Food sharing through ICT (Information and Communication Technology) or better food accessibility and preventing food waste as basic for drafting food sovereignty's strategy

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Abstract. The idea of food sovereignty is rooted in efforts to protect the food economy from external pressures and promote domestic food stability including ensuring agricultural actor’s welfare. While, the social community called Gifood is struggling based on concerns that low public access to food and food waste may seem far from these issues, but the authors believe that the ideas associated with food sovereignty will lead to the construction of comprehensive food sovereignty’s strategy. This paper aimed to show 1) how ICT mediated initiatives for food sharing can support better food access and reduce food waste by Gifood, and 2) the potential of Gifood as a medium of distribution of agricultural products from local farmers in Yogyakarta. This qualitative study used virtual ethnography for a year of observation and in-depth interviews with eight informants. This research founded that through Gifood ICT program could prevent paradox among hunger and food waste through food sharing platforms, increasing food respect through the creative campaign, and having strong potential for the distribution of local products. Based on the results, the authors suggested considering the issue of food waste as a strategy in reframing food sovereignty and collaborating with Gifood and other social communities.

1. Introduction
Food accessibility is one of the most basic human rights as it is commonly accepted, but many people still suffer from food insecurity to this day. Food insecurity is defined as the limited of food intake or eating patterns for normal growth and development and an active-healthy life because of poverty and the lack of money and other food resources [1]. In the 2019, IFRI reported that 22 million people in Indonesia still endure chronic hunger [2], and it has rank the 70th out of 107 countries with a moderate level of the hunger situation [3] as a potential outcome of food insecurity.

Meanwhile, even in that situation, Indonesia has become the world’s second-largest food waster country that disposing almost 300kg of food per person each year [4]. Food waste is the result of negligence or a conscious decision to throw food away, when the food still has good quality and fit for human consumption [5], but the country still showing low performance to responding to this issue [6].

In response to that challenge, a grassroots initiative called “Gifood” was established in 2017. These initiatives focus on aspects such as reduction of hunger and supply chain food waste through food sharing and creative campaign mediated ICT (Information and Communication Technology) in Yogyakarta. In this research, ICT refers to diverse forms of technology, from digital devices to software packages, that make it possible for people to access information and communicate globally [7] such as social media apps and web site. This kind of initiative has been carried out among countries in the world, such as “Food sharing” movement in Germany [8], and “Love Food Hate Waste” campaign in UK by WRAP [9] etc., that has provided success in their smart efforts to reduce hunger and eliminate waste.

Food sharing and ICT are creating logistics solutions for moving surplus food to where it is needed with the goals of preventing food waste and alleviating food insecurity [10]. Gifood, as the first online
logistics platform in Indonesia, has some unique characteristics of innovation and appropriate prevention strategies with the sociocultural conditions of the community. Previous studies have reported on food waste such as Mandasari [11] and Pamela [12], examined the key predictors of food waste on a small scale, this study aimed to show 1) how ICT has mediated initiative for food sharing can support better food access and reduce food waste by Gifood, and 2) the potential of Gifood as a medium of distribution of agricultural products from local farmers in Yogyakarta.

2. Methods
This research was conducted with tradition of qualitative research known as terminology, with a kind of virtual ethnography based on the consideration that in this digital society era, the data also can obtain in cyberspace. The Internet as a culturally embedded phenomenon, as online activities which acquire meaning and significance in thus far as they are interpreted within other online and offline contexts as and as accounts of what the Internet is and what it does, in general and in the particular, continually circulate through diverse online and offline contexts [13].

Virtual ethnography as methods or strategies in qualitative research which possible to investigating the meaning of community, there are some activities in the offline and online social community life with dynamic interactions by combining observation and interview techniques for collecting the data. In this context of research, a digital platform for food sharing and social campaign formed by Gifood as virtual field such as LINE Official Account [14], a website apps [15], and Instagram [16] and some offline event include distribution food for people who need as other fields.

The authors used research steps from Achmad and Ida [17] to do virtual ethnography. Based on that procedures, there are five steps, include proactively community identification, access negotiations, make approach, interview, and give feedback to the community. First, we became Gifood’s online media follower, and online observer of food sharing and campaign activities for a year (2019-2020). Second, approached Gifood founder as key actor for access negotiations and introduced as researcher in 2019. Third, joined offline and online Gifood project as participant observation such as webinar series and food sharing with #BiketoShare. Fourth, made schedule for semi-structured in-depth interview virtually (by WhatsApp, telegram and e-mail), and face-to-face interview used interview guideline to purposively choose informants. For the last step, we analysed the results of research and gave them to the Gifood then get feedback.

3. Results and Discussion
3.1. GIFOOD- ICT mediated initiatives for reduce hunger and food waste
3.1.1. Food sharing
Gifood has begun from a simple idea of university students who actively engage the organization, respond to a food problem that is usually overloaded after events. Extra food in large quantities is often abandoned and ends up being waste, meanwhile, some people reduced their food intake, at the same time and place, because lacked money and other resources for access adequate food.

