

# NVivo Analysis on the Resilience of the Food Security Program in the Berakit Village Border Area, the Bintan Regency

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**Abstract.** As evidenced, villages in border areas are Indonesia's frontline in realizing regional resilience. However, Berakit Village has a strategic location with a maritime boundary with Singapore, so the community's survival condition must be prioritized. This study aims to identify resilience in food programs in the agricultural and marine sectors. The research method uses descriptive qualitative using the Nvivo analysis tool, which is then analyzed in-depth triangulation approach. The results showed that adherence to the food security program in Berakit Village, Bintan Regency, had a tremendous significance in the Availability and Affordability Aspects that still met the community's needs. The utilization aspect could not be produced or exported to other areas to generate economic value for the Berakit Village community. In addition, the resilience of the food security program in Berakit Village is the marine sector compared to the agricultural sector. However, the marine sector is still vulnerable to food crises due to the geographical location on the border, making the potential needs of the community uncertain due to the changing weather climate. Therefore, the importance of stakeholders in carrying out strategic policies in border areas, especially in Berakit Village, will be the resilience of the food security program.

**Keywords:** Food security; border area; village border; bintan regency

## 1 Introduction

The concept of food security emerged in the 1970s, developing significantly [1]. The development of the definition of food security has varied [2]. However, it is most often used by FAO; According to the Food and Agriculture Organization (FAO) of the United Nations, Food security exists when everyone [3], [4]. At all times, has physical and economic access to adequate. Nutritious food meets their dietary needs and preferences for active and healthy living [5], [6]. The definition shows various dimensions of food security, including food, availability, access, utilization, and stability of food supply at global and national. [5], [6]. The food crisis is causing a slowdown in economic growth at the local level. Simultaneously, the Covid-19 pandemic affects food security and the economy [7]. The multidimensional concept of food security shows the relationship between food security, economic dimensions, and health

welfare. In particular, the rising prices of necessities due to the Covid-19 pandemic have exacerbated household vulnerabilities in low- and middle-income countries [8].

Any organized system aims to achieve a stable state. As much as optimizing a complex system will reduce its durability. Thus, a resilient food system contributes to food security to achieve a sustainable food system [9], [10]. Agriculture has a significant role in reducing poverty and improving food security in other sectors of the economy. The report 2018 from the United Nations System Standing Committee on Nutrition (UNSCN) on the world's nutritional situation shows agriculture's critical role in ensuring food security and nutrition [11]. The problems that often occur are sustainable food resources and production. Food production practices intent on global demand can damage the environment to the point of causing local or even international ecological disasters.

Food and Nutrition Development in Indonesia is based on food law 7 of 1996 concerning Food and Government Regulation 68 of 2002 regarding Food Security. In 2020 Indonesia's population will reach 220 million people, and by 2025 it will reach 270 million people, so it is essential for Indonesia to realize food security [9]. The change of policy formulation from centralistic to decentralization. Impact on agricultural development in the regions by imposing creativity of each area to develop their territory. Contributions from various stakeholders from the three main pillars between the government, the private sector, and community support development to achieve common goals [11], [12]. Finally, this collaboration will include investors outside the government, communities/ communities, NGOs, and the private sector, oriented toward a common interest in decision-making [13], [14].

Improving food security in Bintan Regency requires efforts from several stakeholders. Based on observation data, The millennial farmers are spread across several districts, including Bintan Pesisir District with 17 people, Mantang District with 29 people, East Bintan District with 75 people, and Toapaya District with 89 people. In addition, Gunung Kijang District has 72 people, Bintan Bay District 44 people, Sri Kuala Lobam District 79 people, North Bintan District has 59 people, and Tambelan District has 11 people. The researcher's research locus is Berakit Village, Bintan Regency [15]. Affordability aspects of accessing food more efficiently and aspects of quality and security are indicators of people's understanding of nutrition and food security.

## **2 Research Method**

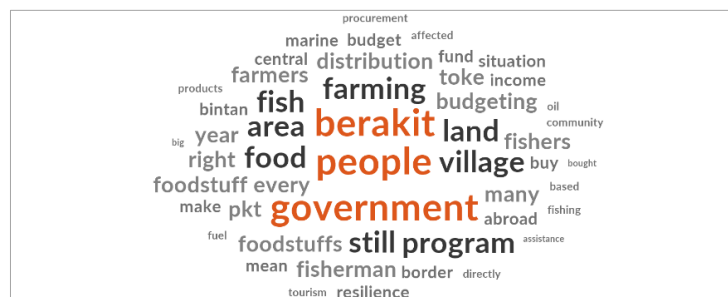
Qualitative research prioritizes the problem of the process, meaning, and perception [16]. The data collection techniques are divided into 2, namely using secondary data in documents and relevant reports related to research topics. Primary data researchers conducted direct interviews with research informants involved in food security programs in the border area of Berakit Village, Bintan Regency.

