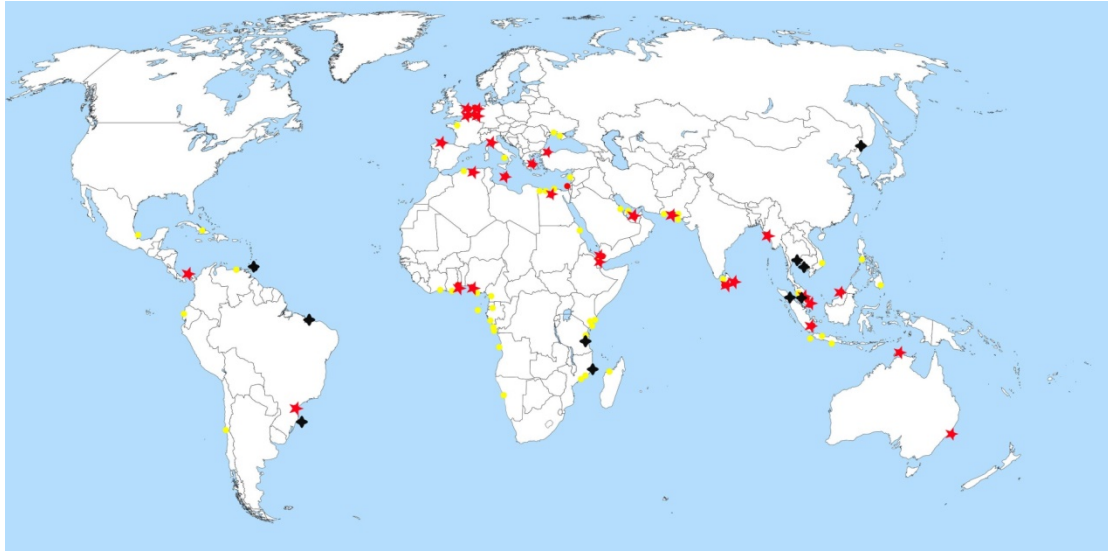
**Figure 5: Change of investment volume of Japanese overseas projects over time**

According to figure 5, three stages can be classified. Stage A (before 2008): a noticeable amount of money flew into ports investment before 2000 and went through dramatic drops for two times until 2008, when no project related with ports was permitted by JICA. Stage B (2008-2015): The investment revived gradually to a normal level compared with the amount on stage A. Stage C (2015- ): The amount increases with even more huge money spent on ports investment. Note that the data for 2018 may also be inaccurate without being upgraded or added timely.

Overall speaking, Japan invests ports in much longer history in comparison with China. Ports investment decreases since 2000 but goes up in recent years. The QII announced in 2015 undoubtedly triggers this growth. Additionally, the investment amount planned by QII is much higher than that in 80's or 90's.

## 4.2 Ports Distribution

### 4.2.1 Geographical distribution of Chinese invested ports



**Figure 6: Map of Geographical distribution of Chinese invested ports** (Star: Share Acquisition, Dot: Construction Contracts, Cross: Planned)

	Ports investment before 2013 (B&R)		Ports investment during B&R	
Region	Number (China)	Number (Japan)	Number (China)	Number (Japan)
Africa	6	5	16	10
Middle East	5	/	9	/
Europe	2	/	13	/
South Asia	2	13	9	7
Southeast Asia	2	69	12	1

<b>Latin America</b>	1	5	8	0
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**Figure 7: Rank of invested regions by two countries before B&R and during B&R**

Combing two graphs (Fig. 6 & Fig. 7), it is clear to see that Africa used to be a major part of Chinese government development assistance due to its friendly diplomatic relations with China in a long history. Port investment in Africa could be thought to be unilateral assistance by Chinese official to enhance its international influence and improve its international situation. Recently, with expansion and promotion of B&R, the number of Sino-African ports goes up quickly. More interestingly, more ports in East Coast of Africa recently are developed compared with West Coast of Africa, with the latter somehow being emphasized more by Chinese government in pre-B&R period.

China began to show more interest in other regions instead of focusing on Africa, including Africa, Europe, Southeast Asia, South Asia and Latin America. Surprisingly, these regions cover majority of the world, which actually exceeds the scope in the image described by MSR. To be specific, although Latin America is not restricted to B&R region, it witnessed an increasing growth of ports investment probably due to competitiveness of local ports. Therefore, it could still be seen that not only B&R strategy, but also natural investment strategy triggers the increase, although these naturally forced port investment cases are always classified to and used to decorate B&R projects

As for Japanese investment strategy, it has been a long history to aim at investing in Southeast Asia while currently Japan seems not to change its policy with key area planning in Indo-pacific region. One perceptible change is that South Asia accounts for more crucial part in the blueprint of QII, as the data of Japanese ports in South Asia during B&R shows.

	<b>China</b>	<b>Japan</b>
	<b>Country (Number)</b>	<b>Country (Number)</b>

<b>1</b>	<b>Pakistan (5)</b>	<b>Indonesia (28)</b>
<b>2</b>	<b>Indonesia(5)</b>	<b>Philippines (18)</b>
<b>3</b>	<b>Egypt (4)</b>	<b>Sri Lanka (12)</b>
<b>4</b>	<b>Belgium (3)</b>	<b>Viet Nam (9)</b>
<b>5</b>	<b>Sri Lanka(3)</b>	<b>Thailand (7)</b>

**Figure 8: Rank of invested Countries by two countries**

When it comes to popularity of individual country, it varies in two countries.

The most popular destination country to attract Chinese companies is Pakistan and Indonesia in which 5 ports are totally invested. Egypt, Brazil and Sri Lanka also share a comparable popularity. These countries are then compared with the list of countries that have signed B&R cooperation document with China. Except from Belgium, the other four countries have already launched relative cooperation documents, among which Pakistan could be regarded as the most reliable “alliance partner” to enact B&R. Since Chinese president Xi has invited Belgium to join in B&R when talking with King Philip of Belgium at the Great Hall of the People in Beijing early in June 2015, Belgium shows favor to B&R, too. Basically, Belgium could not be considered as countries along B&R, while Chinese media commonly claim port projects in Belgium as remarkable B&R projects. As mentioned in regional investment patterns, the rise could be considered as a natural expand in market but over-publicized by Chinese media.

As for Japans, the most popular destination country is Indonesia and Philippines, with much more programs located through the history. These countries in top 5 all belong to Indo-pacific region, which proves that QII is seemingly a natural extend of long-term strategy of Japanese government.

Moreover, Indonesia and Sri Lanka may forecast direct and intense competition because both counties regard them as a significant part as show above. In fact, the following case study of Sri Lanka could prove this trend. Although the Jakarta–Bandung high-speed railway project in Indonesia has no direct relation with ports project, it could have the possibility to



have impact in ports' conflict.

### **4.3 Business Models**

#### **4.3.1 Introduction of three models**

It is concluded that Chinese companies will adapt three business models to invest local ports in host countries. They are franchise project financing, construction contracts and share acquisition respectively (Akbiyikli & Eaton, 2005)

##### **① Franchise project financing**

Franchise project financing (BOT, PPP, etc.) is a form of financing that raises funds for more than one year in the name of a project and assumes liability for debt repayment with the operating income of the project. These projects are usually granted with exclusive management rights for renting or managing the constructed ports for decades of years.

BOT (Build-Operation-Transfer) is the most typical model. Besides of BOT itself, there are more than 20 evolution models (e.g. BOOT (construction-operation-ownership-transfer), etc.)

PPP (Public Private Partnership) is a mode of cooperation between the public sector and private enterprises. Through the cooperation between the government and private enterprises, PPP jointly develops, invests in and builds, and maintains public utilities.

##### **② Project contracting**

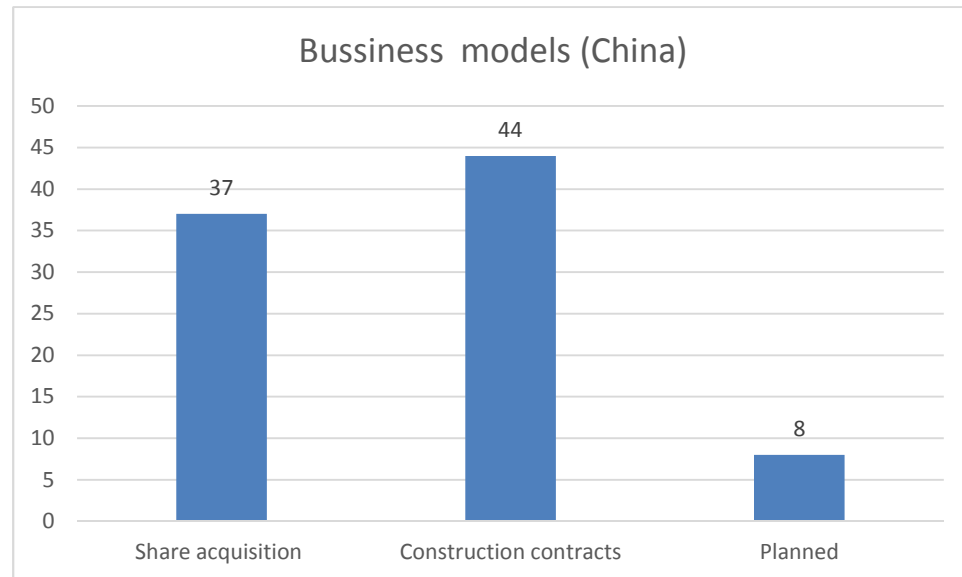
Project contracting (EPC, DB, etc.), however, is more related with engineering rather than financial terms. EPC (engineering-procurement-construction), as the most typical and popular project contracting model, means that a general contractor or a joint venture of contractors sign a contract with the owner, and contract the design, procurement, construction and commissioning of the whole project, so as to realize the reasonable intersection and close integration of the work at all stages. It is required that the contractor has to transfer the project to the owner after the acceptance and acceptance of the project is qualified.

##### **③ Share acquisition**

Share acquisition is widely used in common business activities, thus being more familiar to the public. It refers to the acquisition of all or part of the shares of the shareholders of the target company. Holding acquisition, one special case among those acquisition models, means

that company A holds enough shares to control the absolute advantages of other companies, which does not affect the continued existence of company B.

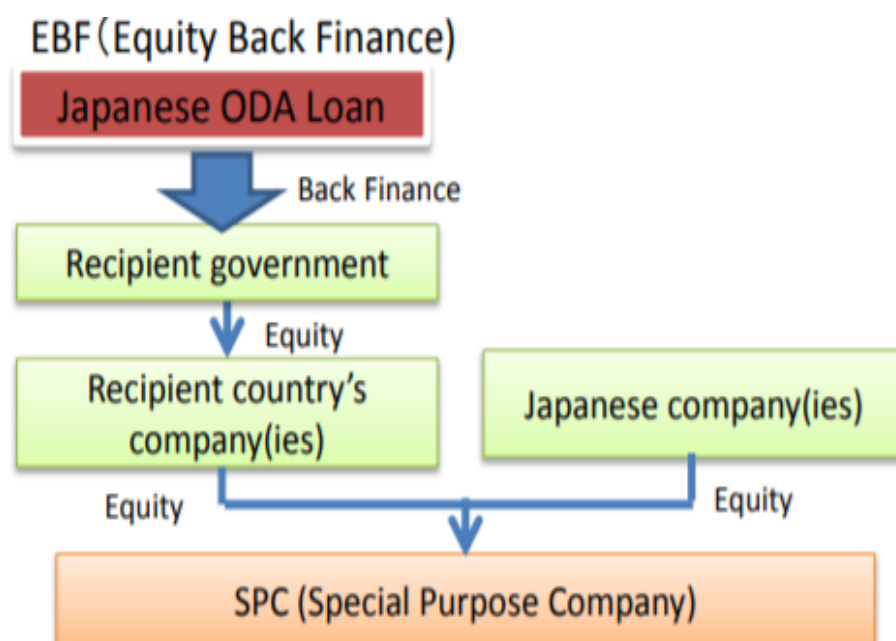
#### 4.3.2 Share of business models



**Figure 9: Amounts of business models of Chinese overseas ports**

Since both share acquisition and franchise project financing allow the right for companies to manage ports in a long period, these two items are integrated into one index. Compared to construction contracts, share acquisition, including franchise project financing, are paid more attention by western medias because with long-term right of management, China are more likely to be suspected to potential politics or even military intention.

Figure 9 shows that construction accounts for almost half of all projects while share acquisition occupies slightly less proportion. And 8 ports are only signed in initiative or planned in Chinese government's blueprint.



**Figure 10: Flow chart showing how ODA flows into a specific project**

Resources:

外務省(2015), Partnership for Quality Infrastructure,

<https://www.mofa.go.jp/files/000117998.pdf>

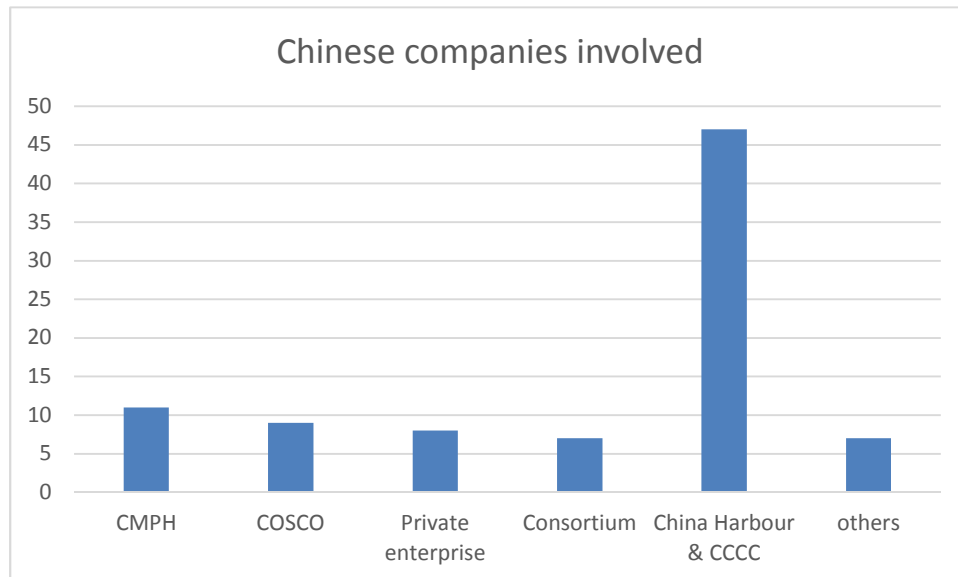
In Japan, however, JICA applies a different investment strategy. As shown in Figure, Japanese ODA Loan will be permitted to recipient government at first, followed by labelling different tying status (e.g. “Tied” indicates Japanese companies will be tied to ODA project.). Basically, these projects all belong to EPC, which means that there is no transfer of management right.

Franchise project financing are usually chosen due to lack of money in local government, who has difficulty paying for all volumes. But in Japanese system, ODA, commonly a low-interest loan, are provided before contracting. Thus there is no need for local companies to use management right as a guarantee due to the lack of money.

Nowadays, China is criticized by western countries for purposefully creating “debt trap” in backward countries, which increases worries of countries along B&R to embrace Chinese investment. Since a high proportion of share acquisition is obtained in Figure, it is understandable that this concern over “debt trap” would gain popularity. Also, it is undoubted

that Chinese government and companies do not have much experience in investing overseas infrastructure. Therefore, it is suggested that seemingly disorder expansion of Chinese capital should be restricted in an advanced investment system that China should learn from Japan.

#### 4.4 Companies involved



**Figure 11: Chinese companies involved**

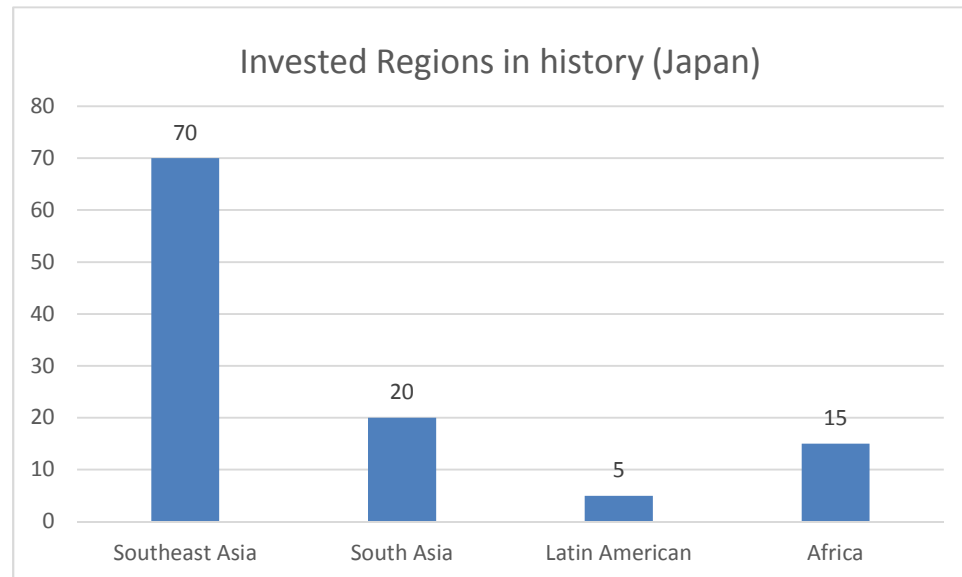
Note: CMPH (China Merchants Port Holdings Limited), COSCO (China Ocean Shipping (Group)), CCCC (China Communications Construction Company, Ltd.).

China Harbor (wholly owned subsidiary of CCCC), one of the biggest state-owned companies, is mainly in charge of port, waterway and costal engineering. It has invested a great amount of EPC projects (41), with 6 projects involved in BOT or PPP.

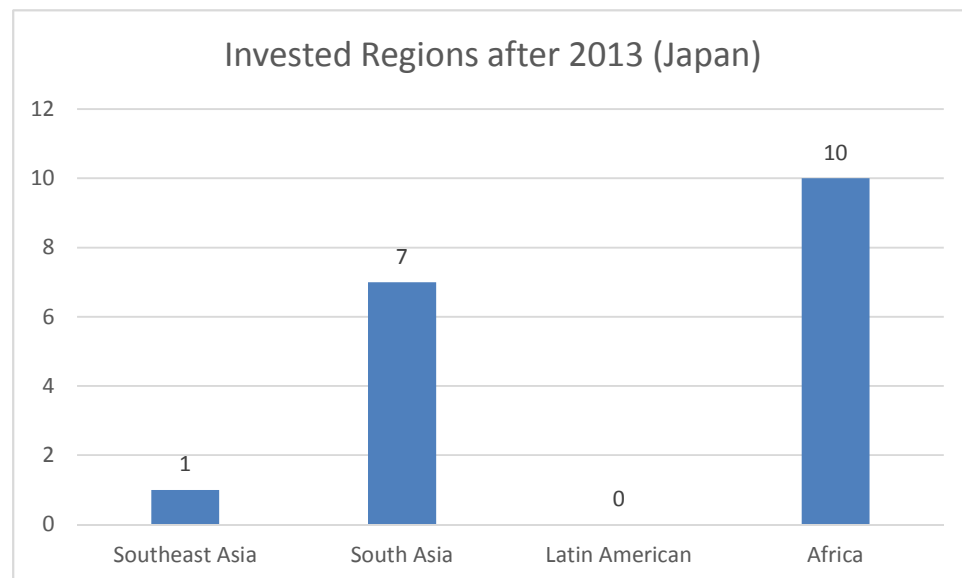
China Merchants Port Holdings Limited (CMPH) and COSCO share the similar proportion, having purchased nearly 10 overseas ports' stocks. Note that both two companies are considered as state-owned companies. Compared with Chinese state-owned companies, private enterprises also accelerate their pace into share acquisition of overseas ports, but it can not be denied that private enterprises don't play an essential role in ports investment under B&R.

What's more, several Chinese companies will form into consortium, which will be more competitive when bidding for a project. Sometimes, private enterprises or local port authority

will make first attempt to expand their overseas market by cooperating with state-owned companies since they would consider it as a reasonable measure to control risk. For instance, it was the first time for Qingdao port to invest overseas port when investing Wado Refrigerated Cargo Wharf in corporation with COSCO.



