

## Zurich-Basel Plant Science Center

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# Are alternative food networks a way to support the implementation of SDG 12?

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### 1.1 Introduction

The Sustainable Development Goals (SDGs) are a set of aims defined by the United Nations during the General Assembly in 2015 in order to achieve a better and more sustainable future for everyone until 2030. The 17 goals cover various fields, such as poverty, inequality, climate, environmental degradation, peace and many more. In the scope of this project, SDG 12 was chosen that has not yet been completely fulfilled by the two countries in focus: Japan and Switzerland. This SDG aims to ensure sustainable consumption and production patterns, by reducing food waste and food losses, supporting sustainable public procurement and increasing knowledge and awareness about sustainable lifestyles (United Nations, 2018).

In the scope of this project, we have aimed to make the broadly formulated SDG 12 more tangible. In our opinion, many targets of SDG 12 can be reached by addressing issues in the current supply chain. Alternative food networks (AFN) are based on proximity, sustainability and economic solidarity and they support more sustainable production patterns, short food supply chains and build a closer link between producers and consumers. This would not only decrease food losses along the chain but also increase the awareness for sustainable production among consumers. Generally, a closer consumer-producer relationship can raise more trust in food quality and motivate consumers to pay more attention towards how their food has been produced and processed.

In this report, we wanted to see what types of AFNs have been established in Japan and Switzerland, describe how they are organized and explore how they could provide to a sustainable food system. What opportunities do they offer for farmers and consumers? Where are their boundaries? We assess these AFNs for the following criteria: Are the AFNs providing in principal consumers the opportunity to consume mostly

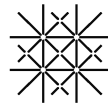
locally-grown and organic food, thus providing more sustainable production patterns in the agricultural sector? Do they offer possibilities for consumers to develop awareness for regionality, seasonality and sustainability of their foods, thus developing knowledge about sustainable lifestyles? Do they offer consumers and farmers opportunities to interact directly? Do they allow consumers to engage in the production and in what ways?

### 2.1 The Japanese agricultural system

In Japan, the agricultural land was estimated about 4.5 million hectares in 2016 (MAFF, 2018a) and 40% of them are allocated in mountainous regions (Goedde et al., 2016). Due to its mountainous geography, the land size per farm is rather small (2.9 ha per farm) (MAFF, 2017) and that small land is cultivated mainly by family-based farms (MAFF, 2016a). The number of farmers was about 209 million and 63.5% of the workers were over 65 years old in 2010 (MAFF 2016a). Thus, Japanese agriculture is characterized as less competitive than the intensive industrialized agriculture, which require less labor and of which agricultural products are cheaper than those produced in Japan. Despite its structural weakness, Japanese gross agricultural production was 53 billion US dollars which was ranked 10th of all countries (Global note inc., 2018, MAFF, 2018b). However, this might be due to high production costs and might not result in a benefit for farmers (Goedde et al., 2016).

Traditionally, agricultural products go through the following supply chain: farm, collecting cooperative, wholesale market, retail stores and consumers (MAFF 2018c); while direct sale from farmer to consumer accounted only 8% (MAFF 2016a). It was reported that the distribution margin, such as the usage fee of wholesale markets, was equivalent to about 90% of the production cost (Goedde et al. 2016). Also, because the products traded thorough the wholesale market, it is difficult for consumers to get detailed information about producers. Thus, the long supply chain disconnects farmers and consumers and hinders farmers from profit (MAFF, 2016b).

However, there is a growing awareness among consumers about food safety. This trend is reflected in the increasing demand for local products and organic agricultural products (Hujishoma and Iwasaki, 2010).



About 0.4% of Japanese agricultural land is cultivated organically, which is less than in other countries (MAFF, 2013). The direct-sale shop has increased its number over the last 40 decades but it has lost the communication opportunities between farmer and consumer, as it has become operated by shop staffs who are not producers themselves (Sato, 2017). Furthermore, direct sale shops often only take place in the countryside, thus being not accessible for the majority of consumers living in urban cities. Therefore, it is important to find new approaches to shorten the food supply chain in order to ensure the interaction between farmers and consumers.

