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Agricultural practice and social change in Berastagi area

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Abstract. This paper discusses how agricultural practices build social change in the Berastagi highlands. Agricultural products from this area are the vegetable supplier base for Medan City and other surrounding cities. The supply involves a network of trades involving many actors with many interests, as well as generating migration from other areas around and coming from different ethnicities. The migrants' settlements are concentrated in certain areas of the region around Berastagi. This paper will illustrate the interaction between these aspects to bring about social change in Berastagi. This research uses qualitative method. Primary data were obtained through in-depth interview techniques and participant observation. Secondary data accessed from relevant agencies. This discussion shows how the pattern of social relationships changed due to changes in the goals of agricultural practices that not only oriented local markets but also exports. Competition, secrecy, and money orientation have become part of their planting activities. On the other hand, trade networks also construct them to work together in a particular context. This paper shows that agricultural activities and all things related to it reflect a broader context to see the development of small towns that also affect the development of the surrounding villages.

1. Introduction
The focus of this paper is on agricultural practices and some forms of social change that it causes. The case taken is in the Karo people whose livelihood as a vegetable farmer in the highlands of Berastagi. Some scholars argue that social change is inevitable in human life due to various factors such as; discovery, conflict in society, technological determinism, knowledge, trust, value, cultural contact, diffusion, and social movements [1]. One such expert is Mutekwe. He reviews the opinions of various experts on the concept of social change. Some scientists argue that social change is a change in social structure, such as: family size, or social class change in society, also related to the emergence of a city. Other scientists, such as Moore note that social change is a change in social interaction that can be seen in several ways, such as: changes in norms, cultural values, cultural products, and some symbols. Allen is also one of the experts who claim that social change also includes modifications in the structure or social system or social subsystem, including its function and process over several periods. Meanwhile, some other experts emphasize the study of social change is on the specific changes in social relations over time [1].

Other versions suggest that the issue of social change tends to discuss the motion of change. Some theories of classical social change suggest that the motion of social change can be divided into several types, namely; linear, multilinker, or as a cycle or combination of both. Whatever the type of social
change is, the main point is the change in structure and social relationships, as well as the changes in the behavioral patterns, attitudes and views of those groups of people, that is one of the drivers of social change [1] [2]. The study of social change occasionally focuses on changing the mode of production from subsistence to commercialism, and does not indicate a change in the pattern of social organization that already exists within a community group [3]. Several other studies discuss the relation of social change to the role of local political actors in shaping or defining discourse on power, or authority [4]. The studies show that analysis of social change can use multiple perspectives to describe it. In the description below, the explanation of social change focuses on the shaping of social organization and social relations that affect some aspects of social relationships between farmers and their cultivation patterns. At a later stage, the change brought migration to Berastagi and changed the ethnic composition of that region, and in the subsequent process affected the settlement of the city. The empirical phenomenon in this study shows that social change in agriculture constructs diverse actors with variations of interest in agricultural production sequences. Such a condition according to Liefert [5] is a part of the system produced by an agricultural transition that is part of the development of the community.

2. Method
This study is a qualitative research, an ethnographic explanation about agricultural practice and social change. Cases were taken from a farmer’s in Berastagi sub district, Karo District of North Sumatra Province, Indonesia. In – depth interview and observation participation are the technique to collect the data, and some references related to the main topic. Key informants selected from some research subject with some considerations, among others based on; age category, experience in agricultural practice, and knowledge of agricultural history in Berastagi. Knowledge of the history of agriculture and directly involved as a farmer. The criterion becomes important with the aim that the informant understands the conditions and context of the dynamics from time to time regarding agricultural practices in Berastagi and surrounding areas. The selection of the subject as a key informant is using the snow ball technique. Participant observation used as a research interest to better understand the concept of situated practice [6], with the aim to understand the local context of the phenomenon. Data analysis using the on-going analysis model, performed simultaneously with field data collection [7]. The data collected from the field is organized in the form of field notes matrix [7]. Any information is classified according to the theoretical issues that arise in relation to the purpose of this paper.

3. Result and Discussion
This paper will be displayed in some subsection; there is the brief history of agriculture in Berastagi area, the changing of social organization working group of farmers, changes in cultivation patterns of farmers, and the increase of local migrants to the Karo region, particularly to Berastagi as a result of agricultural activities.

