

CONTESTATION OF #FOODESTATE DISCOURSE AS A SOLUTION TO THE THREAT OF JOKOWI'S ERA FOOD CRISIS ON TWITTER SOCIAL MEDIA

¹Febrian Nugroho, ²Edi Santoso, ³Nana Sutikna

^{1,2,3} Master of Communication Studies, Jenderal Soedirman University, Puwokerto

febrian.peranginangin@mhs.unsoed.ac.id, edi.santoso@unsoed.ac.id, nana.sutikna@unsoed.ac.id

Abstract

Article Info

Received: 22/03/2023

Revised: 01/04/2023

Accepted: 13/04/2023

The food estate is considered a solution to the food crisis. It was a priority program for three Indonesian regimes: Suharto, Susilo Bambang Yudhoyono, and Joko Widodo. Today's, public attention is still focused on #foodestate issues. Furthermore, the modern era facilitates the public expression of responses through social media. This research aims to analyze netizen conversations on Twitter regarding Jokowi's policy concerning food estates. The method used in this research is communication network analysis (CNA), with data collected from Netlytic through crawling #foodestate issues on Twitter during 2020—2022. Measurement focuses on the most frequently discussed, actor-dominating, network-structured communication and netizen responses. The conclusion of this research dominated negative sentiment responses that showed public dissatisfaction, actor dominance, which represents government concern, and the lowest level of public involvement in discussing #foodestate issues. This research provides information to the government as a recommendation to improve food estate programs to solve the food crisis threat.

Keywords: food estate, food crisis, Jokowi policy, network communication analysis

1. INTRODUCTION

The threat of a food crisis in Indonesia is a crucial issue. Food crises do not only have an impact on one aspect of society. These issues can impact other aspects, namely economic, social, political, and environmental (Suryana, 2014). The magnitude of the impact of this food problem has occurred in Indonesia, when the soaring prices of basic necessities resulted in an economic and political crisis throughout 1997-1998. The economic crisis triggered by the food crisis and the increase in prices of basic commodities in the Suharto era resulted in the government losing potential sources to strengthen the legitimacy of its power (Aprilia, et al., 2014). The food crisis in that era occurred as well, although Suharto was known as the first President of Indonesia who succeeded in bringing Indonesia to become a rice self-sufficient country with the concept of agricultural intensification.

The issue of food became the main concern of the next government, namely the Susilo Bambang Yudhoyono (SBY) era government. Of the 11 national development priorities in the United Indonesia Cabinet Volume 2, the food program is included in the 2010-2014 National Medium-Term Development Plan (RPJMN) (Bappenas, 2010). However, the *Food Agriculture Organization* (FAO), one of the UN agencies, expressed a pessimistic view on food conditions in Indonesia. In the period 2015-2025, according to FAO, Indonesia is included in countries affected by the threat of food crisis or is in difficult conditions related to food. Especially to achieve, maintain, and improve the quality of food security sustainability (FAO, 2011).

Crucially, this food problem has made the government set an anticipation program against the threat of food crisis as a national priority program. The priority program is called food *estate* or often also said to be a large-scale food barn. In its implementation, this program is not only the responsibility of one ministry, but is the responsibility of several ministries or institutions at once. In addition, in the era of President SBY for the target of food self-sufficiency, the private sector or investors were given a central role. On the regulatory side, it is clearly explained the support and facilities provided to investors ranging from land area, ease of land management permits, credit facilities to allowing foreign investors



to have shares in land management for the *food estate* program (Dwiguna, 2020). In other words, the role of the private sector is maximized to mobilize investment both domestically and investment on a global scale so that domestic food needs can be met (Fahira, et al., 2022).

During the Soeharto era, there was a PLG (Peatland Development) program with an area of 1,000,000 hectares in Central Kalimantan (Citradi, 2020). Furthermore, the era of Susilo Bambang Yudhoyono launched the MIFEE (Merauke Integrated Food and Energy Estate) project in Merauke and Papua. Then the *food estate* project covered an area of 300,000 hectares in Bulungan, North Kalimantan, and 100,000 hectares in Ketapang, West Kalimantan (Hartono, 2021).

However, a series of food policies and programs from the Suharto era to SBY was considered failed or could not be realized, even experiencing many rejections from the public. The above conditions are serious challenges faced by Indonesia. Moreover, the population of Indonesia has reached 267 million people or the fourth most in the world. The government's task is to meet all people's food needs (Limpo, et al., 2022).