**Figure 12 (a)**



**Figure 12 (b)**

**Figure12 (a) Data for invested ports' amount in different regions in history, (b) Data for invested ports' amount in different regions after 2013.**

According to historical statistic data, “partially untied” and “generally untied” are more

favorable as choices, which share one-third of the total investment. Nevertheless, “tied” projects gain more popularity after 2013. The figure for this period seems not to be adequate, though.

## **5. Case Analysis of Sri Lanka**

When it comes to specific case of port investment, Colombo port in Sri Lanka is often exposed to the western media and the public. According to Zha, “The Hambantota port in Sri Lanka is often portrayed as a classic example of China’s debt trap. Yet, the Chinese company involved could have easily terminated its involvement and walked away. Instead, it remained committed to developing not only the port but related projects such as industrial zones and logistical networks (Zha, 2018)”.

### **5.1 Ports invested by China in Sri Lanka**

Early in 2011, one Colombo Container Terminal was purchased with 85% of shares by China Merchants Port Holdings Limited (CMPH) and management period of 35 years is allowed. It was followed by the PPP project of Colombo Port City between China Communication Construction Company (CCCC) and Sri Lanka’s National Harbor Authority in 2014. In this contract, it was planned that CCCC would construct the Colombo Port City with \$ 1400 million and thus renting period of 99 years were promised, although the project was suspended in 2015 due to some domestic objections that Sri Lanka would be burdened by Chinese debt and then a new project with details revised was resigned in 2016. Additionally, the southern port of Hambantota, in particular, has been in the media spotlight since its operation was formally handed over to CMPH on a 99-year lease last year.

### **5.2 Japan diplomatic activities related to ports investment in Sri Lanka**

In January, 2018, Japanese Foreign Minister Taro Kono visited Sri Lanka, which was the first visit by a Japanese foreign minister in 15 years. During Kono’s visit, a LNG terminal project was signed. It will be a joint venture by the Sri Lanka Ports Authority with both Japan and India. And the LNG terminal is to be located within Colombo port, where Chinese companies have invested to local ports’ construction for recent years (Kurukulasuriya, 2018).

From August 20 to 22 in 2018, Japan’s Defense Minister Itsunori Onodera visited to Sri

Lanka. Similar to his fellow official, he took the form of a tour of the island's three major ports, located on its western, southern, and eastern coasts, among which the eastern port of Trincomalee, from a strategic point of view, was the most valued asset. Sri Lankan officials have talked about plans to develop Trincomalee port and its environs with help from Japan and India, but nothing specific has been announced (Kurukulasuriya, 2018).



**Figure 13: Map of ports of two countries in Sri Lanka**

Resource: Christopher Woody. (2018). *Business Insider*.

<https://www.businessinsider.com/china-japan-navies-build-ties-with-sri-lanka-amid-fight-for-influence-2018-10>

A week after Onodera's departure, two patrol vessels were donated by Japan to the Sri Lanka Coast Guard. Probably because of its vigorous promotion of the concept of a "free and open Indo-Pacific", Japan emphasized that in Sri Lanka marine security and the development of infrastructure involving strategic assets like ports would be the key cooperation fields.

In fact, Japan and Sri Lanka are celebrating 65 years of diplomatic relations in 2017, but their bilateral ties have rarely seemed more important -- especially in relation to maritime security in the Indian Ocean. The two countries launched a dialogue on maritime security and other oceanic issues in January, following a 1.83 billion yen (\$16.3 million) aid package from Japan in June 2016 designed to boost Sri Lanka's maritime security and crime-fighting capacity.

### 5.3 Japan's concern

As for Chinese overseas ports in Sri Lanka, Japan has repeatedly expressed concern over the possibility of Hambantota being used for military purposes and ‘debt trap’ caused by Colombo Port City. Before this visit, according to NHK World, Kono told reporters that “China is increasing involvement in port development in Sri Lanka,” and that “projects to build ports and other infrastructure should be open to any country.” The remark flagged Japan’s concerns over China’s major role in Sri Lanka’s infrastructure development.

Onodera also expressed his anxiety about Chinese port investment in Sri Lanka. He told NHK World: “Despite China’s long term lease, it is internationally acknowledged that the port should be free and open to the public.”

“Japan’s government is promoting a free and open Indo-Pacific and this deployment in the Asia Pacific is a component of that strategy,” Rear Admiral Tatsuya Fukuda, the commander of the Kaga and its destroyer escort, said in his cabin as the carrier steamed for Colombo through the Indian Ocean (MUSHTAQ, 2017).

## **6. Interview**

### **6.1 Economic competition and cooperation under B&R and FOIP**

Resume

瀬口清之 (Seguchi Kiyoyuki)

Research Director, the Canon Institute for Global Studies

Expertise:

Chinese Economy

Relations among Japan, China and the United States

Background

On Dec. 14<sup>th</sup>, 2018, a field trip to the Cannon Institute for Global studies was arranged. During the trip, Mr. Seguchi Kiyoyuki gave the introduction of Chinese economy and his attitude toward B&R.

Question

Since Mr. Seguchi Kiyoshino specializes in Chinese economy study and mainly focused on



economic influence of B&R that day, questions referring to completion and corporation between Chinese and Japanese companies are asked.

#### Opinion

Generally speaking, Mr. Seguchi Kiyoshino holds positive attitude toward BRI and argues that Japan could play a significant role in B&R and attaches much importance to Sino-Japanese cooperation in B&R. He furthermore puts forward several future directions.

First, Japan could join Asian Infrastructure Investment Bank (AIIB) and meanwhile provide funds to B&R through Asian Development Bank (ADB).

Second, he also emphasizes complementary relations between Chinese enterprises and Japanese enterprises. For instance, Chinese companies are adept at building business strategy and implementing it quickly while Japanese counterparts are skilled in technology development in medium and long term.

With regard to the Third Countries Market Forum between China and Japan, Japanese corporations still take action slowly in cooperating with Chinese corporations in B&R. He also points at the fact that even though the Sino-Japanese relation improves, Japanese corporations still take action slowly in cooperating with Chinese corporations in B&R for the reason that the competition in overseas market between companies is fierce and Japanese companies will not always follow government.

## **6.2 Whether Ports Investment has implication for military expansion**

香田洋二(Koda Yoji):

#### Resume

Vice Admiral (Rrt.), the former commander in Chief of Japan Maritime Self-Defense Force (JMSDF) Fleet (第36代自衛艦隊司令官)

#### Background

On Dec. 19<sup>th</sup>, 2018, Mr. Koda Yoji was invited to Waseda campus to give us presentation of Chinese marine issue and B&R's political influence. After the presentation, he was interviewed by the author face to face for around 15 minutes

#### Question

Since Mr. Koda Yoji specializes in military and geopolitics, questions referring to B&R's geopolitical implication and potential military expand are prepared.

#### Opinion

Mr. Koda Yoji mentions that MSR is increasing due to the vacancy or weak presence of U.S. Forces. He then collects some mainstream views from USA toward B&R. B&R is usually described as monster economic zone/block centered around China. New colonialism, debt-trap diplomacy and fear of related Chinese Business are often exposed to the public in American media.

Koda insists B&R would be originally welcomed by many countries because B&R dose encourage economic progress of developing countries in central Asia and SEA. However, it then causes some serious problems somehow, including the lack of transparency and debt problems, which are criticized throughout the international society.

With regard to Chinese increasing ports investment, he dose not agree to greatly exaggerate it. For instance, "String of Pearls", a term created by an Indian critic and then popularized by western media, refers to the fact that China has invested a series of overseas ports with the shape of string of pearls, thus suspected to expand China's economic and military influence on Indo-Pacific area. Koda, however, considers it as a compelling metaphor and common tool for media to enhance the coverages' popularity. As for the term itself, it has no basis and meaningless. Due to his experience in navy, Koda could tell that, form a practical view, there is no possibility for those ports and containers terminals to be upgraded to construct military bases for warships or submarines for the reason that commercial ports and military harbor are totally different.

Gwadar port and Colombo port, the epitome of controversial ports of China are also referred. Gwadar port is doubted to be a potential military base because Pakistan and China has a rather close relation. Koda suggests that the intimacy still remains in diplomatic relationship. Because of nonalignment policy in China, military mutual utilization could be hard to actualize. The situation of Colombo port is partly different from Gwadar port. In fact, Sri Lanka government dose not show tight ties with Chinese government while it has strong

connections with Indian government, owing to the adjacent location. This port is criticized to be martial use, though. Koda emphasizes the martial use is groundless statement and analyzes that the western countries are likely to be worried of Chinese expanding economic influence in this area and furthermore impose influence on local politics.

## **7. Suggestion**

Since Japan and China held the First China-Japan Third Party Market Cooperation Forum in 26 October 2018, cooperation can be the possible strategy for two countries. Meng (2018) demonstrated that Japan's high-quality infrastructure partnership takes “high-quality” as its main advantage and “cooperation-oriented” as its main feature in the field of infrastructure investment. However, he urged for broader cooperation so that two sides can achieve mutual benefit and play an important role in regional interconnection and economic integration. 石川 晶(2018) concluded companies and projects involved in The Third Party Market Cooperation Forum, demonstrating the cooperative attitude towards China's “one belt and one road” initiative and speeded up the trend of relations improvement.

Several reasons abstracted from data analysis could support the opinion that two countries could cooperate in some fields. First, B&R were announced 3years earlier than FOIP, which means B&R have changed from policy-driven force to market-driven force, as mentioned before. With market-driven force functioning dominantly, the pattern of capital will play major role in the behavior of companies. The total amount of capital in Indo-pacific regional infrastructure is in huge demand, which exceeds the sum of both countries investment expected volumes. As a result, basically, two countries will not form in competitive relations.

Second, two countries seem to show different interest in terms of hosted ports. China invests in a more global scale, which means many Chinese companies also aims at Europe and Latin America, not restricted to those regions along B&R. Japan, on the contrary, mainly pays attention to Indo-pacific region, the originally planned area under FOIP. Therefore, it is suggested that if a framework for corporation between China and Japan will be provided, it should be focused in ASEAN or South Asia. Since Japan has longer history in investing these

regions, it would be changeable for China to occupy the market even if China seems to master more capital. Reversely, it will be benefited that Chinese companies learn how to satisfy local market form Japanese companies' rich experience.

Third, the increasing port investment of China should be treated through a more critical perspective. On the one hand, the conjecture that those ports could be potential military bases is not realistic. On the other hand, the fact that Chinese enterprises have controlled some ports through share acquisition should be noticed. Those possessed ports actually facilitate Chinese overseas companies and save transporting cost, but meanwhile it remains uncertainty whether share acquisition is the best approach through a longer history for Chinese companies, considered that local citizens and government usually complained about these acquisition' cases.

Fourth, state-owned enterprise in China plays an absolutely dominant role in ports investment while private communities still lack experience. It would be undoubtedly natural and sustainable that private enterprises account for a major part. As a result, Chinese government should encourage more individuals involved. ODA is actually a practical example for China. The bank distributes loan to local port at first. With support of adequate capital, small companies could get rid of much concern over debt-paying ability of the locals. Moreover, this could also reduce the debt burden of local government. As usual, local government will cooperate with foreign companies in PPP or BOT models, which means local government is more likely to take risk of debt burden.

However, from the author's view, this intensified competition will not be mollified fast. Since B&R and FOIP are essentially not compatible well, B&R emphasizes economic development while FOIP focuses on freedom of trade, marine security, etc. Although QII aims at occupying overseas infrastructure market, it has developed its own investment system. It still lacks experience for three countries' companies involved at the same time.

## **8. Conclusion**

The competition in overseas ports investment between China and Japan is forming and will

be intensified. Both B&R and FOIP noticeably encourage companies to invest overseas ports.

In this competition, Chinese companies invest not only in countries along B&R but also in other regions (e.g. Latin America) while Japan mainly focuses on Indo-Pacific area. What's more, the fiercest competition may emerge in the South Asia. Additionally, Chinese enterprises show more interest in purchasing share of local ports, especially for those ports in European countries.

Chinese state-owned enterprises, probably more competitive on bidding stage, played dominant role in ports investment, which lead to worry and complain from international communities. Among Chinese companies, China Merchants Port Holdings Limited and COSCO are two major companies to buy share of local ports while China Harbor mainly constructs ports.

JICA, ADB and Japanese companies could cooperate well due to the ODA system, from which China should learn. It is also noticeable that sometimes, Japanese companies will be tied to ODA projects, but there is no obvious evidence to show that they are always being tied.

Furthermore, Chinese overseas ports investment could be regarded as economic expansion, with potential geopolitical intention, but it is groundless to say it is for military use.

## **Acknowledge**

My deepest gratitude goes first to Professor Hirakawa, who always gives me advice and encouragement to finish my research. She taught me helpful skills in academic writing, even personally scrutinizing and revising my faults in this paper. Besides, I really appreciate for her arrangement in an interview of Mr. Kada Yoji for me. Furthermore, I was impressed deeply by Mr. Kada Yoji, who genuinely expressed his opinion about my research, thus inspiring my study. Finally, I would like to show my sincere gratitude to Master Kong, as well as Waseda University, who offers me such a precious platform to complete my research.

## **Main References**

### **English literatures**

Abhijit Singh. (2015). China's 'Maritime Bases' in the IOR: A Chronicle of Dominance Foretold. *Strategic Analysis*, 39:3, 293-297, DOI: 10.1080/09700161.2015.1022320

Chien-peng (C. P.) Chung. (2018). What are the strategic and economic implications for South Asia of China's Maritime Silk Road initiative? *The Pacific Review*, 31:3, 315-332, DOI: 10.1080/09512748.2017.1375000

Hidetaka Yoshimatsu. (2018). New Dynamics in Sino-Japanese Rivalry: Sustaining Infrastructure Development in Asia. *Journal of Contemporary China*, 27:113, 719-734, DOI: 10.1080/10670564.2018.1458059

Khan, S. A. (2013). Geo-economic imperatives of Gwadar Sea Port and Kashgar economic zone for Pakistan and China. *IPRI Journal*, 13(2), 87-100.

Theo Nottebooma & Zhongzhen Yang. (2017). Port governance in China since 2004: Institutional layering and the growing impact of broader policies. *Research in Transportation Business & Management* 22 184–200

Yu, H. (2017). Motivation behind China's 'One Belt, One Road' initiatives and establishment of the Asian infrastructure investment bank. *Journal of Contemporary China*, 26(105), 353-368.

Zha Daojiong. (2018). In Pursuit of Connectivity: China Invests in Southeast Asian Infrastructure. *ISEAS Perspective*, No. 62, ISSN 2335-6677.

### **Japanese literatures**

外務省. (2015). 「質の高いインフラパートナーシップ」の公表.  
[https://www.mofa.go.jp/policy/oda/page18\\_000076.html](https://www.mofa.go.jp/policy/oda/page18_000076.html)

外務省 (2018), *Free and Open Indo-Pacific*,  
[https://www.mofa.go.jp/policy/page25e\\_000278.html](https://www.mofa.go.jp/policy/page25e_000278.html)

石川 晶. (2018). 日中第三国市場協力フォーラムでの覚書締結—日中科学技術協力で注目すべきポイント. [http://www.spc.jst.go.jp/experiences/coverage/coverage\\_1823.html](http://www.spc.jst.go.jp/experiences/coverage/coverage_1823.html)

### **Chinese literatures**

常思纯. (2016). 日本在“一带一路”沿线的投资格局及对华影响[J]. *东北亚学刊*, 3: 006.

国务院. (2015). 《推动共建丝绸之路经济带和 21 世纪海上丝绸之路的愿景与行动》, <http://www.yidaiyilu.gov.cn/yw/qwfb/604.html>

孟晓旭. (2018). 日本高质量基础设施合作伙伴关系构建及与中国的竞争合作[J]. *现代日本经济*, 2018, 37(06): 69-80.

### **Media Coverages**

*The Economist*. (2017). China's expanding investment in global ports.

<http://country.eiu.com/article.aspx?articleid=965980480&Country=Pakistan&topic=Economy&subtopic=Regional+developments&subsubtopic=Investment>

Dandan Wan. (2018). China and Japan rivalry in ASEAN. *eu-asia-centre*.

[http://www.eu-asiacentre.eu/pub\\_details.php?pub\\_id=233](http://www.eu-asiacentre.eu/pub_details.php?pub_id=233)

Hong Zhao. (2018). Chinese and Japanese infrastructure investment in Southeast Asia: from rivalry to cooperation?. *IDE Discussion Paper*, <http://hdl.handle.net/2344/00050160>

Janne Suokas. (2018). China invests in 42 overseas ports under Belt and Road project. *Global Times*. <https://gbtimes.com/china-invests-in-42-overseas-ports-under-belt-and-road-project#>

KENJI KAWASE. (2018). Cambodia's biggest port sees China coveting Japan's dominant role. *Nikkei Asian Review*, August 03, 2018 14:02 JST



# Intensified Competition in Overseas Port Investment

## between China and Japan: Under "The Belt and Road Initiative" and "Free and Open Indo-Pacific Strategy"

WASEDA Un

### 1. Introduction 1.1 B&R and FOIP

In 2013, "The Silk Road Economic Belt and the 21st-century Maritime Silk Road", also known as "The Belt and Road (B&R)", was launched by Chinese government. "Road" partly aimed at infrastructure investment, including port investment in Southeast Asia, South Asia, and North Africa

In 2015, Japanese government claimed to provide approximately USD 110 billion for "Quality Infrastructure Investment (QII)" in Asia over the next five years.

Chen Lingle, Zhejiang University

In 2016, "Free and Open Indo-Pacific Strategy (FOIP)" was announced to promote the rule of law, freedom of navigation, free trade, etc.

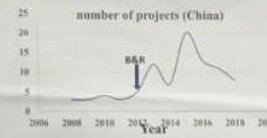
### 1. Introduction 1.2 Port investment

Why focus on investment in ports instead of normal infrastructure?

- ① geo-political influence  
Deepwater port, like Gwadar port in Pakistan, tends to be thought to be potential military bases for warship and submarines.
- ② competition in diplomatic relations  
Host countries will consider diplomatic relationship with investment country when accepting port investment.
- ③ more exposed to the media  
Chinese planned ports, such as Colombo port are fiercely criticized for resulting in debt trap.

### 4. Result

#### 4.1 Change of number of projects over time



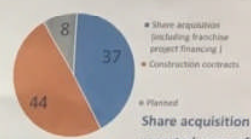
China began to invest overseas ports since 2008. Ports investment increases dramatically since 2013 but then gradually goes up.



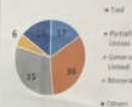
Japan invests ports in much longer history. Ports investment decreases since 2000 but goes up in recent years.

#### 4.4 Business Model

##### Share of business models



##### Tying status (history)



##### Tying status (2013-)



"Tied" projects are increasing.

### 2. Question

#### Main Question

What is the characteristic of the intensified competition?

#### Sub Question

- Q1: How overseas port investment increases by year?  
Q2: What is the proportion of invested countries and regions?  
Q3: What's the type of companies involved?  
Q4: How do companies invest (business models)?

### 3. Method

#### Data Analysis/ Case Analysis/ Interview

##### Data Collection

- China:  
Official website  
Individual website of companies  
Media coverage  
Japan:  
Database of Japan Internal Cooperation Agency (JICA)

#### 4.2 Ports Distribution

Chinese companies tend to purchase acquisition of ports with geographical advantage and ports in Europe.

##### Map: Distribution of Chinese Overseas Projects



Map: Share Acquisition  
Dot: Construction Contracts  
Cross: Planned

#### 4.2 Ports Distribution

Region	Number of ports (China)	Number of ports (Japan)
Asia	15	10
Europe	10	5
South Asia	5	2
South East Asia	10	5
Latin America	5	2

Rank of invested regions by two countries before B&R and during B&R

Japan: Southeast Asia -> South Asia  
China: Africa -> Africa, Europe, Southeast Asia

#### Japan—Indonesia China—Pakistan

Country	Number of ports (Japan)	Number of ports (China)
Indonesia	10	5
Pakistan	5	2
Philippines	5	2
Thailand	5	2
Viet Nam	5	2

Rank of invested Countries by two countries

#### Sample Table

Company	Country	Port Name	Investment Type	Investment Amount (USD)	Investment Year
China Harbour & China Communication Construction	China	Yantai	Share Acquisition	1.2 billion	2008
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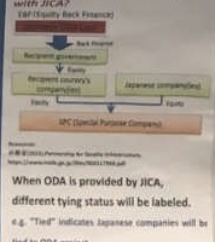
#### 4.3 Companies Involved

##### Share of companies involved



- State-owned enterprises play a dominant role.
- Private enterprises will cooperate with state-owned enterprises to expand overseas market.
- AIIB usually provides loan.

