

FROM AGRICULTURE TO INDONESIA

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Abstract. Indonesia is the largest island country in the world consisting of 17,499 Islands from Sabang to Merauke. The total area of Indonesia is 7.81 million km² consisting of 2.01 million km² of land, 3.25 million km² of ocean, and 2.55 million km² of the exclusive economic Zone (ZEE). Indonesia dubbed as "Mother of Spices" (Mother of Spices) because of its geographical advantages, so it is still in the other country in its spice products. Indonesia is also known as agrarian state. Therefore, agriculture becomes vital for Indonesia. The agricultural sector is not only a vital part of Indonesia as a source of income and production resources of various commodities, but also a source of needs and dependence of the world community in fulfilling the current and future food needs. Upcoming. At the same time Indonesian agriculture should compete with other countries in the seize the world market not only from the side of the production amount produced but related also to the quality and availability at any time. But it can not be denied as well, some young generations are currently less in the agriculture sector. Even students who choose the Department of Agriculture but when they graduate work on the bank or office. Therefore, let us as a young generation increase agricultural sectors. Let's reorganize the farmland in Indonesia. By using the land around the area.

Keywords: agrarian State; Agricultural sectors; Land utilization

I. INTRODUCTION

Indonesia is the largest island country in the world consisting of 17,499 Islands from Sabang to Merauke. The total area of Indonesia is 7.81 million km² consisting of 2.01 million km² of land, 3.25 million km² of ocean, and 2.55 million km² of the exclusive economic Zone (ZEE). In fact there are some countries that are almost identical with the area of the city in Indonesia. Indonesia is an agrarian country whose agricultural land is very wide and agriculture is one of the areas that can absorb the most manpower. The agricultural sector is not only a vital part of Indonesia as a source of income and production resources of various commodities, but also a source of needs and dependence of the world community in fulfilling the current and future food needs. Upcoming. At the same time Indonesian agriculture should compete with other countries in the seize the world market not only from the side of the production amount produced but related also to the quality and availability at any time.

However, the agricultural land is increasingly narrowed as a sign of farmers is increasingly rare. Even today there are many land in agricultural sectors that have been used as factories, villas, or other buildings. Many farmers sell their land because of their economic needs or because of the development of infrastructure. The products compared to improving and improving domestic agricultural products, the import line is precisely more reliable to cope with food shortages. It can not be denied as well, some young generations who choose agricultural majors but when they graduate they work on banks or offices. Whereas with agriculture we can fulfill our life needs. Not always the farmer was quite income. There are even some successful farmers. One example is Adi

Pramudya Pati. Young farmers in the Bogor area proved that farmers could also succeed. Proven, in a month he managed to earn up to hundreds of millions of dollars. Unlike other youths, Adi sees there is considerable potential that can be cultivated in this field. This type of farm for spices. For example, which he then tried to develop.

Based on the statistics of the central statistic (BPS), in the quarter II 2017, the agricultural sector continues to contribute positively to the Indonesian economy. According to the BPS, it is seen that Indonesia's gross domestic product (GDP) has reached Rp 3,366.8 trillion. If viewed from the production side, agriculture is the second most influential sector of economic growth, after the processing industry. The position of agricultural sector is still above other sectors, such as trade or construction.

Indonesia is a fertile country and rich in natural resources where the agricultural or agrarian sector has a major role in the economic turnover in the country. In addition, with the number of people who occupy the fourth largest in the world, making Indonesia will always experience a significant increase in population growth annually. Thus, the opening of green environment and food production environment such as Paddy field become unavoidable urban area anymore. On the other hand, with the increasing number of people, certainly food needs will also continue to increase. But the increase in food needs can not be balanced by the expansion of food production environment. Therefore, crop production through the horizontal farming method in the future can no longer be relied on, so it takes a new innovation in agriculture that could answer the problem, one of them through vertical farming techniques. With this technique also, we can

manage to be urban farming. Urban farming is a supporter of the realization of food security and poverty alleviation in the city area. Practice in various countries can be a good example for the application of urban farming in Indonesia. Some cities in Indonesia have begun implementing and developing urban farming but there are still many cities in Indonesia that still rely on food needs from other regions. Urban farming practices can start from home by utilizing local resources and simple technologies. If this practice is successful, it is not unlikely that there will be other households doing urban farming practices. With urban farming can be an entrepreneurial for housewives. So that they can have a representation of the crops that grow and they can use the crops for their own needs.