The Government further addressed the threat of a food crisis in the Joko Widodo era with a new paradigm *food estate* program. This program offers the concept of increasing productivity, planting intensity, and expanding production bases through new land clearing. The importance of anticipating the threat of food crisis in the national economy makes *food estate* a priority for national development to improve food security. Through the Ministry of Agriculture, the Joko Widodo Government also encourages farmers to utilize KUR (People's Business Credit) as a source of financing for agricultural businesses and strengthening private investment (Limpo, et al., 2022).

The development of information technology has conveyed the Joko Widodo Government's policies to the public faster than in the previous era. On the one hand, it is beneficial, but on the other hand, it can also result in various sentiments against government policies.

The *food estate* program is inseparable from the community's response, especially on social media, whose presence results from the development of information and communication technology through the internet. Social media is slowly replacing *mainstream media* as a provider of information and as a medium of communication. One of the reasons is because of the high number of internet users in Indonesia. It is recorded that Indonesia has the most internet access in the world, with penetration reaching 73.7% (Novianty, 2021).

Today, issues can be shaped by mass media and by every individual who uses social media. *Netizens*, through social media, can encourage the formation of perceptions or opinions that are followed by the public. Eriyanto (2019) explains how netizens can form cases or issues into public opinion in the era of internet progress. This can be done through conversations on social media, to the network it has.

Every *netizen* connected to the internet network can chat or discuss with each other when one makes a post. Social media that most accentuate the text side by flushing its users with a variety of information or *trending* information is Twitter. Through Twitter, *netizens* can interact with anyone connected to it. *Netizens* can write their opinions through the comment column of tweets posted by other parties.

The use of Twitter becomes more interesting with hashtags or hashtags that can lead to certain opinions, such as #foodestate hashtags that discuss food issues. This issue can raise personal opinions after netizens get information from certain posts. This is what makes netizens make a consumption, namely the interrelated production and consumption processes (Yamamoto & Bae, 2019).

Assumptions on an issue can give rise to public opinion formed by netizens. While the mass media is the party that strengthens public opinion formed through Twitter. Growing opinions can be easily monitored through hashtags on Twitter.

Twitter can form a pattern to give an issue power through trending topics. Various Twitter tweets that are counter or critical in nature related to the issue of food estate can lead to wider netizen conversations. Certain actors also use this as a space for pro and con contestation. Through this contestation, the #foodestate issue has a variety of explanatory frameworks constructed on Twitter. This can lead to diverse public sentiment from each tweet.

Based on this background, this study aims to determine the structure of communication, response or conversation of *netizens* related to *food estate* issues on Twitter and network structure in the

conversation. The level of data analysis uses CNA (*Communication Network Analysis*) in the form of network structures, and groups (Eriyanto, 2021).

2. METHOD

The method used in this study is communication network analysis or Communication Network Analysis (CNA), a method that is an application of Social Network Analysis (SNA). Referring to Rogers and Kincaid (in Eriyanto, 2014), CNA is a method used to determine the structure of communication and the position of actors in the communication structure. This method is still included in the quantitative approach. According to Eriyanto (2021) to measure data from the network structure level, consisting of density, diameter, reciprocity and centralization, and groups (modularity).

The data analyzed in this study was taken from the keyword or hashtag #foodestate on Twitter from January 2020 to November 2022. In this period, researchers obtained data on 20,178 tweets, including 6,411 tweets in 2020, 7,374 tweets in 2021, and 6,393 tweets in 2022.

Data is collected automatically using the scrape library from Python. Tweet data is retrieved using #foodestate keywords. Data collection or crawling is followed by scrapping data review to determine the sentiment analysis model made, whether the review is positive, negative or neutral. According to Hadna, et al., (2016), sentiment analysis is a way to identify the sentiments or opinions of internet users from the text they write. Troussas et al., (2013) classify the sentiments depicted through the text with positive, negative or neutral classifications. Tweets classified into the three sentiments above are obtained through data pre-processing to inference models that classify the text of tweets cleaned in positive, negative or neutral sentiments. The last stage is the analysis stage. Researchers in this use the *Netlytic application*. *Netlytic* is a tool for analyzing text and cloud-based social networks that can automatically summarize textual data and find communication networks from every post made on social media that the public can access. After the *data import* is complete, the analysis is carried out. Then the *text analysis* process is visualized with a *word cloud* and *network analysis* to see the correlation between accounts in the form of *social network visualization*.

