

# **A Comparative Study on Food Safety and Security between Japan and the Democratic Republic of Congo -Applications of Modern and Traditional Agriculture to Africa-**

## **1. Introduction**

### **1.1 Back ground and Research questions**

This paper aims to investigate the food security and safety issues between Japan and the DRC. In TICAD V, the government of Japan indicated the collaborations to the African countries. The role of the private sector is increasing in the field of ODA. And the government of Japan including JICA is planning to expand the participation of the private sector to the social development as well.

Our motivation to conduct a comparative study is to understand the possible collaborations to increase the food security and safety by combining two different experiences.

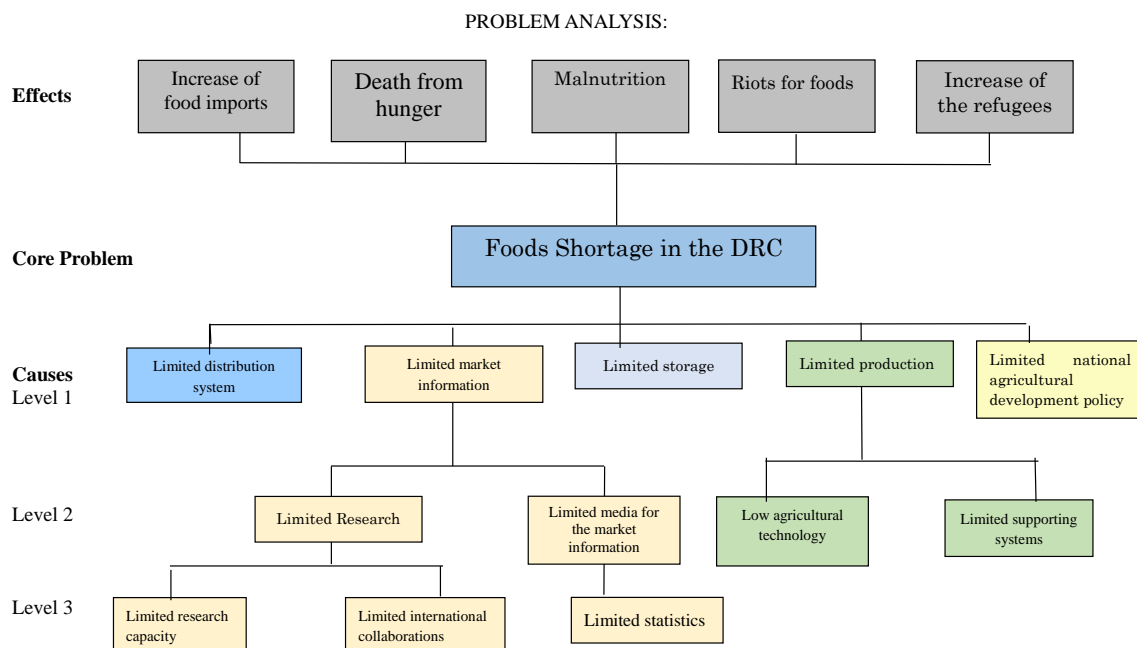
The Ministry of Agriculture, Forestry, and Fishery (MAFF) had introduced the guideline on organic agricultural products in 1992, being followed by the revision of Japan Agricultural Standards (JAS) in 1999 for the purpose of harmonization to the so-called CODEX standards for organically produced foods. But that is not well working at present.

We have conducted several joint discussions and interview surveys in the DRC. The green revolution for Africa involves the production of cash crops which can be sold on the global market. This may leave countries unable to produce food for themselves, and dependent on chemical fertilizer and agricultural chemical. Fortunately, the agriculture in the DRC is mostly free from green revolution and is still in the traditional agriculture. In Japan, consumers organized a small group and started to look for safe and reliable foods. Some farmers had realized that the modernized farming practice, which highly depended on agrochemicals and chemical fertilizers, sacrificed the nature and health of farmers themselves instead of improvement in agricultural productivity. A research group led by Professor Motoki Kubo at the College of Life Sciences, Ritsumeikan University, announced on 10 December 2012, that they developed the world's first soil fertility index (SOFIX(R)) based on the assessment of soil biological characteristics. This study highlights some of the problems facing farmers in the DRC and suggests some possible approaches toward solutions.