3.1. Brief history of Agriculture in Berastagi Area
Berastagi is one of the sub-districts in Karo Regency, located at an altitude between 280 - 1,420 m above sea level. Its total area is 1212.25 km (212,725 ha), and lies between 2 ° 50'- 3 ° 19 'North Latitude and 97 ° 55'-98 ° 38' East Longitude. Average temperatures range from 16.40C - 23.90C and air humidity in 2010 averaged as high as 84.66%, spread between 61.8% to 87.8%. The majority of the population has a major livelihood as farmers (according to Karo 2016 statistical data of Karo District).

The economic activities of the Karo people recorded in the writings of experts began in the pre-colonial period. Some papers said that Karonese economies in the highlands of Karo region were involved in the spice trade with the British colonial government from Malaya, but also began to prepare pepper farming for export needs [8] [9] [10]. Moreover, Rae's writings also suggest that in 1870 there had been a contract between the Dutch and the Karo people in the lowlands (Deli and Serdang regions), and since 1888 the Dutch had planted tobacco with the Karonese in that region [11].
Horticultural agriculture in Karo closely linked to the Chinese and Dutch presence around the early 1900s [12][13]. The presence of Chinese (Tionghoa) associated with the beginning of the presence of vegetable crop called ‘capcai’ (among others are: carrot, lettuce, chives, prey leaves, celery). While the Dutch presence associated with agriculture begins since the first experiment of planting vegetables in the area of Gadung Kuta - Berastagi in 1911 under the leadership of a Dutch agricultural expert named Mr. Botje [8][14]. The early arrival of the Chinese to Berastagi is not known convincingly. Some elder farmers on approximate age 65 to 70 years whose parents had interactions with China during the pre-colonial period said they came from the Deli Land in Sumatra. Another elder mentioned that they arrived with the Dutch as early as Christianity introduced to the Karo region. Some say they came with the Dutch at the beginning of the Dutch annexation period in 1906 [12][13]. Some writers in the field say that the Chinese are alliances or trading partners of the Karo salt merchant, known by the name ‘perlanja sira’.

The important role of the Chinese and the Dutch towards the development of Karo farming began to appear in agriculture after the return of refuge from the Dutch colonialists. It is called by Karo people as a period of return from evacuation after colonial. The Karo people originally gave the land to be hired by the Chinese and they worked as farm laborers on their land, where they learned farming vegetables. Finally, they did not give any more lease extensions to the Chinese and began to cultivate their land by planting vegetables. This period continued until the time of Karo’s vegetable exports to Malaysia and Singapore; this time called the Karo people as a golden age, which is around the 1950s [15]. In the golden era, the vegetables cultivated by Karo farmers around Berastagi were the kind of ‘capcai’ and few months harvest (three months), namely: potato, cauliflower, broccoli, cabbage, collards meat, chicory, lettuce, parsley, radish, celery, tomatoes, carrot, etc. Sembiring in his writing mentioned that the Karo people has a classification of historical period of horticulture which is disseminated to their experience and also nuanced socio-political events of the time, namely; the first is the Dutch period, and the next is the return period of refuge. This second period is subdivided into several sub periods; pre-confrontation with Malaysia, confrontation, and post-confrontation phase [15].

3.2. The changing of social organization working group for agriculture

The most obvious changes seen with the changing of Karo farmers in the pre-colonial era until the early colonial period were the change of plant species. Main crops such as cassava and paddy turned into vegetables or horticultural species, i.e. plants between the ages of 2 to 3 months of harvest. This change mainly occurred after the Dutch occupation period. Paddy field gradually turned into vegetables field. Along with this, a social organization called ‘aron gegeh’ which is a system of mutual cooperation among others also gradually lost and changed into a ‘singemo’ or called ‘aron si ngemo.’ The social organization is a working group consisting of a coordinator (it call ‘nande aron’) and members of about 4 to 6 people or more, may consists of male or female or a mixture both of them. They took turns working on the fields of all members of the ‘aron gegeh’ groups up to a period of working rounds, from starting to cultivate the land until the rice harvest, and no money. The prevailing working system is paid manpower. That is the reciprocal system that prevailed at that time.

These changes led to some others in the pattern of social relationships between farmers in a joint working system on their farm land. The pattern of aristocratic relationships ‘aron gegeh’ with rotating work system (it call ‘kerin’ sytem) where the reciprocity of power change force has begun to disappear and replaced with a laborer-employer relationship and each worker earns money wage. The prevailing wage payment system is a pay-per-day system or a weekly payment for each farmer (‘singemo’), or a wholesale system which pays one work group on a parcel basis in the afternoon. How to calculate the wage is to weigh the total of the working group’s harvest in one day. There is also wage payment with a profit-sharing system, this is usually applies for aron singemo who live in farmer's field and also act as guardian of farm land.