The research process was carried out by referring to Eriyanto's (2021) research with two stages of research, namely observing conversations on #foodestate issues on Twitter, taking tweet data, and then conducting communication network analysis related to the issue. This research was carried out with four main stages. Namely data retrieval or *crawling*, the next stage is *filtering*, in this process, the data to be analyzed is selected based on #foodestate hashtags. After the two initial data collection stages, the next stage is data analysis, carried out by computational processes using social network analysis to describe the network structure of interactions between actors. Finally is data visualization (Kurnia, 2021).

For the data analysis stage, this study refers to the level of analysis of Eriyanto (2021), namely network structure and groups. The network structure explains the shape and structure of #foodestate issue networks on Twitter. Groups are used to describe the *nodes* formed in that network group.

3. RESULTS AND DISCUSSION

The object of this study is *netizens* who use Twitter or often called *tweeps* who provide tweets or responses to #foodestate hashtag issues. The analysis was conducted starting from the side of accounts that produce the most tweet content (*top users*), words that often appear (*word cloud*), network structure, and network clusters as well as influential actors in #foodestate issues on Twitter.

Top Users

Top Users of 2020

The results of *crawling* data obtained 10 actors or *nodes* that were most dominant in the *food estate* issue from January 2020 to December 2020 with a total of 6,411 tweets. The 10 *nodes* that became the *top users* in the issue included @BORNEONEWS (14.5%), @beritasampit_id (11.7%), @republikaonline (10.9%), @redaksimetrokal (10.2%), @mediaindonesia (10.1%), @kompascom (9.6%), @antarabiz (8.9%), @PSEKP_KEMENTAN (8.6%), @Ponggolwatu (7.8%), and @CNNIndonesia (7.6%).

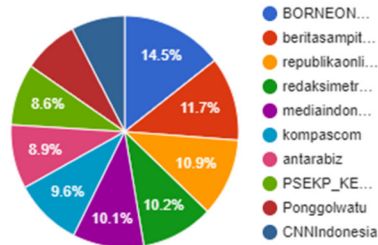


Figure 1 Top Users in 2020
Source: Netlytic

The account @BORNEONEWS became the *top user* in 2020, because the account often tweeted in the form of news linked to www.borneonews.co.id links. Based on 2020 data, @BORNEONEWS has made 90 tweets. Despite this, the account was never *mentioned* by the Twitter accounts of other *netizens*. The tweets made by @BORNEONEWS are in pictures 2 and 3.

2020-07-10	BORNEONEWS	Jokowi: Food Estate di Kalteng untuk Antisipasi Krisis Panganhttps://t.co/HzF7xw1Zxx
2020-06-25	BORNEONEWS	Gerdayak Dukung Program Food Estate di Kaltenghttps://t.co/AugOfAwCzW

Figure 2 of @BORNEONEWS Tweet
Source: Netlytic

As a media based in Kalimantan, @BORNEONEWS made a tweet discussing #foodestate in the Kalimantan region. This can be seen from the tweet above, where Gerdayak (Dayak Youth Movement) supports *food estate* programs in its area. In addition, @BORNEONEWS also discussed Joko Widodo's programs related to *food estate* in Kalimantan. Although the response to comments from the tweet was minimal, the @BORNEONEWS account remained stable, making #foodestate tweets aimed at the Kalimantan region.

Top Users of 2021

The data obtained through *crawling* techniques in 2021 was 7,374 tweets, from these tweets obtained by 10 *nodes* as *top users* from January 2021 to December 2021. The 10 *nodes* that became the *top users* in 2021 included @mcreativepky (32.4%), @BORNEONEWS (17.9%), @walhi_kalteng (9.4%), @pantagambut (7.4%), @mediaindonesia (6.4%), @Siahaan_Boy (5.6%), @IniPastiDotCom (5.5%), @republikaonline (5.4%), @sariagri_id (5.4%), and @PSEKP_KEMENTAN (4.5%).