### **1.2 Problem tree and scope of the study**

According to our joint discussions, we have formulated problem tree and objective tree. The main problem we discussed was “Foods Shortage in the DRC”. There are several reasons for the shortage of the food such as limited agricultural technology, limited basic researches including soil conditions and marketing and limited trainings.

Figure-1: Problem analysis for the foods shortage in the DRC.



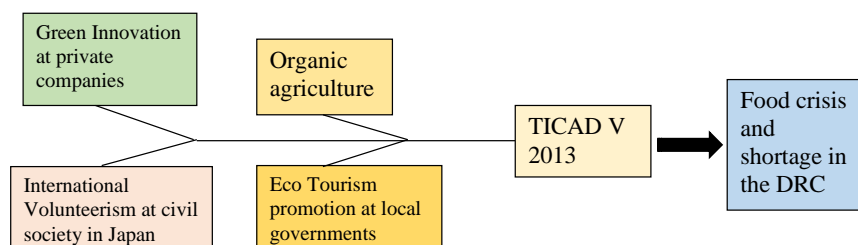
Source: Author's discussions with the researchers at University of Kinshasa in February 2014

Finally, we have decided to conduct market baseline researches to identify the marketing problems. One of our research questions is to investigate the advantage and challenges of the private sector initiative in the field of the food security and safety. In our research group, we have some Japanese private companies, challenging to expand their market in the world. We will explain why they are interested in the study.

### 1.3 Motivation for the study of the Japanese side

The research motivations of the Japanese side have been identified such as promotion of the trades, tourism and joint researches. Japanese local governments, private companies and universities are planning to internationalize their activities to expand the economic and cultural activities. Global economy has forced them to become more internationalized ones. TICAD V was a good chance to promote a new relationship with Africa.

Figure-2: Japanese motivation chart for the food safety and security in the DRC.



### 1.4 Significance of the Study

Before TICAD V in 2013, many Japanese local governments, private companies and universities paid limited attention to the African development. Thanks to the TICAD V, our

study group started joint collaboration with the researchers at University of Kinshasa and expanded their research networks with related local governments and private companies.

In this paper, we have examined the effectiveness of the simple soil fertility index (SOFIX(R)) system in the DRC. New innovations mainly come from the private sector, since they can easily understand the practical value of the system comparing to the public sector or academia. This is our research hypothesis. The traditional soil monitoring system is trying to predict the precise contents of the soil as possible as they can. And they were usually equipped with highly sophisticated measuring devices. Accordingly, it takes much costs and time. But the SOFIX system can be easily introduced.

## 2. Literature review

### 2.1 Lessons learned from the organic agriculture in Japan

In this chapter, we will examine the lessons learned from the present organic agriculture in Japan. We have identified several successful rural development projects in Japan. Those are mainly focus on the organic or safety agriculture. “Wago Agricultural group” in Chiba prefecture, Japan is one of the most successful case. Their agriculture is based upon the consumers’ needs. They have formulated joint company to sell their products directly to their consumers via web based marketing. We can summarize the merits and demerit as table-1.

Table-1: Advantages and Disadvantages of two customer oriented farming

	Advantages	Disadvantages	Examples
Organic farm	Safety, Healthy, Traceability	Higher Costs, Limited choices	Wago Agricultural Group, Chiba Prefecture
Experimental farm	Educational , Feelings of satisfaction, Eco-tourism	Time-consuming works, Limited accessibility, Educational difficulties	Moku-Moku Farm, Nara prefecture

And the common advantages of these two approaches are to have a strong link with the customers. The key essence to stabilize the agricultural economy is to have a stable price mechanism and long relationship with the customers.