II. BASIC THEORY

A. Land efficiency with the utilization of vertical dimensions.

Utilization of vertical dimension in agricultural cultivation is known as Vertikultur term. This means that the cultivation technique utilizes the vertical dimension of space. During this time the farm has never thought about the use of vertical dimensions because it is accustomed to horizontal land utilization. Until now, the vertical space is still not being utilized optimally. The farmer is still glued to the land on the surface of the earth as the land.

The Vertikultur first came from the idea of vertical Garden from Switzerland around the year 1945 (Agus Andoko, 2004). Vertikultur aims to utilize the narrow land as optimally as possible so as to produce a pretty much product. These verticultures apply only to certain types of plants, such as tomatoes, chili, slada, mustard, onion, etc. Along with the advancement of technology, these vertical crop techniques are growing and found the ideas of narrow garden design that produce agricultural commodities that are not inferior to the agricultural products on the horizontal land.

The verticulture technique corresponds to the prinsip of the land efficiency in which certain land units can produce comparable products with larger land. In developed countries such as Japan and the Americas have already used this agricultural technique by building a plantation facility vertically utilizing the unused terraced buildings. Using the help of a former building ultraviolet lamps turns into a gigantic greenhouse that generates thousands of tons of vegetables and fruits without opening new farmland.

III. DISCUSSION

Vertical farming or vertical farming is a method of farming where plants are planted in a multilevel or vertical effort to minimize the use of agricultural land using the two main principles of hydroponic agriculture and

Verticulated agriculture. Planting is a technique of planting in a narrow space by utilizing vertical field as a place for cultivation carried out in a multilevel (Temmy, 2003). Marsema Kaka Mone (2006).

This vertical agricultural project, first introduced in 1999 by Dickson Despommier, is a professor of environmental health and microbiology at Colombia University, New York, USA.

The advantages of vertical farming as a modern farming system include:

1. Vertical farming is an environmentally friendly farming system that can reduce the use of fossil fuels. This is due to the use of vertical farming, the use of fossil fuels such as gasoline and diesel will automatically decrease with the unused tractors and reels in agricultural systems.
2. Vertical agriculture creates new employment opportunities as an effort to reduce unemployment rate and increase community productivity.
3. Vertical agriculture offers the promise of measurable economic improvements to tropical and subtropical backward countries, as they adopt urban farming as a strategy for sustainable food production.
4. Vertical agriculture can reduce the onset of armed conflict over natural resources, such as water and land for agriculture.

In practice, the application of vertical farming is still limited to developed countries with powerful technological mastery such as Singapore and South Korea. This is because vertical farming requires artificial lighting similar to the sun as well as temperature settings, especially during winter time for harvest to be done throughout the year. But the use of technology is consuming large funds and energy. That is one reason why developed countries like America still choose to import rather than using this system.

Thus, vertical farming is suitable to be applied in tropical countries such as Indonesia, because with the sun shining throughout the year, the temperature and humidity are sufficiently stable, will certainly save energy and production costs from Vertical farming. Using both principles, vertical farming can be modified and adapted to the current agricultural and economic conditions of the people of Indonesia, such as the modification of the use of modern technology with simpler technology and have similar benefits. Although the initial start-up cost to fund this innovative idea is considerable, but if this method is being put in, then the profits gained can return a considerable initial capital.

IV. CONCLUSION

So, Indonesia can apply vertical farming technique to keep an eye on the quantity of food needs, crop type classification, balance sheet energy needs and technology

to be applied. This vertical farming technique can be used in yard or vacant land located around us. For example, planting several types of plants with certain characteristics such as tomatoes, chili, slada, mustard, onions, etc. So with the use of housewives techniques can use the crops planted or we can make an entrepreneurial by selling the results of plants planted.

To scale the magnitude can we use the business with this technique. For example, we make a village planting several types of crops in their house or vacant land that they have. Then we coordinate on one person to manage the crops of one village. So that we can make one village productive and can earn income. Expected in the near term, Indonesia can have vertical agricultural projects to strengthen Indonesia's economy.

REFERENCES

<http://balepetani.blogspot.com/2015/03/efisiensi-lahan-sebagai-solusi-industri.html>

https://www.academia.edu/20364578/VERTICAL_FARMING_SEBAGAI_UPAYA_PEMANFAATAN_LAHAN_SEMPIT_GUNA_MEMPERKUAT_PEREKONOMIAN_INDONESIA

Ahmad Rifqi Fauzi, Annisa Nur Ichniarsyah, Heny Agustin (2016) Urban farming: urgency, role, and best practices. *Journal of Agroteknologi*, Vol. 10 No. 01 (2016)