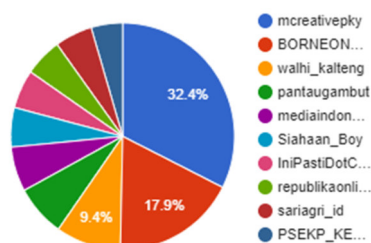


Figure 3 Top Users in 2021
Source: Netlytic

The account @mcreativepky became the *top user* in #foodestate issue during 2021, as the account often tweeted using #foodestate keywords. Based on 2021 data, tweets made by @mcreativepky using #foodestate keywords were 335 tweets. Unfortunately, the content of the tweet made by the account has nothing to do with discussing #foodestate issue. The tweet made by @mcreativepky can be seen in figure 4.

2021-07-27	mcreativepyky	Bhabinkamtibmas food estate mengajak masyarakat, anak-anak gemar membacabuku https://t.co/uivTfijpmK
2021-11-28	mcreativepyky	Bhabinkamtibmas food estate mengajak masyarakat, anak-anak gemar membacabuku https://t.co/8c2zMXmfG9

Figure 4 @mcreativepyky Tweet

Source: Netlytic

The @mcreativepyky account consistently made the same 335 tweets throughout 2021. Despite being in the #foodestate conversation network, what was tweeted was not the same as the issues raised. An account @mcreativepyky is identified as a user who uses a Twitter account to peddle, sell, or produce other information that has nothing to do with the issue under investigation. In this kind of conversation network, bringing up several hashtags simultaneously in one tweet is also possible. One issue can be used to raise another. Such activities are usually carried out by people who work as buzzers.

In social media, the term *buzzer* refers to his task, which is not just to make tweets, he has a certain motive and purpose in orchestrating a message and spreading it to become a conversation on social media. *Buzzer* is considered to have the power to influence *followers* because of its ability to reach and distribute certain content massively. It is no longer a single entity but part of the communication strategy industry used for the promotion of both corporations to political institutions (Saraswati, 2018; Putra & Irwansyah, 2020).

Even though it is only in the conversation network of #foodestate issues and producing different issues, @mcreativepyky position can even shift @BORNEONEWS as the *top users* in one year in 2020 because it actively produces tweets with #foodestate issues.

Top Users of 2022

The data obtained in 2022 was 6,393 tweets from January 2022 to November 2022. Based on the tweet, 10 *nodes* were found to be the *top users*, including @mulyati_yayan (27.2%), @jawapos (14.6%), @alineadotid (14.3%), @mcreativitepyky (9.6%), @sariagri_id (8.6%), @PSEKP_KEMENTAN (8.1%), @jpnncom (4.8%), @revvslaw (4.5%), @antarabiz (4.2%), and @IniPastiDotCom (4.1%).

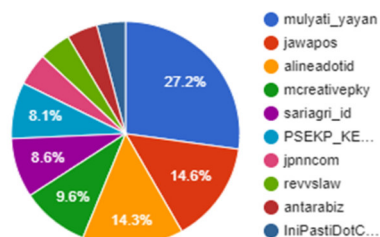


Figure 5 Top 5 Users in 2022

Source: Netlytic

@mulyati_yayan account became the *top users* in 2022 from January 2022 to November 2022. The account @mulyati_yayan is also active in making tweets, he tweeted 181 times by including the keyword #foodestate. The content of the tweet from the account as a whole criticizes the #foodestate program in Indonesia. The tweet posted @mulyati_yayan can be seen in Figure 6.

2022-06-14	mulyati_yayan	Kecewa dengan proyekFood estate https://t.co/efdQ8sdYT
2022-09-26	mulyati_yayan	KECEWA FOOD ESTATESWASEMBADA PANGANCOPOTMENTERI PERTANIANBUBARKAN KEMENTERIAN PERTANIANIMPORT TERUS...KEDELAJAGUNGBAWANG PUTIHDAGING SAPIGULA https://t.co/aFEy564owN
2022-09-28	mulyati_yayan	KECEWA FOOD ESTATESWASEMBADA PANGAN ...OMONG DOANGBUBARKANKEMENTERIAN PERTANIANCOPOT MENTERI PERTANIAN https://t.co/EidC6fgvS

Figure 6 @mulyati_yayan Tweet

Source: Netlytic

Word Cloud

Word cloud is a picture of data taken and collected, selected or filtered conversations containing keywords #foodestate. The results will also show you the words most often used by Twitter users or tweeps.