## 2.2 The Swiss agricultural system

Today, 23.4% of Swiss land is used for agriculture and the sector employs 4.3% of the Swiss population, which equals around 153'000 people. More than half of the Swiss farmers work part time and out of every 5 people working in agriculture, 4 are family members. In 2016, the value of total agricultural production was 10.2 billion CHF (BFS, 2018). Swiss households spend around 12% of their budgets on food, including meals and drinks in restaurants. That is about 1200 CHF a month (BFS, 2018). Swiss farmers are heavily subsidized by the government: around 5.3% of the Swiss national budget is used for subsidies. With this, the government aims to create a sustainable and market-oriented agricultural system that ensures food security, preservation of the farmland and protection and support of biodiversity (BFS, 2018).

There are 51'600 farms in Switzerland, 13% of which produce organically (BioSuisse, 2018): This number has increased by almost 8% since 2011. Similarly, the consumption of organic products has increased by 8% since 2012. Most of the organic products are distributed by retailers (Coop: 44.3%, Migros: 32.8%, others: 4.1%). Besides the large retailers, farmers also try to take things into their own hands and sell a part of their produce on the farm itself. This direct sale of organic agricultural products on the farms has increased since 2010 by up to 60% and today constitutes 5.3% of the market share of organically produced products. Nowadays, almost every 4<sup>th</sup> organic farm offers products directly on the farm. Besides enhancing the closeness between

consumers and producers, it also offers farmers an additional income opportunity (BioSuisse, 2018).

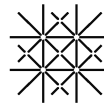
The consumption of organic products has become more popular in recent years as people have started to pay increasing attention to what they eat and alternatives for the conventional food production and distribution system have arisen to meet those new demands (Agenda 2030, 2018; Swiss Government, 2018). The interest in these alternative food networks (AFN) has emerged due to distrust and transparency issues about food products from the agri-food industry. While the products from conventional agriculture are often seen as 'standardized', 'mass production', 'monocultures' and 'agrochemicals', these negative notions are not linked to food from AFN (Illbery & Maye, 2005). On the contrary, the possibility of the consumer to become involved in food production and processing establishes more trust in the food and enhances social interactions with the producers.

## 3. Alternative Food Networks in Japan and Switzerland

### 3.1 Farmers Market

In Japan, a farmers market is a market where farmers sell mainly their own agricultural products directly to customers and it is often held in urban cities (Ninomura, 2010).

In 2009, the Japanese government initiated a project called "marché Japon", which aimed to make prototypes of farmers markets and to generalize the idea (MAFF, 2009). It supported the costs of construction and administration for farmers markets and 12 farmers markets have started with the support of the project (MAFF 2009, Ninomura, 2010). This project also led to the establishment of a non-profit organization, which conducts advertisement, surveys and workshops to facilitate the development of farmers markets (Japanese cabinet office, 2018). After the project, farmers markets were getting popular nationwide and some farmers markets expand their activities to boost consumers understanding about agriculture (Taiyo no marché, 2018, farmer's market @UNU). One of those is the farmers market @UNU, which is a farmers market held in Tokyo every weekend (farmer's market @UNU). It has a community club and organizes lunch meetings



using agricultural products sold at the market. It also offers farm tours and studying workshops with the members to encourage the interaction between farmers and consumers (farmer's market @UNU). Although it has a big advantage for consumers, it could be a burden for farmers to transfer their products to urban cities, which require considerable amounts of time and money. In Switzerland, farmers markets are fairly common and are usually held weekly or biweekly in most urban and semi-urban towns. Also common is another form of direct marketing: the selling of farm produce on the farm itself. The stores range from small self-service offers to elaborate farm-stores or even online marketing. To ensure a successful direct sale to the consumer, the farm needs to be reachable and the farmers need to be inclined towards direct marketing. The advantage for the farmer is that they can set their own prices and the sales margin of the retailer can be omitted. However, strict quality regulations are in place concerning processed foods and the sale of milk- and meat products requires a guarantee for a complete cold chain from the dairy to the consumer (Walser, 2012).