#### How Japanese companies cooperate with JICA?



When ODA is provided by JICA, different tying status will be labeled. e.g. "Tied" indicates Japanese companies will be tied to ODA project.

### 5. Interview

#### Interviewee 1 (Wang Xue)

He is the former commander in Chief of Japan Maritime Self-Defense Force (JMSDF) Fleet.

1. "Tying of Ports Investment" is government and used as a tool for media to enhance countries' propaganda.
2. There is little possibility that commercial ports of China to be regarded as military bases for warships or submarines.
3. The tendency will not result in military competition between China and Pakistan due to development policy in China.

#### Interviewee 2 (Jinghui Kikuchi)

Assistant Director of the Japan Institute for Global Studies, Department of Economic Studies

1. Japan could take more infrastructure investment Bank (AIIB) and meanwhile provide funds to B&R through Asian Development Bank (ADB).
2. Chinese companies are eager to building business strategy and implementing it as a whole. Japanese government was able to recognize development strategy and long term.
3. Even though the China-Japan relations improve gradually, Japanese government will still remain close to supporting with Chinese companies in B&R.

### 6. Conclusion

- ① The competition to increase ports investment between China and Japan is intensifying.
- ② Both B&R and FOIP noticeably encourage companies to invest ports.
- ③ Chinese companies invest not only in countries along B&R but also in other regions (e.g. Latin America) while Japan mainly focuses on Indo-Pacific area.
- ④ The fiercest competition may emerge in the South Asia.
- ⑤ Chinese enterprises show more interest in purchasing share of local ports.
- ⑥ JICA, ADB and Japanese companies could cooperate well due to the ODA system, those which Chinese cannot match.
- ⑦ Chinese state-owned enterprises, probably more competitive on bidding stage, played dominant role in ports investment, which lead to worry and complain from international communities.

#### 7. Main Reference

Wang Xue, (2017), "Tying of Ports Investment" and "Tying of Ports Investment" in China and Japan, Waseda University, Japan.



## **Japanese government's promotion in “carebot”**

**HAN Shanshan**

**Zhejiang University**

### **1. Introduction**

According to the newly published “Aged Society White Paper” (Cabinet Office, 2018), the number of Japanese people with ages 65 or older has reached 35 million, 27.7% of the total number. From the data given by Ministry of Health, Labor and Welfare special fertility rate though shows an inapparent trend of ascent. It still cannot change the fact that Japan may face a severe shortage of nursing workers for the old. It can be clearly reflected from the data that an aged over 65 was supported by 5.1 people from 20 to 64, which decreased to 2.6 in 2010 and was predicted to be 1.2 in 2025 (Ministry of Health, Labor and Welfare, 2016).

Based on such situation, it's natural for people to think about the aged care status in Japan. According to welfare ministry statistics, the number of care works is increasing from 550000 in 2000 to 1.71 million in 2013. But the increase failed to keep the pace with the rapidly growing demand. The ratio of job openings to job seekers in caring reached 2.69 in 2016. Similarly, from the ministry's estimate, there will fall short of demand by 377000 in 2025 (Mizuho, 2016). Facing with such an urgent condition, the government take some remedial measures to control the deterioration, for instances, improving the care workers' working conditions, increasing their salaries, encouraging non-Japanese nursing care workers, creating new nursing care facilities like robotics.

Some big company and research institution become interested in this field because of the seriousness of this social problems and the huge potential market profits. These researches and commercial applications though some are partly supported by the government, is still not taken as a society trend. Until 2015, Prime Minister Abe held the 16th meeting of the Headquarters for Japan's Economic Revitalization. During the meeting, they determined the “New Strategy for Robots (The Headquarters for Japan's Economic Revitalization, 2015)” as a central project in future Growth Strategy, which is considered as starting point of the robot

revolution. The New Strategy for Robots as an instructive book of robotic, had covers all of the different aspect of robotic. There is one part, specially deals with robots being used in the old caring, the “carebots”. In this part of this report, the importance of developing high intelligence carebot is showed. And the Japanese government also actively promote carebots. This leads to my question: Why is Japanese government promoting carebots so active. The answer to this question seems to be easy. However, if we consider this question deeply, the answer will not be as simple as what we have thought. It cannot only solve the problem of lacking care worker but also goes deeper into different aspect of Japanese society and world.

As a newly started area, there are not so many related research results of carebots, especially in carebots policy. Apparently, scholars are still arguing about whether we should use carebots by considering the advantages it will bring to us and its social drawbacks. It is still under discussion all over the world, even in Japan, that whether we should introduce more robots into our life. Therefore, it is a brave move for Japanese government to publish a such a approving policy. Out of aforementioned reason, my research answers why Japanese government promote carebots by analyzing the necessity, feasibility and utility of this policy. And it also companies with the analysis of difficulty in the process of promotion. Because of the lacking of the related academic paper, I draw most of data from Government-issued report and media covers related to carebots. Some of my supporting materials are from related surveys and papers.

The research paper is structured as follow. The first chapter presents some background information for reader’s easy-understand in this topic. The second chapter answers the question why Japanese government promote carebots from three aspects: Necessity, feasibility and utility. The third chapter deals with the potential drawbacks of robots used for caring.

## **2. Background information**

Before reaching to the mean topic, it would be help for us to first go through some background information, such as unfamiliar terminology “carebot”. Also, it is important for us to make clear what Japanese government is doing promoting carebots. Therefore, this part will introduce you the meaning of “carebot” with some existing products. This part will also

analysis “New Strategy for Robots” with a little mention on current situation after its announcement.

## **2.1. “Carebot”**

The pace of developing caring robotics has never stopped in recent years in Japanese. There already existing many caring robots which have been created and applied into nursing home, and lighten the market of “Carebot”. “Carebot” is not an existing word, but a combination of “care” and “robot”. It was first appeared as a Family Care and Personal Assistance Robot developed by GeckoSystem, with a patented name “CareBot<sup>TM</sup>” (GeckoSystem, 2003). Later it was more and more being used in the news when aging society problem becomes more and more serious. The meaning of “Carebot” in this paper is robots used for taking care of the old physically or mentally as well as for medical purpose. To make it clear, robots means a machine capable of carrying out a complex series of actions, which is high-tech and different from simple auxiliary equipment.

In general, these robots can be divided into three categories: for physical purpose, for mental purpose and for medical-treatment purpose. For physical purpose, ROBEAR(Russon & Joyner, 2015) from Sumitomo Riko and RIKEN, is capable of performing tasks such as lifting a patient form a bed into a wheelchair or helping a patient who needs to stand up. Honda Walking Assist (Honda, 2013), fixed on people’s body, can sense the actions of the elder’s legs and assist them walking by electrical motor. For mental purpose, PARO (Yang, 2015), from Japan National Institute of Advanced Industrial Science and Technology, is designed to be very cute and interactive to generate a calming effect on the aged suffering from dismay, anger and anxiety. For medical-treatment purpose, da Vinci Si (Suita Tokushukai Hospital, 2018), a robotic-assisted technology for endoscopic surgery, was introduced in Suita Tokushukai Hospital in Okinawa. This is more like an intelligent device which can help surgeon performs surgery by controlling the robot arm while looking at a 3D monitor as if they are staring at the actual surgical field. The degree of automation is not as high as the other two categories because it requires more precision and errors are more unacceptable.

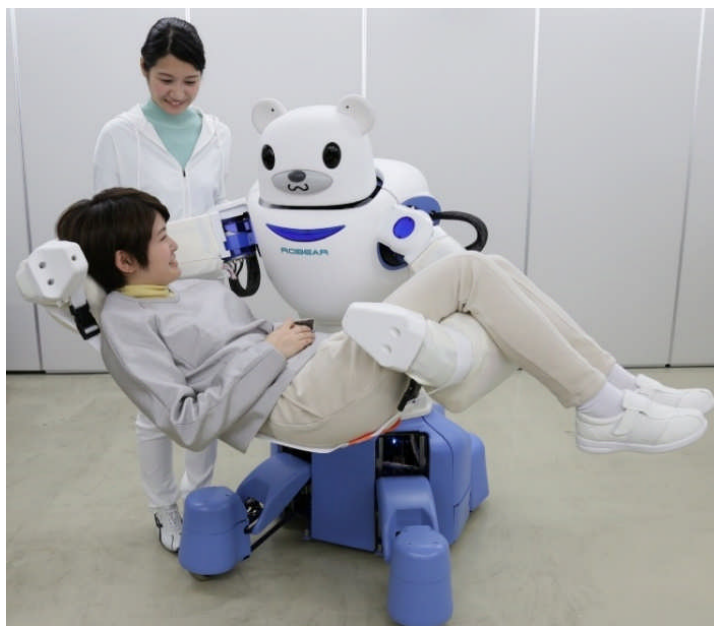


Figure 1 ROBEAR from Sumitomo Riko and RIKEN (Russon & Joyner, 2015)



Figure 2 Honda Walking Assist (Honda, 2013)



Figure 3 PARO, Japan National Institute of Advanced Industrial Science and Technology

(Yang, 2015)

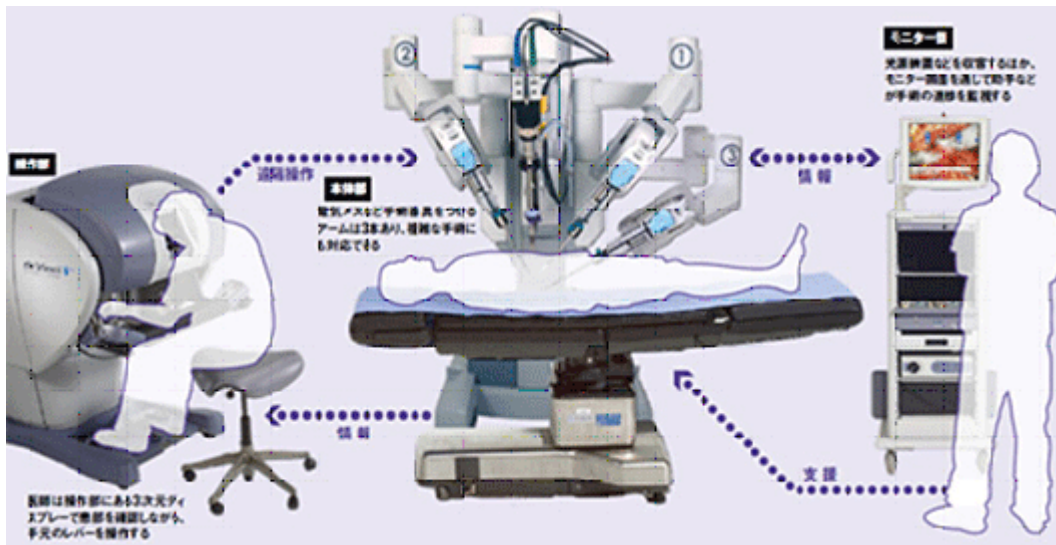


Figure 4 da Vinci Si introduced in Suita Tokushukai Hospital (Suita Tokushukai Hospital, 2018)

Actually, most of the carebots are not being widely used in Japan. Many carebots covered by media's are from research institution. And these facilities pay less attention to promoting their products to public, because they are mostly a group of people who chasing more academic achievement. However, there are also some company who discover the huge potential in carebots market want to develop some commercial carebots and introduce to the market. The problem is developing these high-tech systems is really time-consuming and money-consuming. Also, the market is not so huge at current time. Though some company want to do that, their shareholder may want to make their money into better use. Therefore, the current situation of carebots is quite awkward. Each time when there is a breakthrough, many media will report it with cheering words. But when you really want to find them in market, the access is really limited and it's hard to find that they are actually being used.

## 2.2. Japanese Government's policy in promoting "Carebot"

In 2015, Prime Minister Abe held the 16th meeting of the Headquarters for Japan's Economic Revitalization (The Headquarters for Japan's Economic Revitalization, 2015). During the meeting, they determined the "New Strategy for Robots" as a central project in future Growth Strategy, which is considered as starting point of the robot revolution. In an overall view, this released policy shows the ambition of Japanese government to lead the world by intensive utilize of robot in data-driven era. There are three aspects of robot

revolution in Japan: Dramatic changes in robot (cars, consumer electronics, mobile phone and house become robots), expanding usage of robot from manufacturing to daily life and realizing a society where the robots create new value by solving social issues and strengthen of international competitiveness. There are also three pillars realizing the revolution: becoming the robot innovation hub, the leading robot utilization society and leading power with robotics in “IoT (Internet of Things)” era. The whole action plan, essentially speaking, is to unite the industry, academia, and government to realize robot revolution in actual fields.

As for the specific action plan in carebots, there are two fields: Nursing and Medicals. In nursing, Japanese government picks five priority areas based on the existing problems in nursing industry. They are transfer support from bed, walking support, excretion support, watching over who have dementia and bathing support. The aims they want to achieve are also three aspects. From marketing perspective, they hope to expand the domestic market scale of nursing care robots to 50 billion yen. To achieve humane goal, the government want to lower the risk of suffering from a backache to zero. They also want to change the awareness of nursing methods using the newest robot technology. Specifically, they want to increase the percentage of people who wish to use nursing care robots for providing care to 80% from the current 59.8% and to increase the percentage of people who wish to have robots used when undergoing care to 80% from the current 65.1%. In medicals, the priority areas are medical devices such as surgical robots and smoothing pre-market review of brand-new medical device. The aim is to implement more than 100 cases of support to put medical care-related equipment using robot technology in 5 years.

This plan is a five-year plan for Japan. It looks very challenging and requires huge effort to implement. This fact raises question on why Japanese government want to promote carebots even with the expense of so much effort.

### **3. Reasons for promoting “carebot”**

This chapter is going to answer the question raised above: Why Japanese government is so keenly promoting carebots. There are a lot of reasons. And they are separated into three categories: Necessity (to solve urgent social issues), Feasibility (the ability Japan had to achieve the goals) and Utility (the advantages).

### 3.1. Necessity

The necessity in promoting carebots can be divided into two part. The first part deals with the urgency of improving old care service. The second part provides reasoning on why implement carebots can be a key solution to solve the care workers dilemma in Japan.

#### 3.1.1. urgency of improving old care service

It is well-known that the aging society problem is very severe in Japan. Therefore, it is easy to understand the necessity of solving series of problem brought by aging society. There are several reasons aggravate the degree of aging society. The longevity of Japanese resulting from low-cancer-risk diet style and the nation's universal and accessible health care system (Otake, 2017) is another reason. However, these are generally (and rightfully) seen as good things, as longer and healthier lives provide more opportunities for individuals to fulfill their goals. So it is unreasonable to decrease the life expectancy. The low birth rate in Japan is the biggest problems for aging society. Though Japanese government tried very hard to encourage the increasing of birth rate, it still remains at a low level of 1.4 births per woman (World Bank, 2018). Aging society problem is really troublesome. When we cannot solve it in short times, we should focus on relive our people from the suffering it brings.

Severe problem raises in aging caring. As the number of old increasing rapidly, the number of care workers cannot follow the pace of its growing. The imbalanced between need and supply causes shortage for care workers. A recent government estimate shows that there will be nursing care workers fulfilling only 86 percent of demand in 2025. And when the youngest of the nation's postwar baby boomer generation will have turned 75, the need for care services will significantly increase (The Japan Times, 2018).

The care workers in old care facility are not the only one suffered. Some people are also taking care of their family member at home because of the lack of care workers. News covered a crime happened in 2015 that a 71-year-old husband was arrested for killing his wife who had dementia. He confessed that because he got too tired from looking after her (Oi, 2015). Though these extreme events little happened, the data provided by OECD (Organisation for Economic Co-operation and Development) do shows that one out of every ten people are doing caregiving for their families. In Japan, increasing people leave or change their jobs to provide care to their families (OECD, 2011).

### **3.1.2. Implementing carebots may be a key solution**

There are also other factors that make thing worse. Because the lack of care workers and the huge number of old people, the workload becomes so heavy for current workers. This may cause some of them change the job, which can in turn make the situation become less acceptable. Long working hours, night shift and low wages are the main issue about the nursing work environment in Japan. There are around 70% of workers reported suffering from backache. Though there are some make up implementation conducted by government, the effect is limited.

The most discussed solution to the shortage of care workers is to introduce foreign care workers into Japan. However, this policy didn't work well, because the cost for training these foreign worker is too high. And the harsh working condition (especially heavy workload) also frightened them to go back their home working as a care worker (Yuyo, 2017).

Therefore, the main problem is the heavy workload. Without curing this problem, other solutions can only have limited effect in dealing with the shortage of workers. By introducing high-tech carebots to help those care workers work more easily and more efficiently, the work condition of care workers will change dramatically. For example, the existing carebot ROBEAR we introduced above can help care worker avoid lifting old patients, which decrease the risk of suffering backache into zero.

To sum up, there are necessity in solving the dilemma in old caring. Because the old who need care makes up a large percentage of current Japanese population. Providing better care service for elder people can improve the life quality for all part of the society and ease the impact brought by the aging society. There are also necessity in introducing carebots into current care providing system. The fundamental reason of lack in care worker is heavy workload. If we don't try to ease the workload of care workers, the improvement of salary or introducing foreign workers can only have limited effect.

### **3.2. Feasibility**

It would be an unwise choice for Japanese government to promote this policy if Japan does not have the ability to achieve this goal. After analyzing and discussing Japan's situation from physical and psychological perspective, we can find that Japan may be the most suitable country to start robot revolution. In feasibility part, reasons are divided into two parts. The



first part reveals that the manufactory industry serves as a good foundation of making carbots. The second part analyses Japanese fondness of robot which serves as the mental foundation of carebots.

### **3.2.1. World-leading manufactory**

Japan has a large and highly advanced manufacturing sector. The goods tagged with “made in Japan” always had well-earned reputation for high quality, durability and sophistication. Also, Japanese manufacturers such as Toyota, Honda and Mitsubishi are the largest companies in Japan even among the world. They contribute a lot to Japan’s economic development. According to *Japan’s Manufacturing Industry* which is issued by Ministry of Economy Trade and Industry (METI) in 2010, Manufacturing industry has led the Japanese economy and has been responsible for 90% of Japan’s exports. (METI, 2010: 2) In 2015, Japan is the third largest manufacturer of vehicles. Though there is decline in proportion of Japanese GDP over the past couple of decades, Manufacturing base of Japan is still large (Asialink Business, 2015).

Unlike the developing of Chinese manufactory industry, Japan does not rely on low labor costs to remain a competitive location for manufacturing. Rather, it remains competitive based on innovative product design, high quality standards and a world-class manufacturing workforce. These qualities are more and more preferred in today’s world. Because in Information Ages, low labor costs can only bring short-time profit. And the replacement of Automatic machine manufacturing to human manufacturing shrink the profits these low-tech countries can earn. Therefore, only the countries who hold advantages of advanced manufacturing technology can own the market and make more profits. Japanese knows clear of this and never stopped their steps to improve their technology and develop their manufacturing abilities. The Universities and research institutions received sufficient funding to investigate new technology. Companies are also encouraged by market to release more new-tech products. Japanese already had solid foundation in manufacturing industry, it would be much easier to go further. Parts manufacturing such as very-large-scale integration (VLSI) manufacturing technology (key parts in making chips) is a mature industry. Not only these technologies themselves can serve the production of robots, but also they can make developing more difficult and complex manufacturing technology such as robot

manufacturing more easier.

The above analysis can be proved by the fact that Japan's robot makers have more than 70% of the global market (METI, 2010: 12). It is no wonder that Japan is a robotic superpower. But it is worth pointing out that main parts of Japanese robots are those who work in factory and designed for securing in disaster, not for human interaction. But with the foundation of making other kinds of robot, Japan can still take relatively shorter time than other countries.

There is no wonder that Japan is a robotics superpower. It is a country who has important theoretical support and advanced manufacturing technology both in parts and systems as well as the experience from other industry.