‘Aron singemo’s’ have a gathering point every morning from Monday to Saturday. They gather at the pickup point around 6:30 am and wait for the farmers to work in their fields. The ‘singemo’ transported by pick-up the owner of the field and explain their job description and how they should
work. Their working hours vary depending on the type of job. It starts from 08.00 until 17.00 pm. For groups with voluntary system payments (the number of ready-to-sell crops), they can work longer hours into the night or around 7 pm because the system is a group charter and not individual payment.

3.3. Changes in cultivation patterns of farmer: gambling in fluctuation price

The diversity of vegetable crops or horticultural species cultivated by Karo farmers in the area also raises the variation of cropping patterns in their fields. Previous farmer cropping pattern is homogeneous, such as tuber or rice type. Karo farmers practice five cropping patterns that are entirely market-oriented and not subsistence, and they give local names to the cropping pattern, that is; ‘campur-campur’, ‘tumpang tindih’, ‘ragi-agi’, sada-sada (rotasi), and ‘tua-muda’ [12] [16]. All of these cropping patterns are mix cropping and species type, except ‘ragi-agi’ and ‘sada-sada’. Farmers who do these two types of cropping tend to have relatively large lands or about > 1000 m² or they have more than one planting site. The types of cultivated crops are intended for commercial crops as well as export needs.

Farmers choose several types of crops that harvest time differently from one another to cropping patterns for mixed crops. In one field there will be two or more types of plants. In one field there will be two or more types of plants. Each type of plant will have different harvest time. The goal is that the yield of one plant can help to be a capital for other crop care. Moreover, the difference in planting time intended for the routine needs of household economic needs of farmers. In each mixing of the plant, there will be one species they call the “top plants” or the main crops that the farmer hopes can bring him many benefits. In this mix cropping pattern, farmers will always plant one type that gives them a sense of comfort that the plant as a helper, while other plant species will be intended for the nature of gambling.

For two types that they name with ‘ragi-agi’ and ‘sada-sada’, the farmer’s planting orientation will be more on the gambling than other cropping patterns. In these two kinds of planting, farmers plant one type of crop on one farm. In a ‘ragi-agi’ system, farmers cultivate one vegetable only, and divide the land in several parts and the age of the plant will be different in each space. Meanwhile, for the ‘sada-sada’, there is only one kind vegetable with one age. Farmers face a big risk with this cropping pattern, because if at harvest time the price of the crop is low in the market, the farmer will lose. This also led more farmers choosing mix cropping with variants of ‘campur-campur’, ‘tua-muda’ or ‘tumpang tindih’. Nevertheless, the gambling will always exist in every form of the cropping pattern, but the risk is greater in certain types of it. Why farmers tend to have a gambling planting orientation? This happens because farmers have experience of daily market fluctuations. According to farmers, they have lasted long time for this situation, perhaps even since the 1970s, and continued into the 1980s. The intensity of this has grown since the 1990s. In that year, the price for some crops may change three times in a day, and the difference can reach Rp. 5000, - to Rp. 2000, - per kg. Even after the 2000 until now (July 2017), the ups and downs of prices are still occurring several times a day, and the range of price differences for one crop can be Rp. 5000, -. The price can be a higher or lower than the previous. This condition makes farmers feel the fluctuation is also a risk that is unpredictable and choose to do gambling. No matter how small the price difference, for the farmer it is an opportunity, either a loss or profit.

To anticipate losses that may occur during harvest due to fluctuations, farmers take action to build or construct new social relationships with various actors related to their agricultural practices. Other farmers also do the same to survive. The social relationship is mainly developed among farmers who have friendship ties and have a sense of trust between them, as well as with other actors related to price information. Such social relations are primarily shaped by kiosk owners and pesticides (they call them ‘perkios’), as well as with the standard selling price in the market (they call ‘perkilo’), as well as intermediary traders (they call ‘perkoper’). Owners of warehouses for the export of goods (they call ‘pergudang’). They also developed social relations as one of the efforts to face the risk of crop failure and low prices. This situation is like what Marten said [17] that every individual will build a link to be social networks to get the information, money, goods or services flow, and this is a condition for the effect of agricultural technology adoption.