### 3.2 Food subscription

The subscription of vegetables or other farm products through online platforms is another way for the farmers to directly sell their products to the consumer without middlemen. When compared to farmers markets, food subscription can save time and money for the farmers, as they do not need to transport their products to a market and spend a day selling it to the consumers. Furthermore, it ensures direct contact between farmers and consumers, although mediated through an online device.

In Japan, food subscription is getting common because of its convenience both for farmers and consumers using the online system. On the online platform, farmers can present their products and add information about the products. Consumers can buy products one by one or can use a regular delivery service, which usually consists of a packet of assorted vegetables (vivid garden Inc., 2017). This type of food network has been getting more convenient for farmers, as they can use smartphones for business management. For example, the Pocket Marche offer app enables farmers to complete all their business management in a

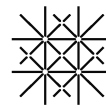
smartphone from posting their products to managing their bill record (Pocket Marche, 2016). The company also has an online platform to enable farmers and consumers to exchange messages and photos to ensure their mutual interactions. However, some electronic commerce sites do not have such communication tools and put their main focus on the convenient shopping experience of fresher and safer, regionally grown agricultural products.

In Switzerland, although hardly any numbers are present, more and more people are showing interest in food subscriptions. There is a large range of offers to choose from: weekly, bi-weekly or monthly delivery, only vegetables or mixed baskets, additional products or exclusion of certain products. The special appeal of these vegetable baskets is that the seasonal content is previously unknown to the consumer, bringing a much-appreciated variation into their daily menus and simultaneously enlarging the consumers' knowledge about seasonal products.

### 3.3 Food cooperatives

Food cooperatives are food distribution outlets that are organized by a group of people – often forming a cooperative – that buy food products from selected farmers or producers and distribute it among the members of their cooperative. The idea behind these movements is the ability of the consumer to influence where their food comes from, how it is produced and distributed. The people participating in food cooperatives rather take things in their own hands to ensure that their food is produced locally and organically (Zoll et al. 2017, greencoop, 2017).

In Japan, food cooperatives are not common. However, one example is "anzannatabemonowo tukutte taberu kai" (cooperative of producing and consuming safe food) in Tokyo. It has a direct contract with a group of 27 farmers and delivers their agricultural products to about 830 members in Tokyo area (taberukai, 2010). The products are transported to a distribution center in a community and shared among members. The cooperative aims to build a partnership with farmers by implementing three ideas; (1) it buys all products from farmers, (2) farmers decide the price of their products and (3) it cooperates with farmers in terms of shipment and production (taberukai, 2010). Thus, farmers could



have less risk of weather conditions and extra harvest and consumers take responsibility for the food production. This is an example of risk sharing to establish an equal relationship between farmer and consumer.

In the vicinity of Zürich, two food cooperatives are active: Tor14<sup>1</sup> and El Comedor<sup>2</sup>. Both of them aim to buy local, organic, non-genetically modified products directly from the farmers, removing the need for a retailer as middlemen, and directly distribute them among the members of their cooperative. They do not only aim to deliver good-quality and fresh products but also to reduce the costs for the consumers without reducing the farmer's gross profits.

### 3.4 Community-supported agriculture

Community-supported agriculture (CSA) promotes a more direct interaction between producers and consumers. The consumers commit to a long-term subscription of agricultural products (usually vegetables) as part of a cooperative. This increases the security for the farmer, as the risk of crop failures and crop excesses are shared among the members of the cooperative. Consumers are often asked to participate in farm work, such as harvesting, packaging or weeding and in return they regularly receive products and can participate in decisions made on the farms. At CSA farms the land could also be owned or rented by the cooperative that hires staff for their agricultural production.