### **3.2.2. Japanese love robot**

The reputation of "a robotics superpower" is not owned only because Japan is a country who produce robot, but also because the robots are wildly used in Japanese society. The acceptance of robot is higher in Japanese society than other countries (Kaplan, 2004). Especially the old generation of Japan who had excessing positive view towards humanoid robots. There is a survey conducted to measure the acceptance of humanoid robots. The result shows that the elder population has positive expectation for possible application of humanoid robots in daily life and a more positive view of their developers in comparison with the younger population. In the elder population, through having experiences of teal humanoid robots or experiences of the robots via media information, expectation can be made more positive and anxiety can be decreased (Tatsuya and Kerstin, 2012). From these results, we can conclude that at least carebots will not be rejected by the old society.

The love to robots can be also seen from the newly emerged robots service place. In July 2012, Robot Restaurant located in the Shinjuku nightlife district opened and became a hit. There is a show which was proclaimed the greatest show on earth. Specific details will not be explored here. But those who had been to this place agreed that there is nothing like this and it could only happened in Japan (Springer, 2017). A show mixed with robots and beautiful ladies may contain the most salient characteristic to foreigners when thinking of Japan. Another example is robot hotel. Henn na Hotels of Japan is using robots (some resembling humans, others resembling dinosaurs) as front-desk staffs, porters and cleaners. By the beginning of 2018, the fifth hotel was opened in Ginza as a preparation for the Tokyo 2020

Summer Olympics. “We think that the number of people who can work for hotels will be less and less because of the population decline,” Tasuhiko Hoshi, associate director at HIS Hotel Holdings said. “We reached the idea that hotel employees can be replaced by robots.”(Chen, 2018) Robots has gradually entered into Japanese society, from automated factory workers to food vending machines to domestic helpers. More robots’ occupation in Japan society makes carebots being accepted become easier.

Another thing that worried a lot about robots worldwide is that machine may take job opportunity of human. However, since the biggest problem of Japanese society is the shrink of people which leads to the lack of available workers. Therefore, the domestic working situation which is apparently more demanding than supply makes this worry become less worrying. Most of the Japanese citizen don’t worry about robot take place them, Instead, they looking forward to a society with robot involving more in daily life.

### **3.3. Utility**

This part deals with the utility of Japanese government’s robot policy. Though promoting this policy is a requirement from the old caring problem caused by the aging society, the government also hope it can give Japanese economy a simulation. In recently issued government file, Prime Minister Abe mentioned the concept of society 5.0 with the Japan’s Robot Policy (the Government of Japan, 2019). Using carebots in old caring industry can bring advantages not only to the old who are enjoying the serves provided by robot, but also bring advantages to the macro markets and Japanese economy and reputation.

#### **3.3.1. Economy profit and market share**

The economy benefits of developing carebots can be divided into two parts, in domestic and oversea. In domestic area, the profits will shrink. Because if the government want more people to accept this new controversial technology, they need to make it more attractive to the Japanese citizens. So, the price of carebots will not be high. The profit remains in oversea markets is huger.

The world’s population is ageing: virtually every country in the world is experiencing growth in the number and proportion of older persons in their population. According to data from World Population Prospects: the 2017 Revision, the number of older persons — those aged 60 years or over — is expected to more than double by 2050 and to more than triple by

2100, rising from 962 million globally in 2017 to 2.1 billion in 2050 and 3.1 billion in 2100. Globally, population aged 60 or over is growing faster than all younger age groups (the United Nations, 2017). Therefore, what Japan is experiencing now will be the future of all the other countries. And how Japanese is going to go through this suffer will also be the experience of other countries.

However, other countries may don't have the ability to develop high technology robots. There may be three technology ways to deal with the aging carer shortage. One is to develop their own high-tech method, which may need longer time and more money to develop. One is to adapt low-tech methods, which is less time and money consuming but the efficiency may be low. Another one is more easier way that simply export other countries high-tech products by other countries, which can save more time and the working efficiency will be high despite of the high price. If Japan can solve this problem by developing carebots, then the prospect of "made in Japan" carebots would be bright. Japan can continue their reputation in manufacturing into robots making. If Japan can shape a brand of carebots maker, take the market share of this brand-new market, then huge profit is waiting ahead.

### **3.3.2. Improve reputation**

As we mentioned above, aging society is a universal social problem that all the country on the earth may go through. It seems unlucky that Japan has become the first country who experiences the most severe aging society problem. Though some other developed countries also experience aging society problem, these are not as serious as Japan and the solution are not as urgent as Japan. Japan is forced to find the solution by themselves. Every step is unknown. Japan is like a pioneer trying to solve the problem of all the human society. If developing carebots can improve the situation of Japanese old caring, Japan can share their knowledges with other countries who is going to suffer from this problem. By helping others, Japan can own higher reputation worldwide. Since after the world War II, Japan continued being as a fellow-up to the United States. It would be a good chance for them to take up their responsibility of one of the great power in the world and introduce workable solutions to the world.

## **4. Problems with this promotion**

The promotion from Japanese government of promoting carebots to help care workers ease their working pressure. Therefore, it can solve the shortage of care workers and improve the quality of the old's life. However, in the government issued paper there is no detailed discussion on how government is going to achieve this goal. The missing of this important information and the overly ambitious goals makes the promotion policy become less realistic. Though there are some good aspects of Japan to implement these policies, the potential difficulties should also be included for the better implementation.

To promote this policy, what government can do is to give more funding of related area and to use policy to encourage more researchers working on it. Admittedly, this may help relieve the decreasing interest in science and technology in domestic Japan. But this policy cannot deal with the anxiety of Japanese society. Without mention of ethics or society's reaction to the mass use of robots. Japanese government may fail in persuading the whole society to adapt carebots into widely use. Anyhow, it is still under heated discussion that whether robots should be introduced into our daily life.

Using carebots, for example, may requires the care workers and the elderly people have basic knowledges of robots. This cannot be achieved in short times, especially in older generation. When fighting dementia, the patients need to have a certain degree of trust and feelings for robots. However, this trust is also hard to own without long time testing. In mental health caring, Pepper, mentioned above, are grabbing attention in today's society, but the comfort it bring to the old remains limit. Because though it is smarter, it may be more close to a toy then a carebot. (the Heritage Foundation, 2015)

There is no doubt that technology will change our life dramatically. Japanese government is making the right choice. But the serious aging society and old caring problems won't be solved simply by building more robots, not to any reasonable degree by the time of the end of this policy. And the resistance will be big if there is no attempt to improve the understanding and acceptance of robots in Japan's society.

## **5. Conclusions**

In 2015 the 16th meeting of the Headquarters for Japan's Economic Revitalization, "New Strategy for Robots" was released. There is one part dealing with using carebots to old caring.

There are several reasons we can conclude from the analysis: the necessity of solving the dilemma of the shortage of care worker and the need from the old, the feasibility of Japan's manufactural basis for robot making and the relatively high acceptance to robots in Japan's society, the utility of future potential of huge market and improvement of Japan's reputation. Therefore it is not difficult to draw the conclusion that it is a wise move for Japanese government to start the robot revolution in old caring. However, this five-year plan might have set an over-positive goal since the acceptance of old and facility to carebots may take time to improve. But it can be predicted that this policy can release the thirst of Japan the aging society and can bring long-run benefits to Japan and the world.

This research can also be inspirational to China and other countries. Since China is going to become from a more severe aging society in fast speed. Japan's experience is available. But if we compare the situation of China and Japan, the case is different. What inspiration can be drawn from Japan's case may be Chinese's scholars' next topic.

## 6. Reference

- Asialine Businerr. (2015). Manufacturing in Japan. <https://asialinkbusiness.com.au/japan/business-practicalities-in-japan/manufacturing-in-japan?doNothing=1> (Feb.4, 2019).
- Cabinet Office. (2018). 平成 30 年版高齢社会白書 (Aged Society White Paper). <https://www8.cao.go.jp/kourei/whitepaper/w-2018/html/zenbun/index.html> (Jan.16, 2019).
- Chen May Yee. (2018). Japan's robot hotels. *J.Walter Thompson Interlligence*. <https://www.jwtintelligence.com/2018/02/japans-robot-hotels/> (Feb 4, 2019)
- Frederic Kaplan. (2014). Who is afraid of the humanoid? Investigating cultural differences in the acceptance of robots. *Int. J. Humanoid Robot*, vol.1, issue.3, pp.465-480. 2004.
- GeckoSystem. (2003). CareBot™ - The Family Care and Personal Assistance Robot. <http://www.geckosystems.com/markets/CareBot.php> (Jan.16, 2019).
- Hirano Yuko. (2017). Foreign Care Workers in Japan: A Policy Without a Vision. *Nippon*. (Feb. 13, 2017).
- Honda. (2013). Honda Walking Assist Device.

- <https://global.honda/products/power/walkingassist.html> (Jan.17, 2019).
- Jennifer Yang. (2015). Meet Paro, a furry friend to dementia patients. *The Star*, Oct.5, 2015.
- Kate Springer. (2017). Behind the scenes at Tokyo's Robot Restaurant. *CNN*.  
<https://www.cnn.com/travel/article/robot-restaurant-tokyo/index.html> (Feb 4, 2019).
- Mariko Oi. (2015). Who will look after Japan's elderly? *BBC News, Japan*. Mar, 16, 2015.
- Mary-Ann Russon & Alfred Joyner. (2015). Japan: Meet Robear, a robot bear nurse that can lift patients into wheelchairs. *International Business Times*, Feb.24,2015.
- Ministry of Economy Trade and Industry. (2010).  
[http://101.96.10.64/www.meti.go.jp/english/policy/mono\\_info\\_service/overall/overview.pdf](http://101.96.10.64/www.meti.go.jp/english/policy/mono_info_service/overall/overview.pdf) (Feb.4, 2019).
- Ministry of Health, Labor and Welfare. (2016). Long-Term Care Insurance System of Japan.  
<https://www.mhlw.go.jp/english/topics/elderly/care/2.html> (Jan.16, 2019).
- Mizoho Aoki. (2016). Nursing care workers hard to find but in demand in aging Japan. *The Japan Times*, June 27, 2016.
- OECD. (2011). Help Wanted? Providing and Paying for Long-term Care.  
<http://www.oecd.org/els/health-systems/help-wanted-9789264097759-en.htm> (Jan. 18, 2019).
- Suita Tokushukai Hospital. (2018). Robotic-assisted Technologies for Endoscopic Surgery: da Vinci Surgical System. <https://www.suita.tokushukai.or.jp/en/machine/davinci.php> (Jan.17, 2019).
- Tatsuya Nomura, Kerstin Dautenhahn. (2012). Social acceptance of humanoid robots in Japan: A survey for development of the Frankenstein syndrome questionnaire. *Humanoids*. Nov. 2012.
- The Government of Japan. (2019). Abenomics.  
[https://www.japan.go.jp/abenomics/\\_userdata/abenomics/pdf/1901\\_abenomics.pdf](https://www.japan.go.jp/abenomics/_userdata/abenomics/pdf/1901_abenomics.pdf) (Feb 4, 2019).
- The Headquarters for Japan's Economic Revitalization. (2015). Summary of Japan's Robot Strategy. <https://www.jara.jp/e/various/strategy/index.html> (Jan.1, 2019).
- The Headquarters for Japan's Economic Revitalization. (2015). New Robot Strategy: Japan's Robot Strategy. <https://www.jara.jp/e/various/strategy/index.html> (Jan.1, 2019).

- The Headquarters for Japan's Economic Revitalization. (2015). Executive Summary.  
<https://www.jara.jp/e/varioustrategy/index.html> (Jan.1, 2019).
- The Heritage Foundation. (2015). Robotics Answers: Japan Out to Lead The next Industrial Revolution.  
<https://www.heritage.org/asia/commentary/robotics-answers-japan-aims-lead-next-industrial-revolution> (Feb 5, 2019).
- The Japan Times. (2018). Fill the gap in nursing care workers.  
<https://www.japantimes.co.jp/opinion/2018/06/26/editorials/fill-gap-nursing-care-workers/#.XE1iF1wzbD5> (Jan. 18, 2019).
- The United Nations. (2017). World Population Ageing.  
[http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017\\_Highlights.pdf](http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2017_Highlights.pdf) (Feb 4, 2019).
- Tomoko Otake. (2017). Continuing streak, Japan leads world in life expectancy, WHO report says. The Japan Times. May.17, 2017.
- World Bank. (2018). Fertility rate, total.  
<https://data.worldbank.org/indicator/SP.DYN.TFRT.IN> (Jan. 18, 2019).



# Japanese government's promotion in carebot and its inspiration to China



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## Introduction

Japan as an aging society, is facing severe problem of shortage in care workers for the old. To solve this problem, Japanese government determined the "New Strategy for Robots" as a central project in future Growth Strategy in the 16th meeting of the Headquarters for Japan's Economic Revitalization. This is considered as starting point of the robot revolution. There is one part, specially deals with robots being used in the old caring, the "carebots". It is still under discussion all over the world, even in Japan, that whether we should introduce more robots into our life. But Japanese government actively introducing carebots in old caring, leading to my first questions on why is Japanese government promoting carebots. Because China is going to face more severe problem of aging society, so Japanese experience can be really helpful to our current policy. Therefore, I also want to focus on the aspect on Japanese government promotion of Carebots's inspiration to China.

## Reasons in promoting Carebots

### Necessity

- **Necessity in solving the dilemma in old caring.** Providing better care service for elder people can improve the life quality for all part of the society and ease the impact of aging society.
- **Necessity in introducing carebots into current care providing system.** The fundamental reason of lack in care worker is heavy workload. If we don't try to ease the workload of care workers, the improvement of salary or introducing foreign workers can only have limited effect.

### Feasibility

- **Japan is a robotics superpower.** Leading the technological development of robotics biggest number of shipments and operating units of industrial robot in the world.
- **Acceptance of robot.** 80 % of participants were positive to the introduction of robots. PARO robot successfully in use in Japan and throughout Europe since 2003.
- **Expectation.** Japanese are fond of robots.

### Utility

- **Expanding and dominating potential market.** Domestic: the market for nursing care robotics will approximately increase to JPY 54.3 billion in 2020 and to JPY 404.3 billion in 2035. Global: Healthcare Assistive Robot Market size is poised to reach USD 950 million by 2024.
- **Positive interactions with emerging high-tech:** AI/BigData/IoT.
- **Bring up reputation.** Aging population is a trend of the whole world. Japanese can be an example to other countries.
- **Increase immigrants in Japan.** People would tends to choose a better place to stay in prepare of their old life.

## Inspiration to China

- **The situation China facing is more severe.** China has the largest population of elders among the world. And the care worker has a shortage both in quantity and quality.
- **The similarities and differences between Japan and China.** Developing country, low income and acceptance from citizen.
- **Basic but essential: barrier-free designing idea.** Most infrastructures consider less about elders.
- **Less expensive assistance equipment first.** Such as electrical wheelchair/bed.
- **Focus on products with mental care.** Such as chatting application.
- **Develop AI/BigData/IoT techniques in medical treatment.** Pay attention to medical privacy.
- **Cannot ignore the power of robotics.**

### Important Reference:

1. Cabinet Office. (2019). 平成30年版高齢社会白書 (Aged Society White Paper) <https://www8.cao.go.jp/sosei/whitepaper/w-2018/html/zenbun/index.html> (Jan.16, 2019).
2. The Headquarters for Japan's Economic Revitalization. (2015). New Robot Strategy: Japan's Robot Strategy. <https://www.jara.jp/e/various/strategy/index.html> (Jan.1, 2019).
3. OECD. (2011). Help Wanted? Providing and Paying for Long-term Care. <http://www.oecd.org/els/health-system/help-wanted-9789264097759-en.htm> (Jan. 18, 2019).
4. The Headquarters for Japan's Economic Revitalization. (2015). Summary of Japan's Robot Strategy. <https://www.jara.jp/e/various/strategy/index.html> (Jan.1, 2019).

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## Carebot?

Carebot = care + robot.

Robots used for taking care of the old physically or mentally as well as robots for medical purpose.

Robots means a machine capable of carrying out a complex series of actions, which is high-tech and different from simple auxiliary equipment.



Figure 1 ROBEAR from Sumitomo Riko and RIKEN lifting a patient from a bed into a wheelchair or helping a patient who needs to stand up.

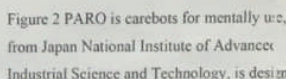
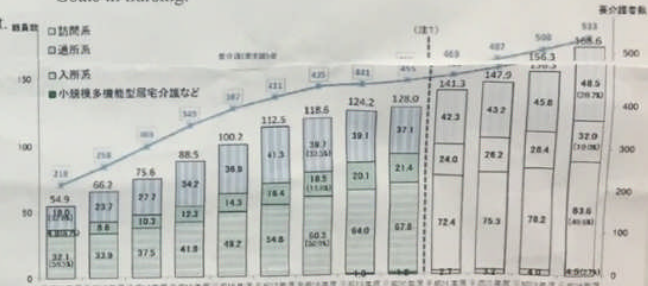


Figure 2 PARO is carebots for mentally i.e., from Japan National Institute of Advanced Industrial Science and Technology, is designed interactive to generate a calming effect on the aged suffering from dismay, anger and anxiety.

## Japanese Government's promotion in "Carebot"

Goals in nursing:



### Priority areas

- ✓ Support the development and practical realization and spread in the important 5 development fields, transfer support from bed, walking support, excretion support, watching over who have dementia, bathing support

### The 2020 vision to aim for

- ◆ Expand the domestic market scale of nursing care robots to 50 billion yen
- ◆ Lower the risk of care givers of suffering from a backache to zero by using nursing care robots for helping the aged transfer
- ◆ Change the awareness of nursing methods using the newest robot technology
  - Increase the percentage of people who wish to use nursing care robots for providing care to 80% from the current 59.8%.
  - Increase the percentage of people who wish to have robots used when undergoing care to 80% from the current 65.1%.

Goals in medicals:

Though the sales figures increase, increase rate rise and fall

### Priority areas

- ✓ Spread the medical devices such as surgical robots
- ✓ Smooth pre-market review of brand-new medical device

### The 2020 vision to aim for

- ◆ More than 100 cases of support to put medical care-related equipment using robot technology will be implemented in 5 years from 2015 to 2020

**Research on Patterns and Mechanisms of Community Engagement**  
**in The Administration of Marine Reserves:**  
**A Case Study of National Parks in Japan**

**HONG Zhe**  
**Zhejiang University**

**I. Introduction**

Marine reserve is different from general sea area for its uniqueness including military, resource, landscape, or ecology. Basically speaking, the term ‘Marine reserve’ represents a kind of marine protected area under legal protection to against private development. Therefore, even though it seems far from ordinary people’s life, the administration of ‘marine reserve’ and following what standard are still big issues. It concerns the national economy and people's livelihood. Any country owning marine area as part of territory should pay attention on this subject. Meanwhile, marine reserve, most of the time overlaps with human habitat. On the one hand, marine reserve is a kind of national valuable territory. On the other hand, marine reserve could be local’s homeland of those living for generation. On this occasion, the problem of protection becomes an environmental issue and a livelihood issue at the same time. For this sake, marine reserve itself acquires a duality for nation and community. Due to this duality, it is natural to link community and environmental protection. No to mention Marine reserve is the commonweal.

Actually, in the world marine protected history, community engagement has already been a popular protection mode today. In this paper, ‘community’ refers to the social units living in or close to marine reserve or marine area which include more than one adult at minimum. The definition of marine reserve adopts internationally accepted standards, which is a sovereign protected marine area

under a legal administration to against any form of unofficial use. The ocean management is complex, which mainly reflects in the marine environment and the administration of marine reserves including marine planning, laws, regulations, co-ordination in land and sea and marine ecosystem management.

This paper is structured as follow. At the beginning, previous discussion in related area were referred, and next a field research report of marine reserve administration from government to nongovernmental interviewee, from basic operation to governance experience was presented to reflected the advantage of community engagement in protection of marine reserve. The paper is unfolded as the above mentioned flow. Meanwhile, the study is limited to Japanese experience, its national personality and social demographic structure. Even though final conclusion would unavoidably be restricted by location or particularity of the chosen marine reserve and size of interviewees. Yet the sacrifice of accuracy is exchanged for the universality of conclusion, which is expected as an inspiring one step.