### 2.2 Green Innovation, a key to joint work with Japanese company

A green marketing is a trend in business where companies create an image of themselves as an environmentally friendly organization. Many of the Japanese companies are also promoting the organic agriculture as a new business. But not only for organic agriculture, we can also see the new trends to promote environmental related business. Nowadays people have become more concerned about protection of the environment and a new format of business has emerged as “Green Business”. A Japanese big company, Panasonic is promoting lifestyles which will virtually reduce CO2 emissions throughout the world. Eco-friendly products providing customer value and resulting in reduced environmental impacts, are therefore of great importance. According to the American Marketing Association, green marketing is the marketing of products that are presumed to be environmentally safe. Green marketing is a broader term it

includes a wider range of activities, including product alteration, modification to the manufacturing, logistic process and simple packaging. According to Panasonic Corporate Vision, Panasonic has a vision to become the No. 1 “Green Innovation Company” in the Electronics Industry by 2018. In Europe, we can see the similar movement. In 2007 Royal Philips Electronics launched “EcoVision4” program. Green Product sales rose to 45%, up from 39% in 2011, and on track to reach the new target of 50% in 2015. These movement can encourage private company to work with us in the DRC.

## **2.3 Women, Urbanization and African Development**

During TICAD V in 2013, many discussions have been held for African development. One of the urgent issues are women’s empowerment and rapid urbanization. And for the post conflict nations such as Democratic Republic of Congo, Violence against women in-armed conflict and in post-conflict situations were discussed. In this paper, we focus on the food security and safety issues by empowering women and younger generations.

### **2.3.1 The scope of violence against women**

In poor communities, little girls are often neglected education and medical care. Data from developing countries indicates that the mortality rate among girls aged one to four is higher than that among boys in the same age group.

Table 2: Maternal mortality estimates	
Region	Lifetime risk of maternal death, 1 in:
South Asia	43
Sub-Saharan Africa	16
Industrialized countries	4,000
Source: UNICEF, The State of the World’s Children	

The ILO defines a person as being unemployed if they are older than the minimum age, actively looking for and available for work, and have recently not worked for at least one hour. According to this definition, youth unemployment is estimated to be 12.8 per cent in Sub-Saharan Africa. The works available for young people today are predominantly in urban and rural non-farm informal sectors and smallholder agriculture. About one half of rural employment is in non-farm informal sectors.

### **2.4.2 Aid to the DRC by Major Donors**

We recognized various food provision projects in the DRC since they had continuous food shortages. In the DRC an estimated 6.7 million people are in crisis and emergency food insecurity phases, based on the Integrated Food Security Phase Classification (IPC) undertaken in December 2013. Japan’s economic cooperation in the DRC dates back to the 1970s, when the country was known as Zaire. Over the years, Japan extended support in building the country’s infrastructure and in developing human resources. Unfortunately, these activities came to a halt

in 1991 due to the civil war. Following the presidential elections in 2006, Japan started the bilateral assistance to the DRC. In 2008, Japan started the Emergency Grant Aid for Provision of relief supplies, food, water and better sanitation to internally displaced persons in the DRC (7.90 million yen) The total amount of the Japanese ODA to the DRC is quite limited, but the number of the projects are increasing year by year. (See Table-1)

Amount of DAC Countries' ODA Disbursements to the DRC (Net disbursements, US\$ million)

	No.1	No.2	No.3	Japan
2009	U.S.A. 238.69	U.K. 225.46	Belgium 177.02	65.7
2010	Belgium 648.80	Netherlands 422.16	Spain 306.20	80.0
2011	U.S.A. 1,293.20	France 1,131.04	Italy 576.89	186.74
Source <a href="http://www.mofa.go.jp/policy/oda/data/pdfs/congo_dem_rep.pdf">http://www.mofa.go.jp/policy/oda/data/pdfs/congo_dem_rep.pdf</a>				

### 3. Model farms in the DRC

#### 3.1 Target area and thematic issues

The project sites will be implemented in the surrounding regions of the University of Kinshasa including:

- UNIKIN Experimental Farm (500ha): N'Djili, Kinshasa Metropolitan Area.
- Experimental Lab for Fundamental Sciences: Mont Amba, UNIKIN.