Word Cloud in 2020



Figure 7 Word Cloud Year 2020

Source: Netlytic

The most frequently used words from the image above, are categorized in two groups. *First*, the word that refers to the #foodestate issue, namely the word *food* is mentioned 6,219 times, the word *estate* 6,173 times, the word product 847 times, the word land 739 times, the word built 642 times, the word reserve 635 times, the word #BangkitUntukIndonesiaMaju 628 times, the word industry 603 times, the word strengthen 594 times, the word #IndonesiaMaju 565 times, and the word moved 553 times. *Second*, words that refer to actors, including the word Kalteng 1,139 times, the word national 1,064 times, the word Kalimantan 789 times, the President 887 times, and the word Jokowi 1,134 times. From the conversation above, the mention of actors indicates an interaction between Twitter users, tweeps, and policy makers related to the #foodestate issue. At least it can be seen from the @Syahrul_YL account in his tweet even though it only explained about the performance of the Jokowi administration in running the national food program #foodestate, not a response back to the tweets of other Twitter users.

2020-07-08	cnbcindonesia	Pemah Gagal Zaman Soeharto, Food Estate Jokowi Bagaimana? https://t.co/988R54VMfg
2020-07-08	Syahrul_YL	Hari ini saya mengecek kawasan Food Estate di Kalimantan Tengah bersama jajaran Kementerian Pertanian. Ini adalah program strategis nasional yang melibatkan beberapa kementerian di bawah arahan Presiden @Jokowi. https://t.co/zeJy1k4n
2020-07-08	beritasampit_id	##BeritaSampitFood Estate di Kalteng, Tokoh Masyarakat: Terima Kasih Jokowi https://t.co/qO9uM7bzN PALANGKA RAYA - Penunjukan Kalimantan Tengah, menjadi daerah yang dijadikan sebagai Food Estate m... https://t.co/5yghw0nqHS

Figure 8 Conversation with Jokowi

Source: Netlytic

The topic discussed was news about Jokowi's performance in running the *food estate* program, especially in the Kalimantan region. The @cnbcindonesia news account revealed this by including a news link to the account's website. The tweet by the @cnbcindonesia account was a news headline in the form of a question. Furthermore, the @Syahrul_YL account revealed that the #foodestate program is a national strategic program involving several ministries. A @beritasampit_id account is a news account that includes a news link to the account's website. The tweet made by this news account expressed gratitude to President Joko Widodo for the *food estate* program in Central Kalimantan.

Word Cloud in 2021

The results of *crawling* data collected during 2021 obtained several words described in the *word cloud*. This word is the word that appears the most in netizens' tweets on Twitter.



Figure 9 Word Cloud in 2021

Source: Netlytic

The most frequently used words are categorized in two groups. *First*, the word that refers to the #foodestate issue is the word *food* mentioned 7,158 times. The word *estate* is mentioned 6,770 times,

the word food 1,339 times, the word program 1,162 times, the word land 671 times, and the word agriculture 646 times. Second, the word referring to actors, the word farmer 1,141 times, the government word 641 times, and the word Jokowi 1,085 times.

2021-02-10	juliusibrani	Om @Dandhy_Laksono sdh jelasin fakta klo FOOD ESTATE ada yg GAGAL Lalu, sekonyong2 koder, Pemerintah mendorong KOMPONEN CADANGAN dgn basis pelatihan kemiliteran. Untuk apa???jd inget SWASEMBADA PANGAN jaman PAK HARTO. Eh iya, Menterinya jg WARISAN ORDE BARU PAK HARTO sih..
2021-02-11	aik_arif	Food estate: Proyek lumpur pangan bisa di hutan lindung. //ironis. Hutan jadi sawah, belum tentu cocok lahannya. Sedangkan yg sawah subur di Jawa jadi pabrik. https://t.co/a4JWvXo451

Figure 10 Conversation with the word Food

Source: Netlytic

Several discussions led to disappointment with the *food estate program*. It can be seen from @juliusibrani's tweet commenting on food self-sufficiency by bringing the Government into the Suharto era. Furthermore, comments from @aik_arif accounts that do not agree with *food estate* are carried out by converting protected forests into rice fields.

Word Cloud in 2022

The data collection 2022 from January 2022 to November 2022 resulted in the 10 most frequently talked about words and drawn in *the word cloud*.