The paper is aimed to conclude a mature community engagement mode from Japanese administration practice in Marine reserve protection, especially about public participation. In present days in China, there are many contradictions and conflicts in the protection and development of marine reserve under an economic development-based policy. The concept of "community participation" originated from the field of social science. Both its theoretical research and practical operation originated from the western world. The related theory is studied there and various forms are generated. Then practice of community engagement has been carried out earlier. Researcher such as Sherry (2011) for instance used to assess how community changes Japan. Therefore, western countries have corresponding experience from policy to humanistic background in community co-management.

## II. Important administrative strategy and CE in Japan

Governance is a multi-center, high-parameter management. In order to achieve the goal of protection, it is efficient to contribute in the diversification of governor subjects from nation, ministry, prefectural governor, NGO/NPO to local residents and finally establish a management union for public affairs. Only single government cannot monitor our marine protected area. Therefore, inviting third party becomes an important administrative strategy. Here it refers to community engagement. In this model, government and organization and public constructs an interdependent system with inherent logic in the administration of national park. My main research question is about the mechanism of community engagement in Japanese marine national park. Here “mechanism” mainly refers to the relationship linking among government, local authority(prefectural governor), community(NGO/NPO/local public entity) and individuals.

Community engagement is an important concept from Western sociology in the 1980s. It refers to a voluntary act of an individual facing opportunities and duties to practice civil rights. Specifically, it encourages individuals to participate in the development of their own interests by identifying their own needs, mobilizing their resources, and making their own decisions. Community participation is a broad public participation. This means taking responsibility and enjoying the corresponding results. It has inspired the participation of community residents. It gives everyone the opportunity to contribute their talents for the common good of the community. In today's natural protection field, community participation is receiving increasing attention. Because it not only saves resources, improves efficiency, but more importantly, it helps to arouse people's awareness of spontaneous protection of nature in a fast-changing era.

It is not the first time ‘community engagement’ related to environmental protection. At the beginning, it has not yet reached the stage of methodology. As Thomas(2002) observed: ‘ *In spite of the expanding role of public participation in*

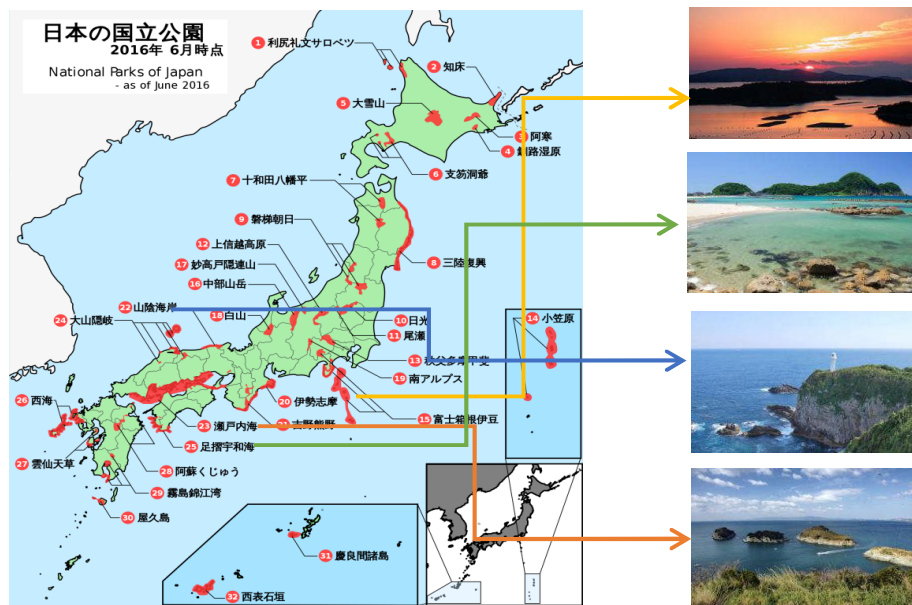
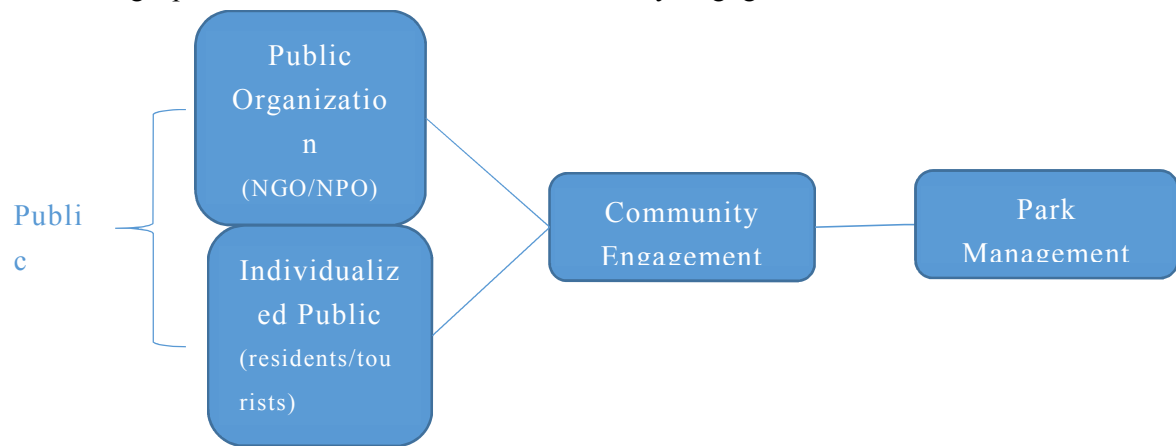
*environmental decision-making, there has been little systematic examination of whether it has, to date, contributions toward better environmental management.'*

Since Japan cultivated a mutual aid culture from the Meiji Restoration to the present and a strong spirit of Japanese personality(Christopher, 1984), a new governance experience(Peter, 1972) with public participation is demonstrated by Japanese authorities in the administration of environmental protection. Therefore, as a established instance, it is worthwhile to identify the advantage of Japanese experience and generate a mature and completed mode of marine reserve administration to benefit the world environmental protection in the post-Paris Agreement era. Thomas(2002) claimed that the concept of community engagement in environmental issues involves two parts. First, it means the cooperation in decision-making, management and supervision of resources and biodiversity with reserve agency; Second, based on the cooperation, in the process of protecting marine environment, both community/resident and agency/government create ecological value and share economic and cultural benefits, which is a win-win to ensure the effective protection of resources with local sustainable development.

In the case of Japanese National Park, community engagement is composed of two parts. First is park management organization. Second is public power which can be divide into public organization and individualized public. NGO, NPO or other environmental corporation are typical public organization. The difference between public power and park management organization is the status. Park management organization can directly manage the park although it is a non-governmental organization too. The public power is in subsidiary status



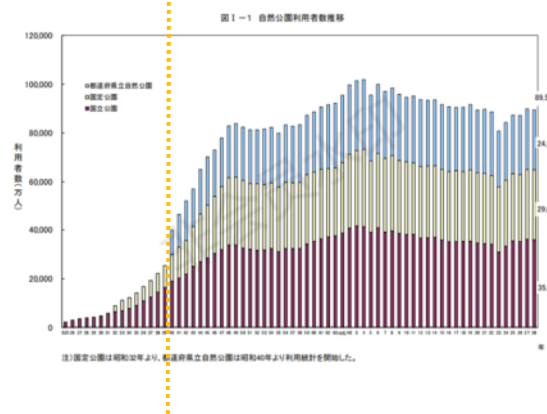
(The graph of the inner relation in community engagement)



(The images of the location of Natural Park in Japan)

(The graph of the change of users in Japan)

1965



### **III. The foundation of national park**

In the 1960s, Japanese economy began to enter a stage of rapid development. Giant comprehensive enterprises were rising while urbanization was like a hurricane sweeping across this country. All of these have left a huge impact on the social and economic structure. At the same time, popular lifestyle changed in the big cities like Tokyo.

Travel becomes a popular way to promote physical health, education level and cultural literacy for Japanese nationals. In order to protect Japan's natural scenic resource effectively and make full use of them, Japan has enacted typical sixteen kinds of national laws such as the Law on the Protection of Nature, the Law on Nature Parks, and the Law on the Protection of Cultural Property. These environmental protection laws witnessed the establishment of the legal system in the administration of environment in Japan, including marine reserves.

Japanese national park system was established under this sociocultural background in 1957 under the Natural Parks Law. The reason for introducing Japanese national park is that Japan does not use the concept of marine reserves or nature reserves. In the website of ministry of the environment in Japan, any word like “reserves” can not be found. The closet concept in Japanese context is national park. For this sake, here we use national park with marine part refer to marine reserves in Japan. It is unavoidable for cross-cultural research and it is tolerable as long as we only focus on Japanese unique administration experience. Here I choose four typical samples of Japanese marine reserve. They are Ise-Shima National Park, Sanin Kaigan National Park, Setonaikai National Park and Ashizuri Uwakai National Park.

At present days, there are three main types of current national park management modes including the centrally-led mode represented by the United States, the local-led mode represented by Australia, the common-led mode represented by the United Kingdom. Japan belongs to the third.



(The images of public engagements and network community, website of the Ministry of the



(images of public engagements of field trip, website of the Ministry of the

#### IV. Disadvantage of public engagement

A typical example of public engagement is in education. The above images are field trip report on the ministry of the environment official website. These field trips are organized by local community in the Ise-Shima national park, Sanin Kaigan national park, Setonaikai national park and Ashizuri Uwakai national park. Here is a common pattern of community engagement that local communities offer a platform for public to participate in environmental issues like field teaching and field experiencing. Here communities in these images are primary school, high school and local nonprofit nature protection office.

A brand new pattern of community engagement happens in cyber world. The ministry of the environment has both facebook and twitter account. Here community refers to the internet users who take care of environment issues. The



amount of network community is uncertain. But its potential is true. The advantage of network community is that everyone can have his or her voice across the geographical boundary on the protection of marine reserve. location is no longer important in the network. Theoretically, the potential power of online community engagement is unlimited and worth waiting for its diversity of cooperation between folk and government

The public as one of the subjects in the administration of the national park. But the individualized public is in a weak position in the community engagement. It is difficult to make their voice be heard through limited channels. And usually, disordered way is a typical characteristics of public engagement, which is difficult to concentrate opinions.

## **V. Advantage of Park Management Organization system**

Basically, community engagement is a spontaneous action. But the solution of some public issues still need the assistance of the public public power. Therefore, the government often formulates specific policies to support community building. It is the same in National Park Law where Japanese government made a famous design of a special form of community engagement called “Park Management Organization system”.

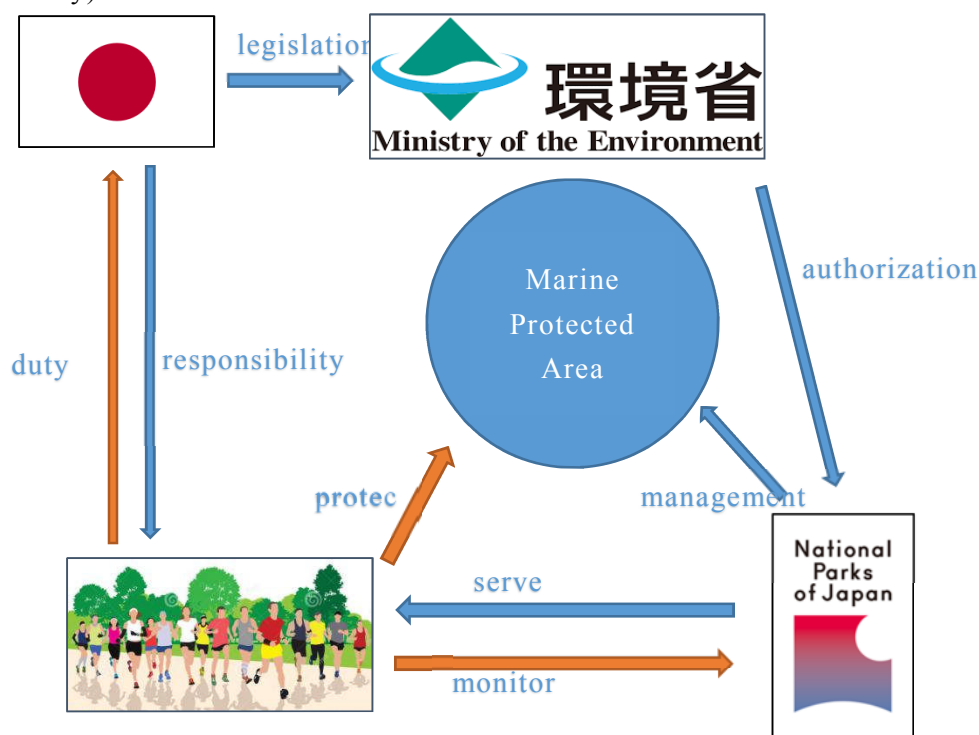
Park Management Organization System is founded in 1957. In accordance with the provisions of the Natural Parks Act, the protection of natural parks is done by national park managers and staff, local government officials(state), and the owners of the park(usually the nation). The protection of Japanese natural parks is dominated by civil society with a heated passion for public participation. Japan established a joint park management system based on the 1957 old Natural Park Law and the 2002 revised Natural Park Law.

The park management group system is a system that integrates the active participation of civil society and citizens to manage the park. The

government-based management model is unable to meet the need for effective protection of natural parks and natural landscapes. It requires the government to invest a lot of money, manpower and material resources. The participation of social groups and citizens will make people more natural and more effective. As an individual, it helps to voluntarily form a sense of protection of natural resources in the people's lives. As a social citizen, it guarantees the sustainable use of national park resources and the environment.

According to the "Natural Park Law", the protection of Japanese natural parks is done by the people, park management organization, local government officials and UNEP. The government's environmental protection department works with civil environmental organizations and other social organization to maximize the protection of natural parks. Some academic, educational institutions or religious groups can take advantage of natural park resources such as research, teaching and worshipping. But at the same time, public also bears the responsibility of protecting natural resources. Moreover, the law allows private industry, landowners to participate in tourism management and government, and various social groups to interact. The development and utilization of tourism resources is not only for the purpose of seeking economic benefits, but also for promoting the more efficient use of natural resources. This is another kind of protection. This type of protection relied on the park management organization system. Not only can it greatly reduced the burden for the governmental budget, but also it can improved the environment more effectively.

(The graph of mechanism of the community engagements and network community)



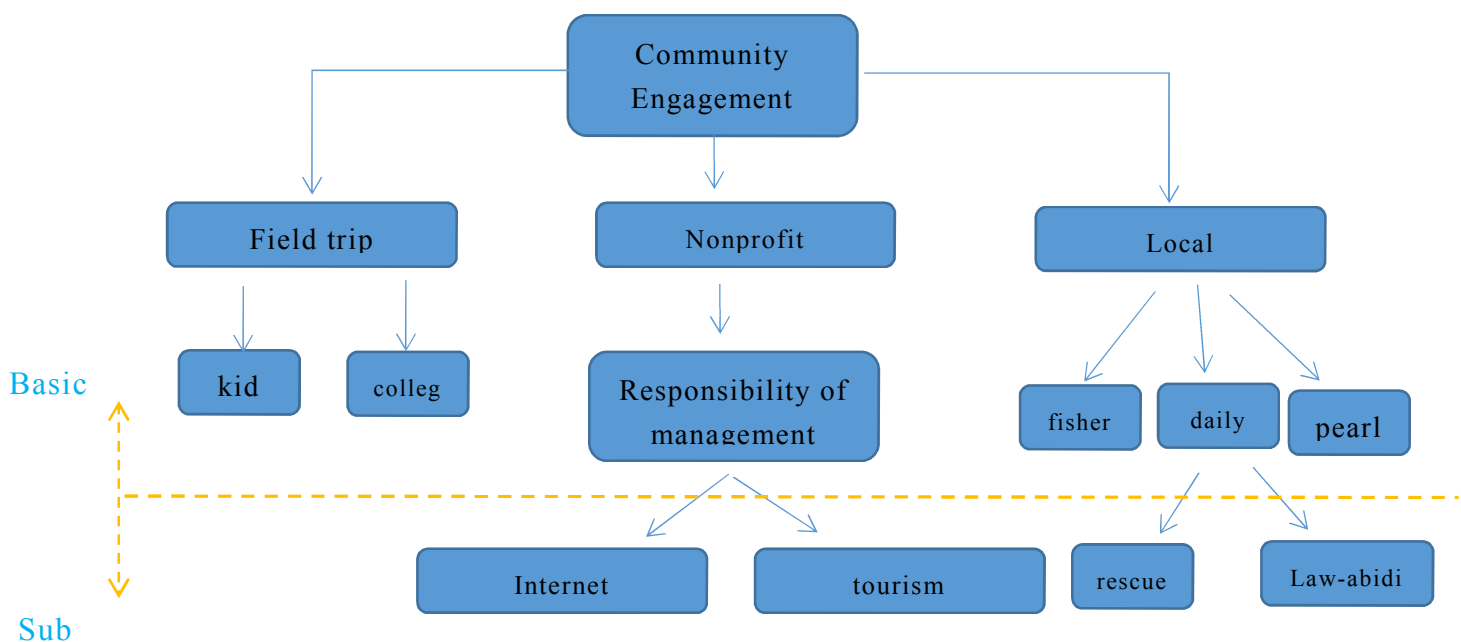
## VI. Mechansim

In the context of natural park, the relevant subject of administration includes nation, the ministry of the environment, prefectural governor, national park management organization, local NGO/NPO and residents in or close to national park. It has an inner dynamic in the procedure of the administration of Japanese national park. The central government gives the power to the ministry of the environment.

To better understand the mechanism, Setonaikai national park offers a typical example. The community in setonaikai national park pays great attention to water waste control. They make contribution on citizen participation and education. For instance, local NPO compiles reading materials explaining what is marine garbage and holds various open lectures and monthly propaganda along the setonaikai coast to local residents and tourists. So that citizens can understand the serious facts of the inland sea pollution and participate in governance if they want.

The protection of civil servants and rights. The Law of Special Measures for Setonaikai Environmental Protection twice mentions the participation in the marine environment protection of local public entities as a legal right. Objectively, Legislation predicts the potential of community engagement and ensures that public entities like NPO or NGO could still contribute to the marine protection in setonaikai national park. With the support from law and government, Setonaika Environmental Protection Association promotes the waste sorting and recycling as public daily tips with other environmental groups and collects public opinions and participates in policy making and seminars with the government.

(The graph of pattern of community engagement)



## VII. Pattern

There are three kinds of laws that provides the legal support to community engagement. They are national park law, law of sea and law of shore.

From the article fifty-one to fifty-four and article forty-nine of chapter seven of National Park Law, community as a unity is legitimately given the authority to

administrate national park. It means the status of community, mayor and the minister of environment are equal in the administration of national park. Here community which govern the marine reserves is also legitimately prohibited to make profits from the administration. Also, here, the spirit of the community engagement is originated from public welfare encourage law. Based on this law, community engagement, as a possible approach to promote public welfare, is advocated warmly.

From the thirteen of article fifteen of the national park law, there are other purpose except public welfare to promote community engagement. They are environmental protection and ecological education. Article fifteen also require the community of management to have sufficient funds to protect the operation of national park.

The ninth of article fifteen of the national park law is about legal liability of community engagement. Here community engagement means specific nonprofit organization. In Japan, nonprofit corporations are most typical example of community engagement. Law guarantee their rights to manage and protect national park under the permit of ministry of environment.

Every legal citizen, other than the State or a public entity can implement part of a national park facility project after obtaining approval from the Minister of the Environment.

Article first of the national park law is about incentive measures for community engagement in Japan. In the next article fifty, the law prescribes the relationship and respective role between local government and nonprofit corporation (community).

From the article forty-six of the national park law, it is clear that local government has its duty to sign the location of protected area and encourage public into the environmental protection. Giving consideration to the protection of fauna and flora living or growing in natural parks is significant for protecting the scenery

of natural parks, the State and local public entities are to take measures to protect the scenery of Natural Parks with the aim of ensuring ecosystem diversity and other biological diversity in natural parks, which represents a respect for property rights and accommodating other public interests.