The joint research team members have been selected by both Deans of the Faculties of Science & Agronomy at UNIKIN according to the following 14 thematic, chosen by the tentative consensus after open discussion:

(14 thematic issues proposed by UNIKIN)

Soil fertility and soil biology, conservation and conditioning of agricultural products, characterization of the agricultural spaces and ecosystems, monitoring of the agricultural spaces and ecosystems, organizing of agricultural spaces and ecosystems, energy production in farming environment, transformation and enhancement of agricultural products, fish production, animal production, domestication of wild animals, domestication of wild food plants, domestication of mushrooms, crop production, apiculture.

We can classify these issues into four, (i) Soil science, (ii) Monitoring of the agriculture system, (iii) Production of Fish and Animals, (vi) Unidentified agricultural products. It is not easy to cover all the items by our joint research team. But we are planning to invite some potential Japanese companies and local governments.

#### 3.2 Matching between thematic issues and Japanese resources

Nowadays, many Japanese companies and local governments have a strong interest on the globalization of their economic activities. For the soil science, Ritsumeikan University can work with the UNIKIN. For the monitoring, it should include the value chain and the

logistics issues. That can be covered by the Japanese private companies with ICT. For fish and wild animal, some Japanese local governments have similar activities to promote local economy. Shiga prefecture has the biggest lake in Japan, Lake Biwa and has many local government to promote freshwater fishing. For unidentified agricultural products, some cosmetic companies have a strong interests.

### **3.3 Findings from the preliminary surveys**

Thanks to the TICAD V in 2013 and a new Japanese ODA policy to promote globalization of the Japanese company, university and local government, we had a good response from the potential Japanese stake holders with the joint project in the DRC. DRC's Human Development Index (HDI) value for 2012 was 0.304, positioning the country at 186 out of 187 countries and territories in the world. However, we found the attractive uniqueness of the present agricultural conditions of the DRC. They have limited experiences in what we call green revolution, they do not use chemical fertilizers and chemists. Africa can be the big market in the future and the long civil war in the DRC brought food crisis, but at the same time, it kept traditional organic farming system very well. To promote safety agriculture in Japan, collaboration between the DRC and Japan can innovate some new systems for safety agriculture.

## **4. Conclusions and Remaining Issues**

The food shortage in the DRC is the one of the biggest problem in Africa. Without the stable supply of the food, we are unable to have an economic progress in the DRC. The transportation costs of the foods are quite high and it reduces the impact of the aid effectiveness. The motivation of the joint research was not same between the DRC and Japanese stakeholders. However, we identified mutual merits to work jointly for the promotion of the food security and safety on the both countries. All the donors are trying to introduce new sophisticated technologies to improve the production of the foods. However, we identified a simple system with necessary human trainings can trigger private companies, local governments and community involvements. .

### **Selected references and useful web sites**

- [1] Panasonic USA, Eco-Conscious Initiatives  
<http://www.panasonic.com/business-solutions/green-solutions.asp>
- [2] Kurokabe Project, Shiga prefecture, Japan (In Japanese)  
<http://www.furusato-zaidan.or.jp/machinaka/project/casestudies/shiga01.html>
- [3] Moku-moku farm, Nara prefecture, Japan (In Japanese) <http://www.moku-moku.com/>
- [4] Wago farm, Chiba prefecture, Japan (In Japanese) <http://www.wagoen.com/main.html>
- [5] WWF position statement: CONGO Basin Forests, May 2011  
[http://d2ouvy59p0dg6k.cloudfront.net/downloads/2011\\_05\\_25\\_final\\_wwf\\_congo\\_basin\\_position\\_statement.pdf](http://d2ouvy59p0dg6k.cloudfront.net/downloads/2011_05_25_final_wwf_congo_basin_position_statement.pdf)