When farmers will sell their produce to export, the system will be sold to the warehouse (they call it ‘pergudang’). However, if the sale is for local needs, then the farmer brings it to traditional markets.
around Berastagi, called "Pajak Roga". The process of packing and bringing the product to the market is the responsibility of the farmer if the goal is to the market. Meanwhile, if the purpose is to export, then the farmer only takes to the warehouse and the process of packing and sorting based on the quality becomes the duty of the warehouse's owner. In this case, the farmer came back to the place the next day or two days later to retrieve the poor quality waste product (they call it 'rengge') and receive the payment of the crop. The exporter only takes the type of plant with export quality and returns the remaining goods to the farmers.

3.4. The increase of local migrants to the Karo region, particularly to Berastagi as a result of agricultural activities

The diversity of cropping patterns and the dominance of livelihoods as farmers provides employment opportunities in agriculture. Some Karo farmers who tend to plant with the pattern of 'ragi-agi' say that if only Karo people who cultivate the planting land, then Karo agriculture will not grow or even will die. The statement was put forward because the workforce that comes from the Karo people in the region is not enough to become a worker with a system of cropping patterns that very quickly change with five types of cultivation. The gambling orientation is also one of the drivers of the rapid of the harvest cycle. Accordingly, the need for crop maintenance also requires a lot of manpower and should be done quickly. Most of the Karo people tend not to give a period of rest for the land. After the harvest is completed, the land is processed directly for replanting.

The need for such labor leads to the presence of local migrants from the area around Karo. These migrants come from other ethnic groups, some of which are; Toba, Simalungun, Gayo, Java, Banjar, and Nias. Most of their work is as farm laborers or as 'singemo' ('aron singemo') paid with money. Toba people tend to come from the surrounding Samosir area, although there are some Toba people from Medan or Belawan or other areas. Simalungun's labor also originally from the Pematang Raya area and Saribu Dolok regions. Meanwhile, Gayo people are from Alas. Javanese originated from the Medan city or Tembung area and even PangkalanSusu. As well as Banjar people, they come from the Pangkalan Berandan area and also the Pangkalan Susu or Besitang. Those are in Province of Sumatera Uatra, Indonesia. The farthest agricultural laborers came from Nias Island. All of them are from other regions around Sumatra and Nias Islands. The migrants arrived in Karo through a network of relatives. They invite each other or their family because of the high job opportunities in agriculture. Wages in a day received by farm workers around Rp. 60,000 up to Rp.70.000,-/day in general. For certain types of work, sometimes get a salary of about Rp.100.00 to 120.000,- (especially for the compilers of citrus fruits). The main reason for these migrants is the difficulty of getting a job in their home region.

Some of these migrants come with their spouse and children. Even some Nias people came with their parents and in-laws. They mentioned that the opportunity to earn money in Karo is much easier, especially to get the net about Rp.50.000 to Rp. 60.000 /day by working only a day from hours 08.00 am to Rp, 17.00 pm. The farm workers make their settlements clustered in certain areas around Berastagi. As well as the location where they await the employer or landowner, have also been clustered. The Toba labor migrants tend to wait for the pickup truck around Jl. Veterans around the location of Toko Bandung Kota Berastgai (mixed with Simalungun and few Nias peoples). For the Nias migrant group, the dominant group has a gathering point around the area of Gongsol Village to the location of Gundaling, and there are also several other for that [13]. The migrant group occupies a little rental house around Berastagi and Merdeka area sub districts. The Nias migrants tend to prefer residential area in rental housing located on Gongsol Village. While Toba migrants are dominant in Jl. Udara and enter small alleys in several places and also on the lower area on the outskirts of the Berastagi City. There is no prohibition for farm laborers to enter into any gathering point they want, and there is no official migrant organization between the workers.

4. Conclusions

Agricultural activities led to some form of social change that occurred in Karo farmers, especially around the Berastagi area. These processes of change are due to cultural contacts brought by migrants and also
related to technology and migration as a result of the development of Karo agricultural practices. Technology that develops in agriculture also accumulates with the development of mindset and local culture in the orientation of values, especially the purpose of planting farmers. There is also one type of social organization related to agriculture that has turned into a money-based organization from energy-based in the past. The results of this study indicate that social change is related to the cultural values of farmers and the local social structure of the Karo community is not affected by the dynamics that exist in agriculture. Cultural values related to internal social relationships in kinship have not changed. The change that occurs is the growing social bond that develops in horizontal fellow actors related to agriculture that develops in the form of affiliation social ties to face diverse of the risks in agricultural practice.

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