Besides legal support, Japanese cultural also helps in the community engagement. The basic unit of structure of Japan's district is called town house, self-government council or neighborhood association (町内会). Japan implements a unitary state structure. The administrative level of the government is divided into the prefecture, the province, the hall in the central government, the capital, the prefecture, the county in the local government and the lower level of the city, town, and village.

The grassroots organizations under the lower level are considered as the neighborhood associations or self-governing associations. They are not affiliated with the official administrative agencies. Most of them are the autonomous organizations of the inhabitants. In accordance with the regulations of the Ministry of Internal Affairs and Communications of Japan in the 1940s (Showa 15th), the town halls is a kind of the self-government associations in a certain area (such as the towns in the metropolis, the towns and cities of the prefectures). It is an autonomous organization of the inhabitants composed of the unit called "household"(戸), Self-government council or neighborhood association carries out activities similar to public administration around the various welfare activities of the inhabitants and cooperates in the autonomous management of the residents' affairs.

### **VIII. Inspiration to China**

Although China's Environmental Protection Law has made rules on community engagement in environmental protection, it does not clarify the concept and capacity of community engagement rights. Similarly, the Marine

Environmental Protection Law does not make clear and systematic provisions on the right to engage in the public. Such as the Marine Environmental Protection Law No. 4.

China has more than 9600,0000 square kilometers land, which brings the country more than 2,2000,0000 long sea shore. It is a treasure while it is also a sweet burden. With the high speed of economic development, Chinese government cannot pay equal efforts on marine reserve protection. Governments of China did a series of attempt. However, the quality of the marine environment and the rare species are still on the decline. Both the public and the government are not satisfied with it. In a word, the efforts in marine reserve by authorities with few community cooperation made a mediocre effect. The lack of individual consciousness in environment protection is an educational cause and the inadequate attention on marine and aquatic wildlife is a moral cause. They construct the necessity of community engagement in environment protection in common.

As part of driving force of the paper, Chinese deficiency in existing attempt of community engagement is frustrating. The concept of community participation in nature reserves is introduced into China through the assistance project by international aid organizations, which is the *GEF (Global Environment Organization) China Nature Reserve Management Project* officially launched in august 1995. In the aim of the project, community co- management was located in an important position. But objectively, it failed. The reason is not only in an inertial thinking mode or tradition in China that everything about social welfare is relied on the government administration, but the lack of research on the mechanism, motivation and mode of community participation also caused the failure of experience. From a perspective of a developing country, there is a opinion that public participation is the solution of environmental issues under a tension of

budget, which is also the practical significance of this paper. Thomas(2002) observed: *‘public participation has not only improved environmental policy, but it has also played an important educational role and has helped resolve the conflict and mistrust that often plague environmental issues.’* As what Rowe(2000) concluded, environmental protection should be a career for the benefit of the whole world.

If Chinese government encourages the development of non-governmental environmental protection organizations and attract more nature lovers, experts and scholars to join in the environmental protection organizations spontaneously. It could mobilize the surrounding people to actively participate in the local natural environmental protection. The protection of the natural environment will be more effective.

Governor should emphasize the participation and interaction between public organization and the individualized public. Individualized public monitors and evaluates the environmental protection behaviors of organization. The public organization also make standards for the public environmental protection behaviors. The two affects each other and build the unity of community engagement together. From this perspective, we can better realize the respective role of organization and the individualized public in community engagement.

## **IX. Conclusion**

The Japanese mode of administration of marine reserve is originated from the administration of national park. In detail, community engagement constructs the structure of marine reserve issues in Japan in basic. The community engagement is formed and constructed by law system. Legislation guarantees a dynamic system among nation, ministry of environment, prefectural governor, various kinds of communities and residents. In detail, community can engage in protection of marine reserve in Japan by first local nonprofit corporation, second field trip



research of students(marine reserve in Japan is actually a kind of national park), third self-regulation of local industry union like fish union, forth tourist contribution and global interaction like internet.

Since the above-mentioned of Chinese circumstance, balance among the protection of marine reserve by nation, the willingness of develop by local governments and the realistic needs from residents is the most intense conflict. Community participation or engagement is one of the best ways to solve this problem. It inspires Chinese idea of marine reserve affairs to value the local community and its effect in environmental protection and establish legal and policy support to promote the community engagement in China.

As the core subject of marine environmental governance, the government assumes the role of the helm, the server and the regulator. The community, as one of the important subjects of governance, assumes the role of active participants; community participation is the mainstream trend of social governance, the public bears The role of the participants and supervisors. There is an interaction between the government and the community, the government and the public, the public and the community. The three interdependent, mutually influential, and cooperative, and form a network of environmental and environmental management that regulates the operation of the ocean to achieve effective environmental management.

#### **References:**

- Terawaki, T., Yoshikawa, K., Yoshida, G., Uchimura, M., & Iseki, K. (2003). Ecology and restoration techniques for Sargassum beds in the Seto Inland Sea, Japan. *Marine Pollution Bulletin*, 47(1-6), 198-201.
- Norihisa, M., & Suzuki, W. (2006). Mountainous area management in Japanese national parks: Current status and challenges for the future. *GLOBAL ENVIRONMENTAL RESEARCH-ENGLISH EDITION*-, 10(1), 125.
- Usuki, M. (2004). Present state and perspectives on national parks and protected areas in South-East Asian region. *Tropics*, 13(3), 221-232.

- Kondo, M. (1991). The formation of sacred places as a factor of the environmental preservation: the case of Setonaikai (Inland Sea) in Japan. *Marine pollution bulletin*, 23, 649-652.
- Yamakita, T., Sudo, K., Jintsu-Uchifune, Y., Yamamoto, H., & Shirayama, Y. (2017). Identification of important marine areas using ecologically or biologically significant areas (EBSAs) criteria in the East to Southeast Asia region and comparison with existing registered areas for the purpose of conservation. *Marine Policy*, 81, 273-284.
- Jones, T., & Ohsawa, T. (2016). Monitoring nature-based tourism trends in Japan's national parks: Mixed messages from domestic and inbound visitors. *Parks*, 22(1), 25-36.
- 许浩. (2013). 日本国立公园发展, 体系与特点. 世界林业研究, 26(6), 69-74.
- 章俊华, & 白林. (2002). 日本自然公园的发展与概况. 中国园林, 18(5), 87-90.
- 宁凌, & 毛海玲. (2017). 海洋环境治理中政府、企业与公众定位分析. 海洋开发与管 理 , 1 7 ( 4 ) , 1 3 - 2 1
- 张影, & 张玉强. (2018). 南海区海洋垃圾治理的公众参与研究. 海洋开发与管 理 , 1 8 ( 1 1 ) , 4 6 - 5 2
- 自然公園法
- 自然公園法施行規則
- 海岸法
- 海洋基本法

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Community  
Engagement

National  
Parks  
of Japo

Legal base  
of  
CE

Mechanism  
of  
CE

CE in JAPAN

# 日本の国立公園

2016年 6月時点

National Parks of Japan  
- as of June 2016

1 利尻礼文サロベツ  
2 知床  
3 阿寒  
4 釧路湿原  
5 大雪山  
6 支笏湖群  
7 十和田八幡平  
8 磐梯朝日  
9 三陸復興  
10 上信越高原  
11 妙高戸隠連山  
12 中殿山岳  
13 白山  
14 日光  
15 尾瀬  
16 秩父多摩甲斐  
17 南アルプス  
18 伊勢志摩  
19 吉野熊野  
20 富士箱根伊豆  
21 山陰海岸  
22 大山隠岐  
23 西海  
24 雲仙天草  
25 足摺宇和島  
26 瀬戸内海  
27 阿蘇くじゅう  
28 霧島錦江湾  
29 屋久島  
30 西表石垣  
31 奄美大島  
32 小笠原

	列島・孤島	列島・孤島
海域	湾	湾
	サンゴ礁	サンゴ礁、珊瑚
	干潟	前浜干潟、河口域干潟
南岸	リアス式海岸	リアス式海岸・懸崖状、
	海食海岸	海食崖
	砂浜・砂州・砂嘴	砂浜、砂州、砂嘴、砂丘
	海成段丘	海成段丘、サンゴ礁段丘

Nation  
環境大臣

Bureau  
報道課長

Community  
公園管理団体

# Patterns

## 海岸法

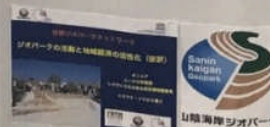
## 海洋法

Call  
of  
CE  
國民義務

Patterns  
(sub)

- University Students
- Requests
- 學生

Go  
Global



環境省公式 Facebook

環境省公式 Twitter

**A Study of Japan's History, Regulation, and Specific Measures regarding Persistent  
Organic Pollutants (POPs)**

**SHEN Xudong**

**Zhejiang University**

**1. Introduction**

Persistent Organic Pollutants (hereafter referred to as POPs) are organic chemical substances that resist environmental degradation, are capable of bio-accumulation and long-term transport, and are toxic to both humans and wildlife. Even very low exposure to POPs may induce cancer, damage to the nervous system, reproductive disorders, and disruption of the immune system.

POPs were manufactured in great quantities during the 20<sup>th</sup> century. They are currently or were used as pesticides, solvents, pharmaceuticals, and industrial chemicals, such as the most infamous Dichlorodiphenyltrichloroethane<sup>1</sup> (DDT) and Polychlorinated biphenyls<sup>2</sup> (PCBs). Due especially to human activities, POPs are now widely distributed around the globe, even in regions where POPs have never been used. Without proper disposure, POPs can result in human tragedies.

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<sup>1</sup> DDT, a colorless, tasteless, and almost odorless crystalline chemical compound, is originally developed as an insecticide, and ultimately becoming infamous for its environmental impacts.

<sup>2</sup>An organic chlorine compound with the formula C<sub>12</sub>H<sub>10</sub>-XCIX, is widely used in in electrical apparatus, carbonless copy paper and heat transfer fluids, and possesses environmental toxicity.

The Stockholm Convention on Persistent Organic Pollutants, which aims to eliminate or restrict the production and use of POPs, is adopted by 182 countries, including Japan. The Convention prescribes that each party should take measures to eliminate the production and the use of POPs, and dispose POPs wastes in an environmentally sound manner. Besides, the developed countries are required to provide technical and financial assistance to the developing countries.

Study of the countermeasures that Japan took or is taking to address the POPs issue, as this paper launched, is valuable considering the fact that Japan realized the issue of POPs and started to take actions as early as 1971. Through the examination of Japan's countermeasures, valuable experiences can be extracted to benefit the rest of the world.

In this paper, data published by the Ministry of Environment, Government of Japan is examined together with the National Implementation Plan of Japan under the Stockholm Convention on Persistent Organic Pollutants, so as to analyze the effectiveness of the measures Japan took or is taking. Other sources of information, such as scientific papers and newspapers articles, will serve as supplementary materials.

The rest of this paper is structured as follows. The second chapter explains the definition of POPs and its adverse effects. The third chapter reviews the historical background of the POPs issue in Japan's case since 1971. The fourth chapter studies the specific measures Japan took or is taking, primarily from the central government side. The fifth chapter evaluates the concentration of POPs in Japan for the past 30 years so as to confirm the effectiveness of the measures being taken. The sixth chapter evaluates the strengths behind Japan's success. And finally, the seventh chapter concludes this paper.

## **2. Background**

### **2.1 What are persistent organic pollutants?**

Persistent organic pollutants (POPs) are defined as a category of chemical compounds with the following characteristics:

- Resist environmental degradation through chemical, biological, and photolytic processes, and remain intact for exceptionally long periods of time (many years);
- Capable of long-range transport before redistribution, and widely distributed in the environment;
- Bio-accumulate in the fatty tissues of living organisms, including humans;
- Potential adverse effects on human health and wildlife.

POPs include pesticides, industrial chemicals, and unintentional by-products of certain manufacturing and combustion processes. They were manufactured in great quantities in the 20<sup>th</sup> century for their beneficial outcomes such as increased crop yields and killing of unwanted pests. POPs were considered as wonder chemicals before scientific researches revealed their long-term devastating effect on both human and wildlife.

POPs are globally dispersed. Action by only a limited number of countries is insufficient for the worldwide elimination and reduction. The Stockholm Convention on Persistent Organic Pollutants (hereafter referred to as the Stockholm Convention) (The Secretariat of the Stockholm Convention, 2009) was adopted in May 2001 and entered into force in May 2004. The Convention prescribes that each party should take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible,

and manage and dispose of POPs wastes in an environmentally sound manner. By the time of January 2019, 182 countries are the contracting parties to the Convention, including Japan.

By the time of January 2019, there are 28 chemicals listed as POPs under the regulation of the Stockholm Convention. Table 1 lists all 28 POPs respectively in three categories.

Annex A (Elimination)		
● Aldrin	● Chlordane	● Dieldrin
● Endrin	● Heptachlor	● ▲ Hexachlorobenzene
● Mirex	● Toxaphene	▲ PCB
● Alpha hexachlorocyclohexane	● Beta hexachlorocyclohexane	● Chlordecone
▲ Hexabromobiphenyl	▲ Hexabromocyclododecane	▲ Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)
▲ Hexachlorobutadiene	● Lindane	● ▲ Pentachlorobenzene
● Pentachlorophenol and its salts and esters	▲ Polychlorinated naphthalenes	● Technical endosulfan and its related isomers
▲ Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial	▲ Decabromodiphenyl ether (Commercial mixture, c- DecaBDE)	▲ Short-chain chlorinated paraffins (SCCPs)

pentabromodiphenyl ether)		
<b>Annex B (Restriction)</b>		
● DDT	▲ Perfluorooctane sulfonic acid (PFOS), its salts and perfluorooctane sulfonyl fluoride (PFOSF)	
<b>Annex C (Unintentional production)</b>		
■ Polychlorinated dibenzo-p-dioxins and dibenzofurans	■ Hexachlorobenzene	■ PCB
▲■ Hexachlorobutadiene	●▲■ Pentachlorobenzene	▲■ Polychlorinated naphthalenes

**Table 1.** All 28 POPs listed under three categories: Annex A, B, and C. Under Annex A: parties must take measures to **eliminate** the production and use. Under Annex B: parties must take measures to **restrict** the production and use. Under Annex C: parties must take measures to **reduce the unintentional release**. ● indicates **pesticides**, ▲ **industrial chemicals**, and ■ **unintentional production**.

## 2.2 Human health effects

Human exposure – through accidental or occupational exposure, or environmental intake, even at low levels of POPs – can lead to increased cancer risk, reproductive disorders,



alteration of the immune system, neurobehavioral impairment, endocrine disruption, genotoxicity and increased birth defects.

### **2.2.1 High level of POPs**

Exposure to high levels of POPs had been proven devastating to human health, especially the children, through many mass poisoning incidents.

The ingestion of hexachlorobenzene added to wheat seedlings affected more than 4000 people in south-east Turkey from 1955 to 1961. Over 3000 people developed *kara yara* (black sore), a condition characterized by pigmentation, hirsutism, weakness, porphyrinuria and bullae. Nursing babies developed *pembe yara* (pink sore), a condition characterized by weakness, seizures and an annular rash. There was also an extremely high rate of mortality in breast-fed children whose mothers ingested the bread. (Cripps, 1984).

A world-famous mass poisoning case happened in Japan in 1968. During the manufacturing process, “Kanemi cooking oil” was heated using PCBs as the heating media. However, the holes in the pipe made the PCBs leak out and contaminate the cooking oil. There were over 14,000 victims who ingested this contaminated cooking oil. They were afflicted with various health problems, such as skin pigmentation effects, an increased fetal death rate, and chlorine acne. More than 30 years afterwards, yet victims were still suffering from their injuries. It turned out later that poly-chloro-dibenzofuran (PCDF), a dioxin and the product of heated PCB, was also contained in the contaminated oils. A similar outbreak of disease resulting from contaminated rice oil also occurred in Taiwan in 1979.

There are indeed many other POPs-related poisoning cases that had made it self-evident that exposure to high levels of POPs will result in adverse effects on human health. These

cases include but not limited to: the health problems related to the U.S. Air Forces' herbicide mass spraying during the Vietnam War, the Seveso disaster (Mocarelli, 1986), the Love Canal Tragedy (Eckardt, 1979), and the Valley of the Drums.

### **2.2.2 Low level of POPs**

High-level exposure of POPs had been proven toxic to human health as illustrated by the before mentioned mass poisoning incidents. But what remains less clear is the effect of an environmental level exposure. There is increasing concern that chronic exposure to low levels of POPs may contribute to public health trends including increased cancer incidence (breast cancer and others), learning disabilities and other neurodevelopmental problems, and reproductive problems such as decreased sperm counts and quality, male genital anomalies, endocrine and immune diseases. Of most concern are the possible effects of low levels on the developing fetus, infants and children. (World Health Organization, 2010)

Epidemiological findings and experimental evidence available so far suggest a strong association between low-level chronic exposures to certain POPs and disease outcomes. But these experiments were generally carried out on laboratory animals and in a controlled environment. They might not be able to reflect the real-life situation where people, rather than laboratory animals, expose to multiple POPs, rather than one, starting even before their births and throughout their lives.

## **3. History of Japanese Environmental Policy concerning POPs**

### **3.1 Before the Stockholm Convention**

Japanese environmental policy and administration system is constructed under the strong influence of several severe pollutions experienced at the age of the rapid economical growth and industrialization. All major pollution incidents have spawned victims' protest movements and pushed the reform of industrial policy. Such incidents include: organomercury poisoning from the acetaldehyde production factory (Minamata disease), cadmium poisoning from the mining activity (Itaiitai disease), air pollution at highly industrialized and densely polluted areas, and the world-famous Kanemi cooking oil health incident.

Influenced by these pollution incidents, Environment Agency of Japan was established in 1971. In 1974, Ministry of the Environment (i.e. MOE) of Japan introduced a “System of Investigation of Chemical Substances in the Environment”. Since then, a systematic environmental survey and monitoring on chemicals have been carried out, which later also included POPs. By the year of 2016, the total number of chemicals surveyed from each medium had reached 1354. (Ministry of Environment Japan, “Chemicals in the environment”)

Meanwhile the law concerning the evaluation of chemical substances and regulation of their manufacture, etc. (Law No. 117 of 1973, hereafter referred to as the Chemicals Substances Control Law) was promulgated in 1973. The Chemical Substances Control Law was amended in 2003 to bring all the chemical substances with possible adverse effect on the top predators in the ecosystem within its regulation.

The Air Pollution Control Law (Law No. 97 of 1968) was stipulated in response to Japanese public's growing concern about the potential contamination caused by the release from waste incinerator facilities. Furthermore, the law concerning special measures against

dioxins (Law No. 105 of 1999, hereafter referred to as the Dioxin Law) was established after designating dioxins as hazardous air pollutants.

Moreover, after failing several times to establish proper PCB disposal facilities, it became a growing concern that the long-term stockpiled PCBs would become untraceable and might contaminate the environment. Thus, in June 2001, the Law concerning Special Measures against PCB Wastes (Law No. 65 of 2001, hereafter referred to as the PCB Special Measures Law) was enacted to obligate entities possessing PCB wastes to report the status of their stockpiling and to dispose of such waste within a given timeframe in an environmentally sound manner.

### **3.2 After the Stockholm Convention**

The Japanese government has positively participated in the work to establish a legally binding international framework since the first Inter-Governmental Negotiating Committee. The Japanese government acceded to the Stockholm Convention on 30 August 2002. On 17 February 2004, the fiftieth instrument of ratification, acceptance, approval or accession to become a Party to the Stockholm Convention was submitted and the Stockholm Convention entered into force on 17 May 2004.

Each party to the Stockholm Convention is required to develop its national implementation plan (NIP) for implementation of its obligations under the Stockholm Convention. Japan's first NIP was published and submitted to the Council of Ministers for Global Environment Conversation for its endorsement in 2005. After amendments were made to the list of POPs to add nine more chemicals under the Stockholm Convention in 2010, Japan revised and published its NIP in 2012. A new chemical was adopted to be added to the

Convention on November 2014. The second-time-revised NIP was drafted and published in 2016. 2016 NIP is the most updated one.