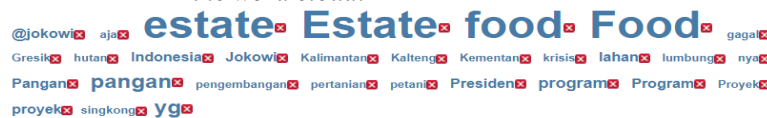


Figure 11 Word Cloud in 2022

Source: Netlytic

The most frequently used words are categorized into two groups. *First*, the word that refers to the #foodestate issue, namely the word *food*, is mentioned 6,177 times, the word estate 6,164 times, the word *food* 1,377 times, the word program 977 times, the word land 693 times, the project word 664 times, the word crisis 373 times, and the word failed 334 times. *The two* words that refer to actors are president 479 times, Jokowi said 461 times, and @jokowi 988 times.

2022-01-19	khanifirsyad	Gak hanya soal IKN saja yg sebenarnya berpotensi menjadi proyek mangkrak. Sebut saja mega proyek food estate, pernah diujai zaman Soeharto, tapi karena perencanaan yg gak matang, jadilah food estate gagal jilid 1. Ada jg program yg sama di Kalimantan, laqi-lagi gagal https://t.co/zhB8LpdZMA
2022-01-19	chusen_111_	Kalo gw sih netral asal syarat nya jika dan hanya jika dibangun dengan APBN surplus. Bukan lagi defisit. Lebih sulit membangun Kalimantan dibandingkan Jawa. Btw, gw udah di Kalimantan selama 3 tahun jalan ini. Program food estate aja gagal disini wkwkwkApalagi IKN? https://t.co/Js47LsX2LK

Figure 12 Conversation with word Failed

Source: Netlytic

The word failed to appear 334 times, dominated by tweets from private accounts replying to comments from news accounts. The word failure was expressed because it considered the *food estate* program that was run to fail. @khanifirsyad's account revealed that the *food estate* program had failed during the Suharto Government, then continued until the Joko Widodo Government, which he responded to experience the same thing. Furthermore, the @chosen_111 account revealed the failure of *the food estate* in Kalimantan, but he agreed with the program as long as it did not result in a budget deficit.

Sentiment Analysis

In conducting sentiment analysis, data has been collected using *crawling* techniques through *pre-processing data*. This stage needs to be done to eliminate data irrelevant to the topic of discussion. Furthermore, the data is classified into positive, neutral, or negative sentiment categories.

Based on data collected in the periods January-December 2020, January-December 2021, and January-November 2022, a total of tweets with diverse sentiments were obtained. So it needs to be classified more clearly to determine the category of the tweet. Each data collected is based on the year of data collection, divided into 2020, 2021, and 2022.

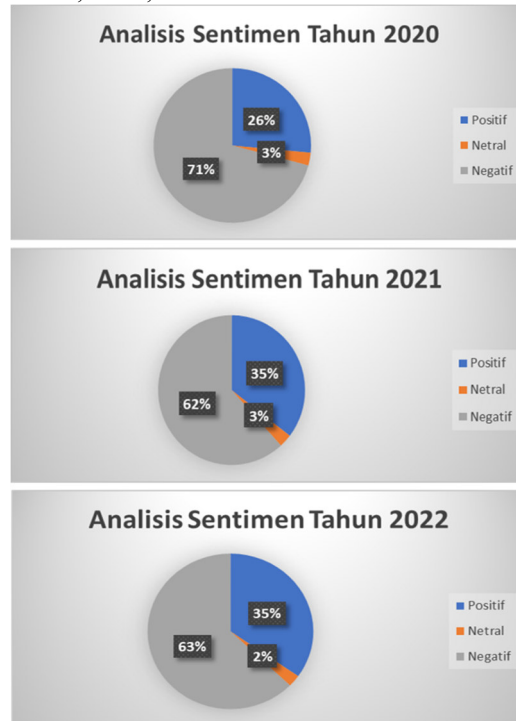


Figure 13 Sentiment Analysis 2020-2022
Source: Netlytic

The total data collected during 2020 was 6,411 tweets, which were then carried out sentiment analysis through stages, namely *Import Library* -> *Data Pre-processing* -> *Labeling* -> *TF-IDF (Term Frequency — Inverse Document Frequency) Weighting* -> *Features Selection* -> *Modelling* -> *Inference Mode* Until the sentiment category was obtained, including positive as many as 1,699 tweets (26%), neutral as many as 171 tweets (3%), and negative as many as 4,540 tweets (71%).