In 2017, Gifood introduced food sharing initiative “Give Food, Give Love” through LINE Official Account and website platform where public can freely share and take the food (see fig 1). As an independent social organization that has a limitation in resources exactly for funding, Gifood has taken advantage of LINE Official Account features such as profil page or timeline, chat, broadcast messages, insight analytics, etc that were easy to use, affordable, and communication media widely used among young people.
Figure 1. Food sharing platforms

Food sharing in Yogyakarta found this initiative are highly productive. Until 2020, Gifood had more than 6,000 registered users and trained “food warriors” who rescued more than 7,000 portions of food for people living in poverty and difficult situations. Based on observation of the principal forms of this food sharing, users can be several positions namely 1) giver, a user who share their extra food (e.g. wedding party, campus event, retailers, home-cooked, etc.) and money donation; 2) receiver, a user who needs the food or who knows who really in needs. It depends on moral values and responsibilities to take the extra food as receiver user; 3) transporter, a user who connects the extra food from giver to receiver (e.g. Gifood organization team, other food sharing movements, communities, etc.). How food sharing works are summarized in Figure 2.

This food sharing activities widespread and have also been done in Solo, Central Java, Bogor, West Java, and DKI Jakarta. As commonly accepted, the internet revolution has made long-distance communication dramatically faster, easier, and unconstrained by geographical distances in social interactions, and transforming the world into a global village with a borderless society. Although food sharing is a common activity of societies, but the emergence of food sharing through new socio-technologies are being used to reshape food-sharing opportunities in Indonesia.

The kind of a shared food is mostly cooked, therefore it takes a quick time to distribute it. This new sharing way has reduced the delivery lead time of redistribution the food activity, even more than 100 portions of food were taken out within 1 until 2 hours after publishing in the platforms. Gifood gives the rules of food share through this platform such as photos, short descriptions of food, google maps location, expired information in realtime, and contact person. Also, to ensure the feasibility of food through observe from physically, smell and taste.

Food-sharing initiatives are diverse, but remain rooted in local communities by a small core team. During the first two years, Gifood relying on a source of funding derived as the winner of several national competitions and donors. This can make them vulnerable to fluctuations in what resources are available. Gifood initiatives are not isolated actions. There are no paid staff, and the organization is entirely dependent on the team, volunteer ‘food warriors’, and givers. They intersect with other sharing, and social movements to form food-sharing ecosystems [18], and make collaborative actions.

The benefits from this initiative include revaluing food from waste, and supporting social inclusion because it means economic share. Receivers get better accessibility for adequate food than they can normally provide on a daily day. On the other hand, Gifood's efforts in achieving both goals, reduce hunger and food waste, cannot be neglected, and it should be appreciated and supported.
3.1.2. Creative campaign

The first hierarchy of the food recovery to prevent and divert wasted food is source reduction [19], one of them is rooted in food consumers. Gifood has expanded its impact through a creative social anti-food waste campaign for rising food waste awareness. The campaign has conducted virtually through media social platforms and offline events as roadshows (see fig 3). In 2018-2020, Gifood launched collaborative campaigns such as “Food Waste Diet Week” campaign, “Zero Hunger Week Challenge”, Webinar session, etc. that held together with local campus authorities and others youth NGOs.

Gifood's message influences young people to be more responsible and respectful to food, such as finishing meal, bringing an unfinished meal to home, and other simple efforts that individuals can do. The campaign spread the information about the global, local and research food waste phenomenon conducted in the campus cafeteria which is presented with interactive quizzes and informative poster designs. The campaign also engages young people in, for example by posting their opinions on how to tackle food waste on social media and give them appreciation.

The lack of scientific narrative related to food waste causes food waste behavior to become normal in society. Gifood presents the antithesis narrative of food waste to build the environment for a better mechanism. ‘Food warriors’ are also used as a label to the individual or community that has helped support food save actions. Label with intrinsic values can trigger moral obligations and tend to change people’s perception [20], to be the normal way of life.

Figure 2. Scheme of Food Sharing

Figure 3. Gifood’s creative campaign
3.2. Potential distribution of local product

In 2018, Gifood published Salak products with a certain price in their platforms (see fig 4). That product came from farmers in Sleman, DI Yogyakarta. During the harvest season, the number of products were abundant, while it had to be sold immediately to avoid waste. Gifood mediated and helped the farmer to share the local product and get fair price to the users, while user get priceless fresh product from the farmer directly through platforms. Even this kind of sharing initiatives only share once, there are potential opportunities to help the farmer to distribute their local products.

Market access has a significant positive and robust effect on farm income [21]. Some small-scale farmer struggle to access the market. Almost every year there is news that farmers throw away or do not harvest their food products as a disappointment because of the low selling price or lack of access to the market [22] [23] [24]. In this digital era, agriculture market information services and ICT help to link farmers to markets thus they can make a better business choice and improve their bargaining power. With Gifood platforms, real-time market information can be made available to users as market participants.

Food distribution is just as important as its production and process and becoming more important by the day. In this difficult situation, technology such as logistic platforms can provide new shape of local food supply chain. It can be a business model for Gifood as a funding source, while, the small-scale farmers increase their bargaining power. With this platforms, market participants can adjust where the product is available.

![Figure 4. Salak products from Sleman’s farmer](image)

4. Conclusion

This research founded that through Gifood ICT program could prevent paradox among hunger and food waste through food sharing platforms, increasing food respect through the creative campaign, and have strong potential for the distribution of local products. Based on the results, the author suggested considering the issue of food waste as a strategy in reframing food sovereignty and collaborating with Gifood and other social communities to build better environment. For further research, in order to address the prevention of food waste on large scale, several areas can be identified.

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