#### **4. Specific measures**

##### **4.1 Legal framework**

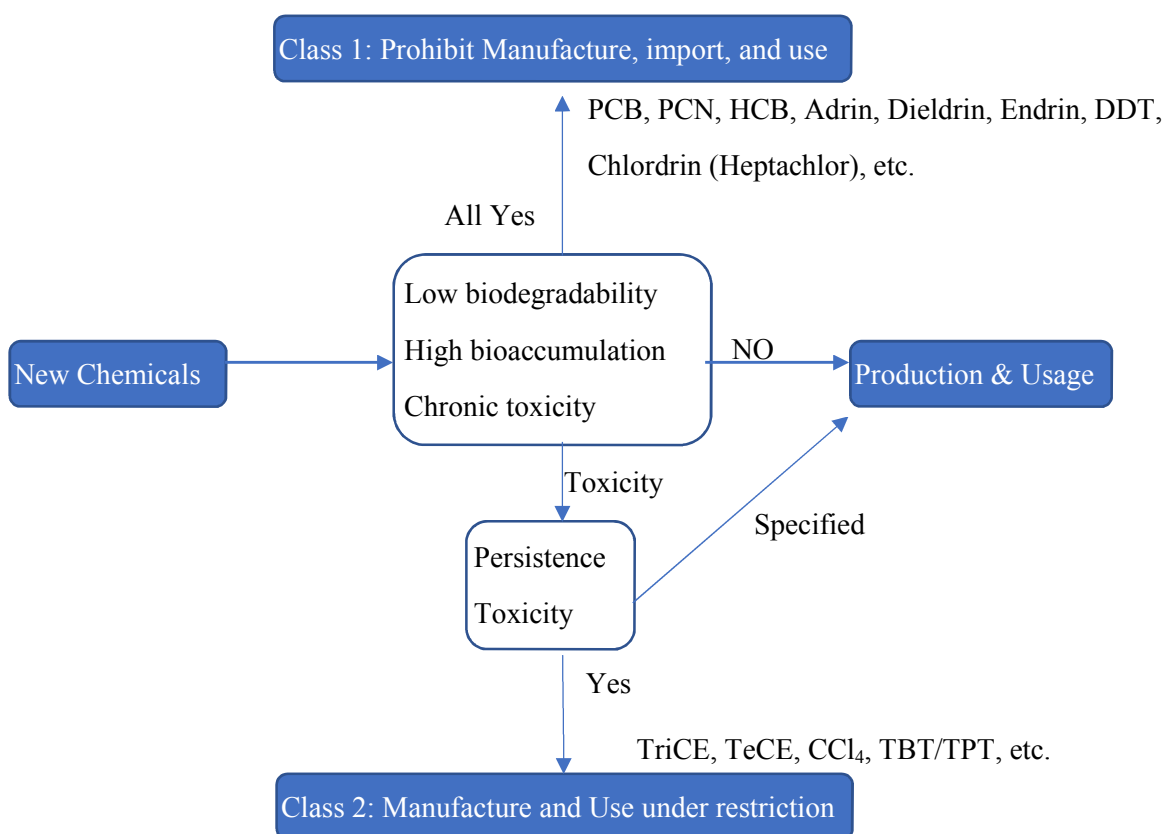
Concerning legal framework regulating the manufacture, use, import and export, and disposal of POPs in Japan, there are mainly the Chemical Substances Control Law, the Agricultural Chemicals Regulation Law, the Foreign Exchange and Foreign Trade Act, the Dioxin Special Measures Law (Law No. 105 of 1999), and the PCB Special Measures Law. Under these laws regulatory measures are taken with respect to the manufacture, use, import and export, and disposal of chemical substances equivalent to POPs in terms of all their aspects or uses. The following is an overview of these laws.

###### **4.1.1 The Chemical Substance Control Law**

The Chemical Substances Control Law was enacted in 1973 as a result of the PCB pollution, and amended in 1986 due to the ground water pollution by trichloroethylene etc.

Under this law, New chemicals are examined before manufacture or import to assess if they have low biodegradability, high bioaccumulation, and chronic toxicity, i.e. POPs-like chemicals. Substances determined with the above properties are designated as Class 1 Specified Chemical Substances, and their manufacture, import and use etc., will be banned. Substance with low biodegradability but low bioaccumulation and no known toxicity, are designated as Designated Chemical Substances. Their volume of manufacture and import is to be reported. If these substances are observed to be toxic to human health, they then will be

designated as Class 2 Specified Chemical Substances, and the production and importation volume are regulated. The system of the Chemical Substances Control Law is illustrated in Figure 1. (Ministry of Environment Japan, “Outline of the Chemical Substances Control Law”)



**Figure 1.** Schematic of the Chemical Substances Control Law

#### 4.1.2 The Agricultural Chemicals Regulation Law

The Agricultural Chemicals Regulation Law introduced an agricultural chemical registration system that regulates the sale and use of agricultural chemicals.

If the agricultural chemicals are persistent, either in crops or soils, or may pollute water, or are toxic to human or animals, they shall be prohibited from distribution and use. It has been currently prohibited under the law to distribute or use agricultural chemicals containing

15 chemicals designated under the Stockholm Convention. (Ministry of Environment Japan, “Agricultural Chemicals Regulation Law”)

#### **4.1.3 The Foreign Exchange and Foreign Trade Act**

Although the import of chemicals designated under the Stockholm Convention is already regulated by the Chemical Substances Control Law, it is also regulated under the Import Trade Control Order based on the Foreign Exchange and Foreign Trade Act, as a complementary framework, to virtually prohibit their import.

The Export Trade Control Order and the Import Trade Control Order under the Foreign Exchange and Foreign Trade Act stipulates that POPs and products containing POPs are subject to the requirement of export and import approval. Together with many other domestic laws, stockpiles and wastes are required to be disposed in an environment sound manner.

#### **4.1.4 The Dioxin Special Measures Law**

As a result of a dioxin debacle that occurred at Tokorozawa in 1998, the Dioxin Special Measures Law was issued in July 1999. This law established standards necessary to form the basis of policies on dioxins, such as tolerable daily intake, environmental quality standards, emission standards, etc. It also set forth regulations and measures relating to soil contamination in order to carry out the prevention and removal of environmental pollution caused by dioxins. (Environment Agency of Japan, 1999)

#### **4.1.5 The PCB Special Measures Law**

The manufacturing of PCB was banned in 1972. Due to lack of proper disposing technology at that time, the owners of waste containing PCB were asked to store such waste in a manner that prevent leaks. In 2001, the PCB Special Measures Law was set up to

establish framework for the prompt, secure and appropriate treatment of PCB wastes. The government established five facilities that treat waste with high concentrations of PCB, while waste with low concentration of PCBs is treated by certified disposal facilities. The law defines the obligations of PCB waste holders, former PCB manufactures, central government and local governments, sets deadlines for treatment of PCB waste, and obliges the registration and public reporting of stored PCB waste.

Their Responsibility is explained in Figure 2. (Japan Environmental Storage & Safe Corporation, n.d.)

PCB Waste Holders	Central Government & Prefectures	PCB Manufacturers
<p>Report of Storage</p> <ul style="list-style-type: none"> <li>• The holders must annually report the storage and disposal of PCB waste to prefectural governors</li> </ul> <p>Deadline for Disposal</p> <ul style="list-style-type: none"> <li>• PCB waste holders are to dispose or consign someone to dispose all PCB wastes by deadline set by the government.</li> </ul> <p>Limitation of Assignment</p> <ul style="list-style-type: none"> <li>• To prevent illegal acts, assignment or transfer of PCB waste is limited.</li> </ul>	<p>Basic Plan / Plan for PCB waste treatment</p> <ul style="list-style-type: none"> <li>• The central government must establish basic plan for PCB waste treatment</li> <li>• Prefectures and government-decreed cities must establish plans for the treatment of PCB wastes, in response to the central government's basic plan.</li> </ul> <p>Disclosure of Status of PCB waste storage</p> <ul style="list-style-type: none"> <li>• Prefectural governors or mayors of government-decreed cities must make available to the public the status of PCB waste storage and disposal annually.</li> </ul>	<p>Product Liability</p> <ul style="list-style-type: none"> <li>• Former Manufacturers of PCB must cooperate with the central and local government</li> </ul> <p>Contribution of Funds</p> <ul style="list-style-type: none"> <li>• Former manufacturers of PCBs and other groups are requested to contribute to the PCB Waste Treatment Fund for the promotion of PCB waste treatment.</li> </ul>



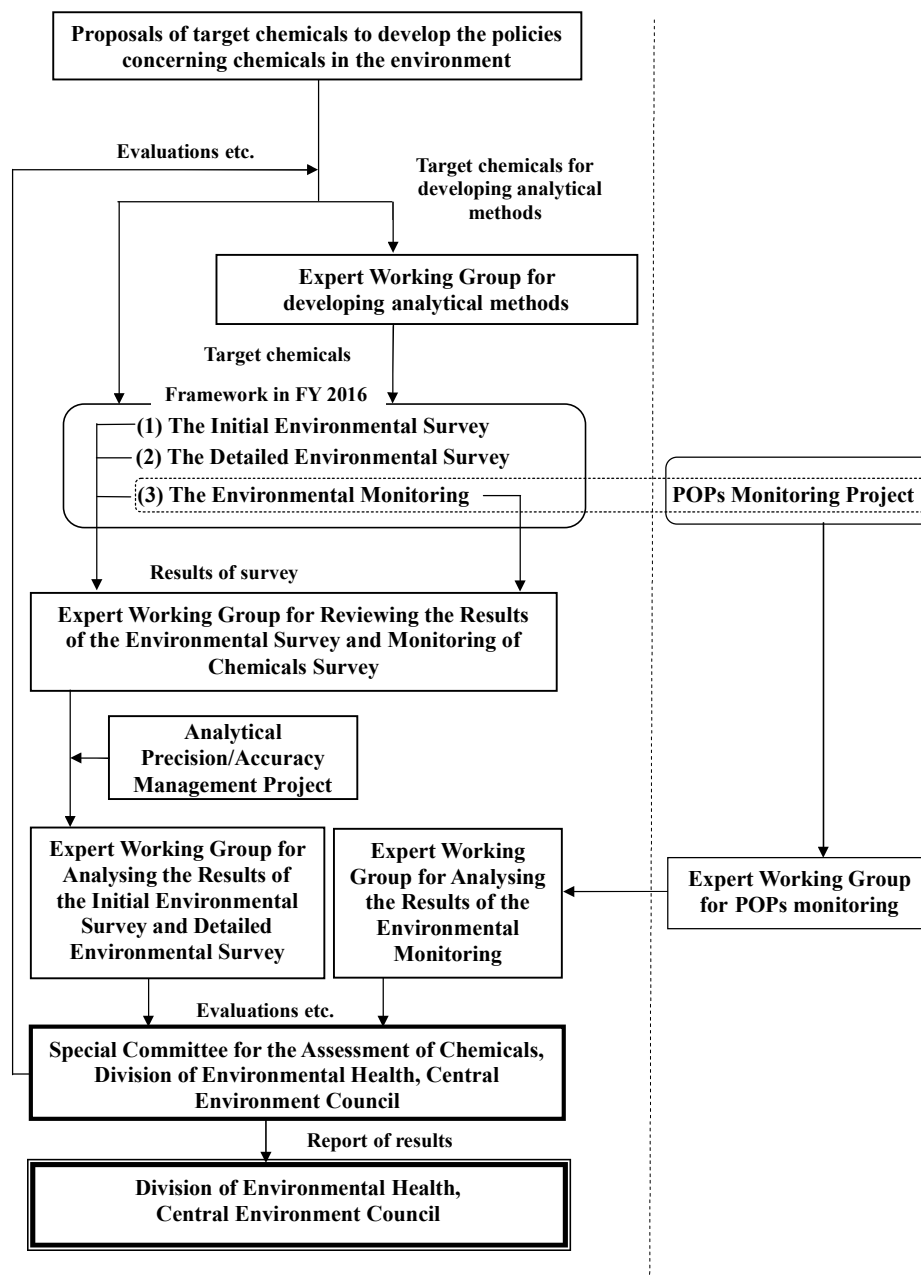
**Figure 2.** The obligations of PCB waste holders, the central government & prefectures, and PCB manufactures set by the PCB Special Measures Law

#### **4.2 Environmental survey and monitoring**

The Environmental Survey and Monitoring of Chemicals begun in 1974, for the purpose of understanding the presence of existing chemical substances in the general environment. Since 2002, the previously used Priority List-based method was reviewed and changed into a method in which target chemicals are proposed by each department such that the survey results will be effectively utilized. It also enabled the Monitoring system to respond efficiently to the changing request, including the effectuation and expansion of the Stockholm Convention.

The Environmental Survey and Monitoring of Chemicals has been implemented within a system that comprises the Initial Environmental Survey, the Detailed Environmental Survey, and Environmental Monitoring since 2006. As of 2010, survey points had been re-distributed or newly-designated to more effectively utilize resources.

Figure 3 is a schematic of Environmental Survey and Monitoring of Chemicals in 2016. (Ministry of Environment Japan, 2018 March)



**Figure 3.** Schematic of Environmental Survey and Monitoring of Chemicals in 2016

#### 4.2.1 The initial environmental survey

The purpose of this Initial Environmental Survey is to grasp the status of environmental persistence of the chemical substances that are considered to present environmental risks. The target chemicals include Designated Chemical Substances specified in the Chemical

Substances Control Law, candidate substances for the PRTR system, unintentionally formed chemical substances and the substances required by social factors.

This survey provides the basic references to assess risk potential and determine survey parameters. Such survey data were precisely examined and analyzed at the Expert Working Group for Reviewing the Results of the Environmental Survey and Monitoring of Chemicals and the Expert Working Group for Analyzing the Results of the Initial Environmental Survey and Detailed Environmental Survey. Moreover, analytical methods were also developed as necessary.

#### **4.2.2 The detailed environmental survey**

Nationwide surveys are implemented to provide the references and parameters needed to properly evaluate risks posed by and levels of exposure to, chemical substances as annotated under the Chemical Substance Control Law. Similar to the Initial Environmental Survey, the survey data were examined and analyzed, and analytical methods were also developed as necessary.

#### **4.2.3 The environmental monitoring**

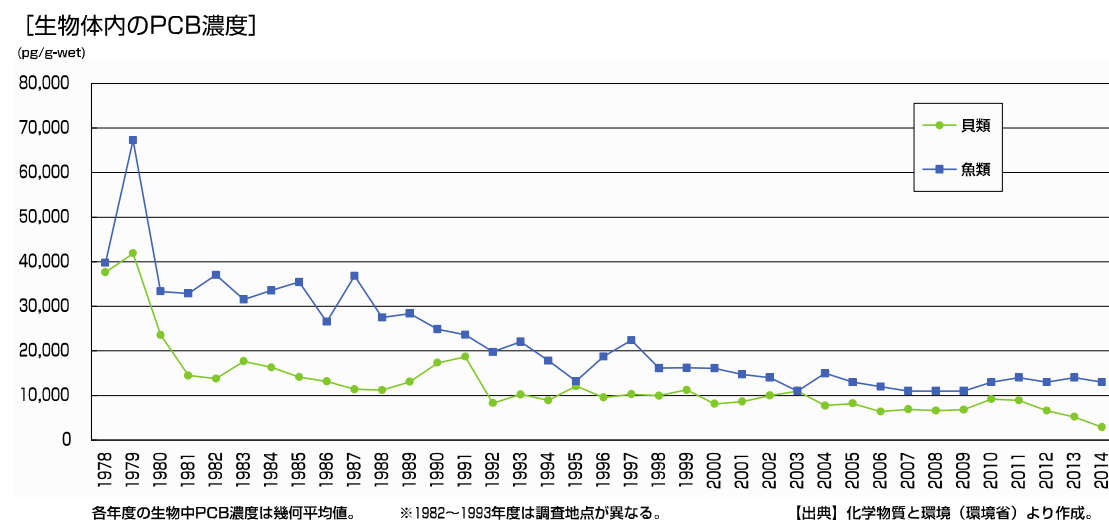
Environmental Monitoring is annually implemented to effectively track the residual or persistence levels in the general environment of the Designated Chemical Substances set out in the Chemical Substances Control Law, and/or for the purpose of tracking year to year changes in levels of POPs as defined in the text of the Stockholm Convention. Two groups, the Expert Working Group for Review of Results of Environmental Surveys and Monitoring of Chemicals, and, the Expert Working Group for Analyzing the Results of Environmental

Monitoring (convened on November 30th, 2015) along with the Expert Group on POPs

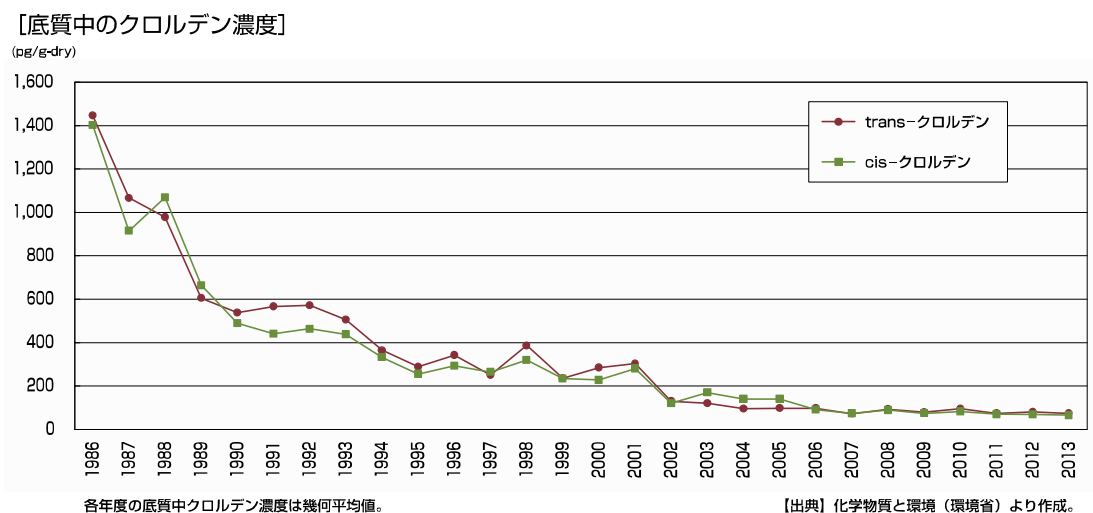
Monitoring (convened on December 3rd, 2015) reviewed and evaluated the data.

## 5. Assessment

Due to the progress of the countermeasures taken by Japan, including the development of laws and regulations, environmental monitoring, and cooperation between all actors, overall environmental concentration of POPs has been gradually decreasing. PCB and Chlordane are taken as two examples (see Figure 4 and 5), confirming the effectiveness of Japan's POPs clear-up campaign.



**Figure 4.** The concentration of PCB in fish and shellfish from 1978 to 2014



**Figure 5.** The concentration of trans/cis-Chlordane in the sediment

## 6. Japan's strengths

### 6.1 Early awareness

As nowadays Japan being an international environmental leader either globally or within Asia, the image 50 years ago is quite the opposite. In the 1960s amid the rapid industrialization and economic growth, Japan was arguably among the most polluted countries in the world. Serious pollutions surfaced all over the country. Examples include the industrial mercury poisoning that led to an outbreak of Minamata disease, the severe health impacts of air pollution from the giant petrochemical complex in Yokkaichi, and the mining-caused cadmium pollution that made people suffer from the "itai-itai" disease (literally, the "ouch-ouch sickness").

Such a time was elements of misery on Japan's record. It was a painful experience for Japan that allowing pollution to get so bad during its high growth years, but it did have some positive outcomes. Eventually efforts were being taken, e.g., urban air and water pollution

clean-up and energy efficiency improvements. The modern Japanese environmental movement also began in the early 1960s, mainly by the local residents most affected. The government started to tighten the environmental regulations. It was a good and timely start. (Alan & Curtis, 1991)

## **6.2 Government's political will**

It is generally thought that the Japanese, because of its religious beliefs, value nature much more than Westerners. According to Yamada's survey (2009), Japanese people do have a high level of interest in environmental issue. Japan also has a long history of environmental movement. But surprisingly, much of the credits of Japan's environmental performance are due to the government's political will.