The triangulation method, which is an unending combination of methods, was used for data analysis [17]. In Addition, Researchers used an analytical tool called Nvivo [20] to facilitate data analysis [18]. However, NVivo also shows that the primary function of this software is to code data effectively and efficiently [19]. In general, Nvivo is a qualitative analysis tool for strengthening an argumentation on research findings to make it easier to conduct an in-depth analysis of a research result.

### 3 Result

#### 3.1 Word Cloud NVivo Interview Transcript

Researchers conducted seven informants, including village secretaries, youth groups, farmer group leaders, fishing group leaders, the head of food security, members of the Bintan Regency DPRD, and the Sea Tribe. Wordcloud is the result of the interview transcript processed using NVivo software. However, the fact is that the researcher was only able to interview three informants because the other four informants did not respond or were not willing to conduct interviews related to food security in Berakit Village, Bintan Regency. The results of all the informants' Wordcloud can be seen in the following picture;

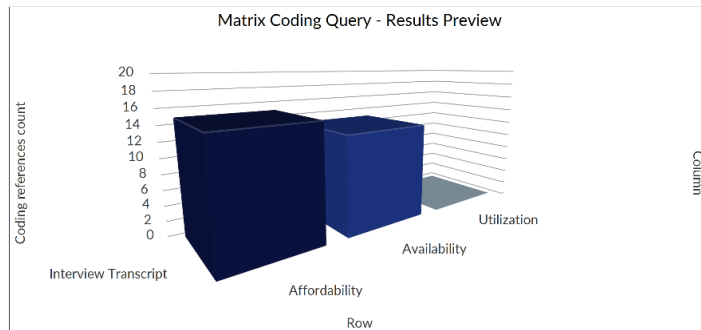


**Fig. 1.** Wordcloud Interview All Informants

The findings show that the informant has a more dominant statement on the condition of food security in the marine sector, namely the role of the government. On the other hand, the second-word cloud was more about food security in the Assembled Village, which was intended for villages and communities, especially Bintan Regency. So overall, the informants stated that food security in the village border area tends to be fisherman activities. On the other hand, the Cash Work Intensive (PKT), a program established by the Berakit Village Government, Bintan Regency, also monitors the food industry.

#### 3.2 Coding Matrix of aspects affecting Food Security

The coding matrix aims to measure the extent to which indicators and factors influence the results of the overall interview of informants. Interpret the results of the coding matrix in investigator triangulation in testing the validity of interview data. For example, the results of the coding matrix generated by NVivo are shown in the image below:



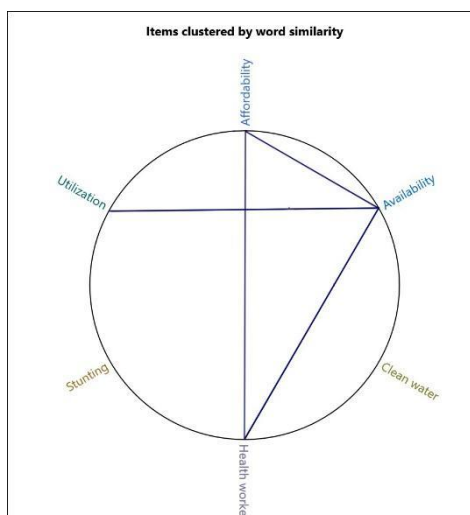
**Fig. 2.** Matrix Coding Query

Based on the findings above, it can be concluded that the factors that affect food security in Berakit Village on food affordability are more focused on rural communities in meeting their daily needs in Berakit Village, Bintan Regency. That is because the Berakit Village community has access to another land, namely Tanjungpinang City. Besides that, the food availability in Berakit Village is above the threshold based on the coding matrix.

However, in its utilization, food security in Berakit Village cannot be used as a business to business in the development of the food security sector in Berakit Village, Bintan Regency. That is due to the geological characteristics of the Berakit village's coastal border region and the effect of the sea's tides, such that the revenue of the food security sector, both marine and agricultural, is just sufficient to meet the daily requirements of the villagers.

## 2.2 Cluster Analysis of Food Security

The cluster aims to see the relationship between indicators and aspects that affect food security in Berakit Village, Bintan Regency. The clusters that Nvivo has processed can be seen in the following picture:



**Fig. 3.** Items Cluster Food Security

Based on NVivo cluster findings, there is no connecting line of factors affecting food security in Berakit Village, Bintan Regency, namely the stunting and clean water factors. This is due to the presence of clean water and stunting felt by the people of Berakit Village, which is still protected. Therefore, the presence of clean water is sufficient in conditions of food security in Berakit Village. In addition, the line of health workers focuses more on food availability and a healthy nutritional pattern (4 Healthy 5 Perfect), so this food security has fulfilled a clean and healthy lifestyle (PHBS). Meanwhile, affordability is related to the utilization of food security in Berakit Village, Bintan Regency. This shows that the utilization and availability factors are highly prioritized to meet the daily needs of the Assembled Village community, which has a strategic area with the Indonesia-Singapore border.