In Japan, CSA is not common and only about 10 initiatives were reported to exist in 2016 (NARO, 2016). Furthermore, the clear definition of CSA might be poorly understood, which resulted in some farms declaring CSA but lacking decision-making process by their members (NARO, 2016, farm date, Rakuten Inc). There are movements similar to CSA, where consumers make a direct contract with farmers, pay in advance for the products and participate in some agricultural activities. For example, an ownership system of terraced paddy fields has been seen across Japan, in about 80 regions (Tanada network). Here, people rent terraced

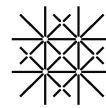
paddy fields by paying the membership fee (about 300 CHF) and participate in farming practices several times a year. These CSA-like AFNs mainly focus on offering farming experiences and connect consumers to producers. In fact, it was reported that the reasons for people to engage were to experience nature and try agriculture by themselves.

In Switzerland, the first of CSA appeared 30 years ago in the French part and since then many new projects and cooperatives have been founded. No exact numbers are known for Switzerland, but it is approximated that 40 CSA-initiatives exist in Switzerland, most of them are still located in the French-speaking part (Hatano, 2013). In the vicinity of Zürich, several CSA exist. One of them is ortoloco, which developed in 2010 as a reaction to the financial crisis of 2008. The founders were seeking for an alternative form of economic organization, contradicting the central principles of the current economic world – such as profit maximization, exploitation, hierarchy and competition. Instead, the founders of ortoloco aimed to produce vegetables in an environment-friendly resource-sparing way and be a not-for-profit-oriented cooperative aiming to supply consumers according to needs and placing the consumers in direct relationship with agriculture and food production. However, initiatives such as ortoloco also have boundaries. The members agree that a certain maximum size should not be exceeded 'in order to preserve the familiar character of the initiative' (Rosol & Schweizer, 2012). They also worry that a larger group would lead to a larger administrative burden and a loss of quality in the democratic decision-making process. Also, ortoloco is not created out of financial distress and membership and access to vegetable subscriptions are dependent on annual payment, which potentially excludes people that cannot afford the fees. Also, only certain vegetables can be produced in Europe and especially during the winter months, subscribers are forced to obtain vegetables elsewhere.

<sup>1</sup> <http://www.tor14.ch/>

<sup>2</sup> [foodcoop-comedor.ch](http://www.foodcoop-comedor.ch)

<sup>3</sup> <http://www.ortoloco.ch>



#### 4. Conclusions: Opportunities and Barriers for Alternative Food Networks

There are multiple alternatives to the established, globally operating food supply chains. AFNs can help to reconnect farmers and consumers through their shorter and more personalized supply chain. Can AFNs support SDG 12, ensuring sustainable consumption and production patterns in the public? AFNs enable consumers to purchase locally-grown and organic food directly from farmers. They offer possibilities for consumers to learn about seasonal products. The closer relationship between farmers and consumers can create a relationship built on trust, which is contradictory to the relationship many consumers have with large food retailers. Nowadays, when buying food products in supermarkets, consumers can only rely on labeling systems, which are complicated to navigate, expensive for farmers and not always fully trustworthy (MAFF, 2014). The closer relationship between farmers and consumers could eradicate the need for labels, as consumers can themselves see how the farm is run, how their food is produced and the consumer can make informed decisions about their food choices. Through the shorter supply chain the gross margin for farmers can increase (MAFF, 2016b). This could result in a better financial situation for farmers and can contribute to an increasing number of farms that support sustainable food production.

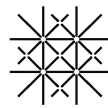
There are barriers for adopting AFNs: A reoccurring problem for example with community-assisted food production in urban and peri-urban areas is the unavailability of land. Generally, city officials argue that real estate development within the city boundaries has a higher priority and are reluctant to guarantee necessary long-term access to land (Cohen and Reynolds, 2014). However, this is only the tip of the iceberg. Further problems are the costs and transport of soil, storage and distribution of products, farming machinery, marketing, and many more. Other frequently reported barriers for community-assisted agriculture and gardening are the high social investment necessary concerning time and commitment of participants, that makes scaling up and long-term maintenance difficult (Cohen and Reynolds 2014). In their report analyzing urban agriculture in New York, Cohen and Reynolds argue that measures to support

these systems have to be implemented at the policy level. This concerns especially a financial support system, which should be implemented by the city planners to support urban farms and gardeners. For example in Switzerland, the extensive subsidy system could include CSA into its policy, thereby allowing CSA to be treated similarly as other farms.

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