The late 1980s was a major turning point for Japan's environmental policy. Previously Japan had suffered from a poor international image resulting from the fact that Japan government was reluctant to take measures against chlorofluorocarbons<sup>3</sup> (CFCs) and Japanese companies extracted natural resources abroad in an unsustainable way. On top of its international environmental image problems, Japan's large trade surplus with the West meant that Japanese government and industry were being closely scrutinized. Increasing pressure was laid on the Japanese government from the international society to urge Japan to contribute to the global problem solving.

Thus, Prime Minister Noboru Takeshita seized on the environment as a positive issue area for Japan's foreign policy (as well as for the Liberal Democratic Party (LDP), which was

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<sup>3</sup> CFCs are better known by Freon, which is commonly used as refrigerants.

trying to recover from a series of bribery scandals) (Schreurs, 2002). Almost overnight, because of a top-down political decision, international environmental protection suddenly became one of the guiding principles of Japan's foreign policy framework. This decision has led to a decade of substantial legislative and institutional changes (Schreurs, 2004). Japan's active participation in the Stockholm Convention also benefitted from the rapid change of the government's attitude.

### **6.3 Comprehensive legal framework and persistent environmental monitoring system**

As elaborated in the previous chapter, Japan has developed a relatively complete and comprehensive legal framework concerning POPs in terms of all of their aspects, e.g., the manufacture, use, import, export, and disposal. For chemicals with severe hazard and increasing public concern, specific laws, such as the Dioxin Specific Law and the PCB Specific Law, are promulgated on top of other general laws. Such a complete and comprehensive legal framework laid a solid foundation for the government to administrate, and the business operators to follow.

Moreover, since amendments were made to the Chemical Substances Control Law in April 2011, Japan's legal framework concerning POPs has evolved into a risk-based framework rather than a hazard-based one, in order to achieve more comprehensive chemical evaluation and risk management. The evaluation is carried out not only for those designated chemicals, but also for chemicals that are not subject to the notification or risk assessment requirements. In doing so, chemicals will be evaluated with the focus not only on the hazard of the subject chemical itself but also on the potential level of exposure to humans and flora and fauna in the environment. Although such a legal framework regulates all chemicals not

specifically POPs, it is especially important for POPs because POPs' potential adverse effect on human health cannot be easily observed until they accumulate to a certain level. This risk-based legal framework enabled Japan to do risk-management in advance, prevent chemical misapplication and leakage incidents as much as possible, and respond quickly and properly to potential poisoning incidents. (ENHESA, 2011)

In addition, Environmental Survey and Monitoring of Chemicals conducted by the Ministry of Environment plays an essential role in chemical assessment and management activities. Long-term data about the chemicals in the environment enables an effective and reliable assessment of the measures being taken, and further modification of these measures accordingly.

#### **6.4 Government's participation**

Recognizing the severity of the POPs issue, the Government of Japan not only takes up the job as a regulator, but also an active participator and service provider, coordinating with the business operators, the general public, and other governments. This also contributed considerably to the protection of human health and conservation of the environment from POPs.

##### **6.4.1 Government-company connection**

Companies who are working in the relevant industry are one of the main actors in the mission of worldwide elimination and reduction of POPs. But for most of the cases, the POPs issue has been so complex and costly that a single company or the industry alone cannot address. Japanese government has been mindful of their respective responsibilities to help the industry and acted actively. Following are two examples.

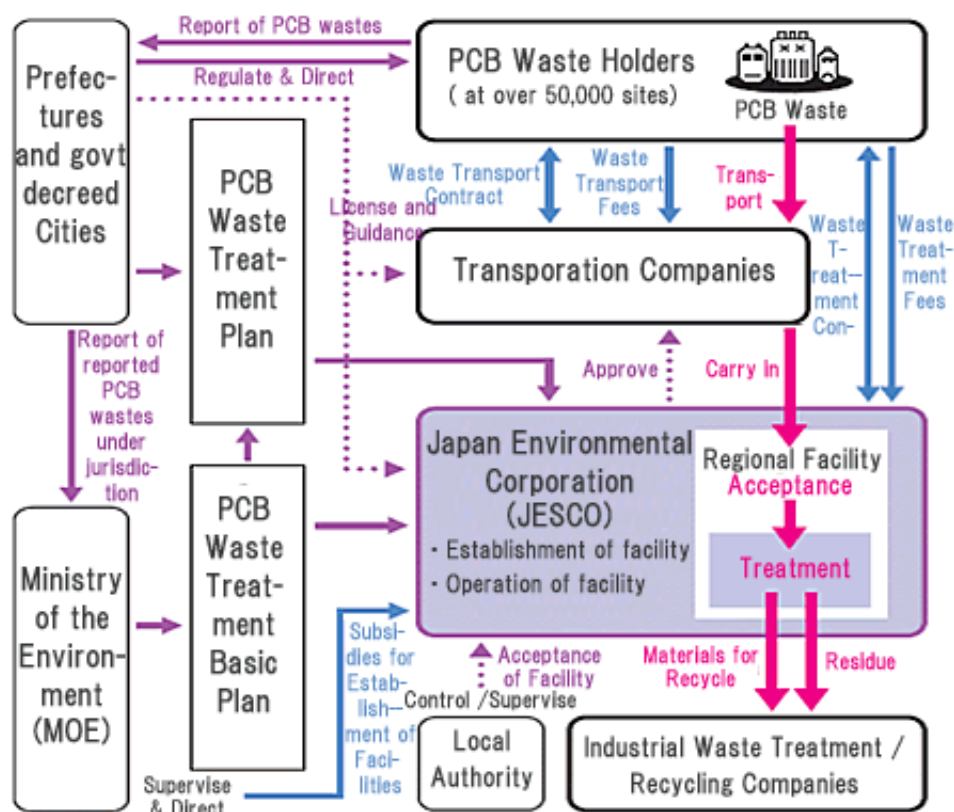


One of the challenges that business operators face is the significant expansion of mandatory annual reporting requirements. As regulated under the “risk-based framework”, business operators must submit an annual report to the METI (Ministry of Economy, Trade and Industry) regardless of the classification category of the chemicals. The METI developed a software system for business operators to assist with the annual reporting process. The system provides useful functions to facilitate the process such as a data conversion tool to convert electronic data (e.g. chemical inventory in Excel) to the reporting format. It also contains a chemical search function to identify chemical classifications, national identification numbers, and CAS number.

Besides facilitating the paperwork, Japanese government has also been providing investments to alleviate the financial burden of the PCB-holders to dispose the long-term-stored PCBs. PCBs are stored at individual holders’ hands at over 50000 sites all over Japan<sup>4</sup>. It is impractical and uneconomical for them to dispose PCBs individually. Thus, Japan Environmental Storage & Safety Corporation (JESCO) was founded by the government. It cooperated with local governments and established five regional plants to dispose waste with high concentration of POPs. PCB waste holders will only have to entrust JESCO to treat the wastes (Japan Environmental Storage & Safe Corporation, n.d.). Figure 6 shows how Japanese government participates in the PCB treatment program.

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<sup>4</sup> As mentioned before, due to lack of proper disposing technology, when PCBs were banned in 1972, the government of Japan asked the PCB-holders to store their PCB individually.



**Figure 6.** Correlation Chart & Flow of PCB Waste Treatment

## 6.5 Government-public connection

Addressing the POPs issue requires all actors, including the government, the business operators, and the civil society, to be mindful of their respective responsibilities and work closely with each other. Japanese government, as the main actor, has been making efforts to ensure understanding, coordination, and cooperation among all the actors, especially with the civil society.

The government has a unified and systematic public awareness activities such as preparing an inter-ministerial pamphlet, and issuing an annual report. Japanese government strives to disclose and public accurate information regarding impacts of POPs on human health and the environment, the results of research and development, and international trends,

including relevant statistical data and their actual implications, in a prompt and easily understandable manner. In addition, what benefitted me vastly is that Japanese government also translates all information into English to make it accessible to the foreigners in Japan and abroad.

The government also provides systematic training to technical experts working in official testing organizations of local public authorities etc. to help them enhance their understanding of analytical techniques and their skills for using the technologies.

#### **6.5.1 International cooperation**

In cooperation with the other governments and international organizations, Japanese government has been contributing internationally towards the mission of worldwide elimination and reduction of POPs.

One of the most important aspects of Japan's international cooperation is its financial and technology assistance to the developing countries. In the sixth replenishment of GEF (Global Environment Facility), Japan has contributed 607 million dollars representing 16.39% of the Fund's total of 4.43 billion dollars on a pledging basis. Japan has also been dispatching experts to and receiving trainees from the developing countries.

### **7. Conclusion**

Starting from one of the most polluted countries in the 1960s and nowadays becoming a global leader in environmental issues, Japan's experience could offer significant reference value for other countries. So is the case of Persistent Organic Pollutants.

In order to protect human health from the exposure of POPs, Japan established a comprehensive risk-based legal framework regulating all aspects and uses of POPs, which consists mainly of the Chemical Substances Control Law, the Agricultural Chemicals Regulation Law, the Foreign Exchange and Foreign Trade Act, the Dioxin Special Measures Law, and the PCB Special Measures Law. Ministry of Environment has been carrying out a long-term Environmental Survey and Monitoring program since 1974, which annually monitor the concentration of all kinds of POPs in the environment. Japanese government has also been putting persistent efforts and participating actively to ensure understanding, coordination, and cooperation with all other actors, including the business operators, the civil society, and the international society. Statistics from the Environmental Survey and Monitoring program has confirmed the success of the countermeasures that Japan took.

The evaluation of Japan's strengths revealed a strong positive correlation between Japan's success in POPs clear-up campaign and the government's strong political will and active participation. Although Japanese government did not set a firm stance to take measures against the environmental issues until the Noboru Takeshita administration, his decision making environmental protection one of the guiding principles of Japan's foreign policy has led to a decade of substantial legislative and institutional changes. Afterwards, Japanese government has shown strong determination and motivation. Moreover, Japanese government not only regulates, but also actively participates in addressing the POPs issue.

Thus, the most important experience from Japan's case is the government's essential role in the POPs campaign. A comprehensive risk-based legal framework regulating all the aspects and uses of POPs is fundamental. An effective environmental monitoring program is

also necessary. In addition, the government's service-oriented attitude to actively coordinate and cooperate with other actors, especially the business operators, is equally important.

### **Acknowledgement**

I would like to express my deepest appreciation to all those who provided me the possibility to complete this report. A special gratitude I give to my supervisor, Ms. Sachiko Hirakawa, whose guidance and encouragements helped me to coordinate my project, especially in writing this report.

Furthermore, I would also like to acknowledge with much appreciation the crucial role of the staff of Center for International Education, especially Yui Akasaki and Mayu Iida, who helped arrange our life in Tokyo, and all our seminars and guest speaker events. A special thank also goes to my dearest friends in the 5<sup>th</sup> cohort of Master Kong Dream Scholarship Program, who I drew much enjoyment and inspiration from. The connections we have made through this journey have enriched my life and I look forward to continuing our relationships.

Last but not least, many thanks go to Waseda University and Master Kong, who invested in our potential and provided such a wonderful opportunity for us to study overseas. I couldn't appreciate more.

### **References**

Alan S. M. & Curtis M. (1991). Japan and the Global Environment. *Duke Environmental Law & Policy Forum*, 1991: 35-56.

- CRIPPS, D., PETERS, H., GOCMEN, A., & DOGRAMICI, I. (1984). Porphyria turcica due to hexachlorobenzene: a 20 to 30-year follow - up study on 204 patients. *British Journal of Dermatology*, 111: 413-422. doi:10.1111/j.1365-2133.1984.tb06603.x
- Eckardt C. Beck. (1979). The Love Canal Tragedy. *US Environmental Protection Agency Journal*. January 1979. Retrieved January 31, 2019, from <https://archive.epa.gov/epa/aboutepa/love-canal-tragedy.html>
- ENHESA. (2011). Japanese REACH – Now fully implemented. Retrieved January 25, 2019, from <https://enhesa.wordpress.com/2011/06/27/japanese-reach-now-fully-implemented/>
- Environment Agency of Japan. (1999). Law Concerning Special Measures against Dioxins (Law No. 105 of 1999. Promulgated on July 16, 1999) (Provisional Translation). Retrieved January 22, 2019, from <http://www.env.go.jp/en/chemi/pops/Appendix/05-Laws/DioxinLaw.pdf>
- Japan Environmental Storage & Safe Corporation. (n.d.). Government's Scheme to Promote PCB Waste Treatment. Retrived January 21, 2019, from <http://www.jesconet.co.jp/eg/pcb/scheme.html>
- Masuda Yoshito. (1994). The Yusho Rice Oil Poisoning Incident. in *Dioxins and Health* Vol. 1 (ed. Schecter, A.) 633–659, Springer. 1994.
- Ministry of Environment, Japan. (n.d.). Chemical in the Environment. Retrieved January 21, 2019, from <http://www.env.go.jp/chemi/kurohon/en/index.html>
- Ministry of Environment, Japan. (n.d.). Outline of the Chemical Substances Control Law. Retrieved January 21, 2019, from <http://www.env.go.jp/en/chemi/pops/Appendix/05-Laws/ChemSubstLaw.pdf>

Ministry of Environment, Japan. (n.d.). Agricultural Chemicals Regulation Law. Retrieved January 21, 2019, from

<http://www.env.go.jp/en/chemi/pops/Appendix/05-Laws/agri-chem-laws.pdf>

Ministry of the Environment, Japan. (2016). The National Implementation Plan of Japan under the Stockholm Convention on Persistent Organic Pollutants.

Ministry of Environment, Japan. (2018, March). Outline of Results of the Environmental Survey and Monitoring of Chemicals in FY2016. Retrieved January 22, 2019, from [https://www.env.go.jp/chemi/kurohon/en/http2017e/pdf/02\\_Outline.pdf](https://www.env.go.jp/chemi/kurohon/en/http2017e/pdf/02_Outline.pdf)

Mocarelli P et al. (1986). Clinical laboratory manifestations of exposure to dioxin in children. A six-year study of the effects of an environmental disaster near Seveso, Italy. *Journal of the American Medical Association*, 256:2687–2695.

Schreurs M. A. (2002). Environmental Politics in Japan, Germany, and the United States. Cambridge: Cambridge University Press.

Schreurs M. A. (2004). Assessing Japan's Role as a Global. Environmental Leader, *Policy and Society*, 23:1, 88-110. DOI: 10.1016/S1449-4035(04)70028-4

The Secretariat of the Stockholm Convention. (2009). Stockholm Convention on Persistent Organic Pollutants (POPs) as amended in 2009.

World Health Organization. (2010). Persistent organic pollutants: impact on child health. Geneva: World Health Organization. Retrieved January 20, 2019, from <http://www.who.int/iris/handle/10665/44525>

Yamada A. (2009). Environmental consciousness in Japan: from the "Survey of attitudes toward the environment". In NHK broadcasting studies, 2009 (7), (pp. 99-132). Tokyo: NHK Broadcasting Culture Research Institute

Yusho disease: Kanemi rice oil contaminated with PCB, Japan. (n.d.) Retrieved January 20, 2019, from <https://ejatlas.org/conflict/kanemi-rice-oil-contamination-japan>



# A Study of Japan's History, Regulation, and Specific Measures regarding Persistent Organic Pollutants (POPs)

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 In Partial Fulfillment of the Requirements for the Master Kong Dream Scholarship Program

## What are POPs?

Persistent Organic Pollutants (POPs) are chemicals with the following characteristics:

- (難分解性) Resist environmental degradation
- (長距離移動性) Capable of long-range transport
- (生物蓄積性) Bio-accumulate in fatty tissues, including humans
- (有害性) Potential adverse effect on human and wildlife

Many mass poisoning incidents of POPs have resulted in enormous loss of life and personal injury. Examples in Japan include DDT residue in agriculture, Yusho disease, dioxin issue, hazardous air pollutants, etc.



## Stockholm Convention

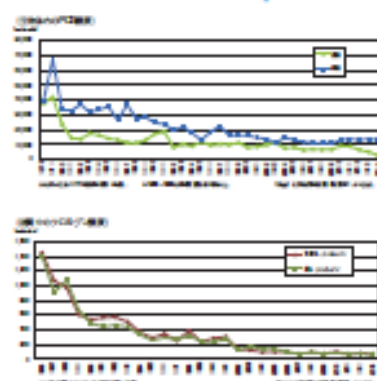
Stockholm Convention is an international binding framework aiming for the worldwide elimination and reduction of POPs. By the time of January 2019, 182 countries are the contracting parties to the Convention, including Japan.

The Convention prescribes that each party should take measures to eliminate production and use of intentionally produced POPs, eliminate unintentionally produced POPs where feasible, and manage and dispose of POPs wastes in an environmentally sound manner.

The chemicals targeted as POPs by the Stockholm Convention are listed below.



## The Situation in Japan



Japan suffered from environmental problems between 1950s and 1980s. However, statistics show that Japan had a very good improvement regarding POPs. Japan nowadays is even recognized as an international environmental leader either globally or within Asia.

## Japan's strengths

My focus of study is to analyze Japan's strengths behind its excellent performance regarding POPs. And hopefully these strengths could inspire and help other countries.

### Early Awareness

In the 1960s, Japan was arguably among the most polluted countries in the world. Serious pollutions surfaced all over the country. Such a time was elements of misery on Japan's record, but it did have some positive outcomes. Eventually efforts were being taken, e.g., urban air and water pollution clean-up and energy efficiency improvements. The modern Japanese environmental movement also began in the early 1960s. The government started to tighten the environmental regulations. It was a good and timely start. (Alan & Curtis, 1991)

### Government's Political Will

In the late 1980s, increasing pressure was laid on the Japanese government from the international society to urge Japan to contribute to the global environmental problem solving. Thus, Prime Minister Noboru Takeshita seized on the environment as a positive issue area for Japan's foreign policy. Almost overnight, because of a top-down political decision, environmental protection suddenly became one of the guiding principles of Japan's foreign policy framework.

This decision has led to a decade of substantial legislative and institutional changes (Schreurs, 2004).

## Legal System and Environmental Monitoring System

Japan developed a complete and comprehensive risk-based legal system concerning all aspects and uses of POPs. This risk-based legal framework enabled Japan to do risk-management in advance, prevent chemical misapplication and leakage incidents as much as possible, and respond quickly and properly to potential poisoning incidents. It also laid a solid foundation for the government to administrate, and the business operators to follow.

In addition, Environmental Survey and Monitoring of Chemicals conducted by the Ministry of Environment began in 1974. Long-term data about the chemicals in the environment enables an effective and reliable assessment of the measures being taken, and further modification of these measures accordingly.

### Government's participation

The Government of Japan not only takes up the job as a regulator, but also an active participator and service provider, coordinating with the business operators, the general public, and the other governments.



The above chart illustrates how government coordinates and cooperates with the PCB waste holders regarding the safe and efficient disposal of PCB. (ENHESA, 2011)

## Conclusion

Japanese government has been playing a very essential role in addressing the POPs issue. (1) It has a strong political will. (2) It established a comprehensive risk-based legal framework. (3) It functions service-oriented, striving to coordinate and cooperate with all other private actors, towards the common goal of the reservation of human health.

## Reference

1. Alan C. & Curtis M. (1991). Japan and the Global Environment. Oxford International Law & Policy Forum, 1991, 91-95.
2. ENHESA. (2011). Japan's PCB Waste Management. Retrieved January 20, 2019, from [http://www.enhesa.com/japan/pdfs/Japan\\_PCB\\_Waste\\_Management.pdf](http://www.enhesa.com/japan/pdfs/Japan_PCB_Waste_Management.pdf)
3. Ministry of Environment. (2016). POPs. Retrieved January 20, 2019, from [http://www.moe.go.jp/eng/press/2016/01/20160120\\_01.html](http://www.moe.go.jp/eng/press/2016/01/20160120_01.html)
4. Ministry of the Environment. (2016). The National Implementation Plan of Japan under the Stockholm Convention on Persistent Organic Pollutants.
5. Schreurs M. A. (2004). Assessing Japan's Role in Global Environmental Policy and Society, 2004, 161-180. doi:10.1016/j.envpol.2004.01.014
6. The Stockholm Convention. (2001). Stockholm Convention on Persistent Organic Pollutants (POPs). Retrieved 2019.