## **4 Discussion**

### **4.1 Availability of Berakit Village Food**

Indicators regarding food availability are used to capture how Berakit Village provides food commodities to meet community consumption. The first indicator captures the Berakit Village area's ability to meet domestic production-consumption needs. In contrast, the second indicator captures food availability outside the region through trade activities. This is because Bintan Regency is not an agricultural area that produces food (rice).

In addition, several sub-districts in the Regency lack food supply facilities, including Berakit Village, where the number of shops and markets is still inadequate. The following is a map of food security in Bintan Regency, which shows that Berakit Village is included in the food security area. There are several potentials related to the availability of food in the Berakit Village area, namely the number of marine products obtained by the Berakit Village community, which is still broad and can be intensified to increase household food productivity. In addition, the use of yard land as an alternative food source is mainly green vegetables, coconut, watermelon, and chilies.

Even though Cukong or Chinese residents control small stalls in Berakit Village, the community can meet its most basic needs, which is the food supply village. What can still develop the potential for fisheries to support the fulfillment of protein consumption, but not much because after the fishers get the results are sold directly to the Cukong, after which the price of fish drastically increases if sold to residents. Opportunities to develop food availability are support for food security development policies from the district government to support food availability. However, some of the challenges faced by food availability are the increasing need for food along with the increase in population and needs from outside the region, becoming a challenge to increase the production and productivity of fisheries and agriculture [20].

### **4.2 Berakit Village Food Availability**

The potentials associated with food affordability are identified, namely, the availability of food reserves for the Bintan Regency government and food barns as community food reserves that can be utilized to be released when food prices are high where the government controls prices and supply. At the same time, the opportunities associated with food affordability are identified as follows where there are already many poverty alleviation programs from the government that has led to reducing the burden on the population and providing food

assistance—opportunities for cooperation with related institutions in the context of stabilizing food prices during high price fluctuations [21].

However, Berakit Village's findings on food affordability only focus on the fishery sector as an economic livelihood, but the marine sector can only meet their daily needs; this is due to border areas that make conditions for anglers who want to catch fish cannot being maximized. The country between Indonesia and Singapore is a threat to a food crisis in the marine sector. Rural communities can move distribution to other areas in the agricultural sector because they are still on the same island as Tanjungpinang City. In general, food affordability only focuses more on meeting the daily needs of the Berakit Village community in the border area of Bintan Regency.

### **4.3 Availability of Berakit Village Food**

Utilization related to food utilization is identified as follows 1) Utilization of food that households can access; and (2) the individual's ability to absorb nutrients efficiently by the body [22], [23]. Food utilization also includes storage, processing, and presentation of food, including the use of water during processing, as well as cultural conditions or habits in providing food, such as an understanding of nutrition that has not been evenly distributed to the village, resulting in a lack of public knowledge about the importance of nutrition and diverse foods. Furthermore, the potentials associated with the use of food are identified as follows: the availability of home yards that can optimize for use in the provision of local food, and the development of food crops, although they are not varied.

Finally, the challenges associated with food utilization were identified: the lack of public awareness of a clean and healthy lifestyle (PHBS) due to modern living culture. However, the findings from the study show that the utilization aspect of food security in the Berakit Village, Bintan Regency, is not used in the production of food security exports, so utilization is focused on the needs of local communities to meet their daily needs sustainably in border areas in Berakit Village, Bintan Regency. In addition, this utilization is only processed food products sold to the Berakit Village community so the community's economy.

## **5 Conclusion**

Food Security of Berakit Village in the border area regarding availability and aspects of affordability shows that it has fulfilled the community's needs. However, in sustainable use, whether managed or exported, it still does not fulfill the broad demand in Kepulauan Riau Province. The food sector in the border area is in the marine sector because the occupation is generally more dominant as a fisherman. However, the marine sector cannot guarantee good food security due to the geographical location of Berakit Village facing the national border. In addition, in the agricultural sector, it is only a supporting factor for food security, which until now is still sufficient.

Recommendations from food security researchers in Berakit Village, Bintan Regency, must be realized by stakeholders in the future to anticipate food crises and the weakening of the community's economy. In addition, the role of local government and central government must be able to map out potential food crises by providing strategic policies in border areas of Berakit Village, Bintan Regency.

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