Meanwhile, in 2021, the data obtained were from the positive category of 2,626 tweets (26%), the neutral category of 192 tweets (3%), and the negative category of 3,945 tweets (62%). Negative sentiment until 2021 still dominated other sentiment categories, but the percentage rate decreased from 2020.

In 2022, the data obtained were the positive category of 2,223 tweets (35%), the neutral category of 158 tweets (2%), and the negative category of 4,012 tweets (63%). When compared to 2021, there is no significant change in public sentiment. The negative sentiment still dominated in 2022.

Network Structure and Clusters

Based on the results of data calculations using the *Netlytic* application, network structures and clusters in the form of *diameter*, *density*, *reciprocity*, *centralization*, and *modularity* were obtained. Diameter indicates the farthest distance from the relationship between *nodes*, the smaller the *diameter* value in the network, the faster the information circulating in the network (Bratawisnu & Alamsyah, 2018).

While density is the *density* or comparison of a network that shows the intensity of *nodes* when communicating, and *reciprocity* is the interaction by *nodes*, both one-way and two-way (Eriyanto, 2021).

Furthermore, *centralization* depicts centralization in a communication network on several *nodes* or actors (Eriyanto, 2021). While modularity with a high value indicates a clear division between clusters in *Netlytic*, while low *modularity* (< 0.5) indicates more overlapping clusters (Gruzd, et al., 2016).

Table 1 Network Structure Year 2020

Analysis	Data
<i>Diameter</i>	20
<i>Density</i>	0.000653
<i>Reciprocity</i>	0.014560
<i>Centralization</i>	0.057370
<i>Modularity</i>	0.804500

Based on table 1 data, 2020 data shows a *diameter* of 20, meaning that the farthest distance in the network is travelled through 20 *nodes*. This number shows that the issue of *food estate* is a network with a wide spread of messages in reaching Twitter *netizens* to interact with each other. However, the spread of the message is quite slow because it has to go through 20 stages first.

Furthermore, the density value shows 0.000653, meaning that the density in this network is fairly low or not too dense. Because the value is still far from number 1, it can be said that the relationship or relationship in this network is less close and not too many participants participate in the conversation, only limited to *likes* and *retweets*.

Reciprocity is used to see the proportion of relationships, whether one-way communication, two-way communication, or relationships in the number of participants present. The *reciprocity* value in 2020 data shows 0.014560. This shows that this network's interaction intensity is low, and many conversations are one-way or just writing tweets. However, in it, there is still interaction between *nodes*, although only slightly.

Centralization in this study obtained a value of 0.057370 or closer to 0, meaning that in the issue of *food estate*, not only one account or *node* has a major influence or dominates the issue, but information flows on many accounts. While the *modularity* value obtained is 0.804500 or more than 0.5, it means that participants in the *food estate* issue network cluster come from various groups, personal accounts, news portal accounts, and accounts belonging to officials or *public figures*.



Figure 14 Network cluster of #Foodestate issues in 2020

Table 2 Network Structure Year 2021

Analysis	Data
<i>Diameter</i>	15
<i>Density</i>	0.000453
<i>Reciprocity</i>	0.021430
<i>Centralization</i>	0.057800
<i>Modularity</i>	0.825700

Based on 2021 data in Table 2, the *diameter* value shows the number 15, meaning that the farthest distance in the network must be through 15 *nodes*. This figure still shows that the spread of messages is quite wide in reaching *netizens* on Twitter. However, it also shows that message distribution is still quite slow because it has to pass through 15 *nodes* first.

The *density* value shown from the 2021 data, which is 0.000453, means it is getting closer to 0 and away from number 1. This shows that the relationship or relationship building in this network is still low. Not many participants participated in the conversation.

Reciprocity shows 0.021430, meaning that the intensity of interaction in this network is still low, even though there is still interaction. Many accounts only make tweets or just *like* and *retweet*.

Furthermore, the *centralization* value in 2021 data is 0.057800. That is, accounts or *nodes* that influence or dominate *food estate* issues are not only one account, but information can flow to various accounts. The *modularity* value obtained is 0.825700, meaning that the value exceeds 0.5. This shows that in this network cluster, the participants involved come from various different circles.

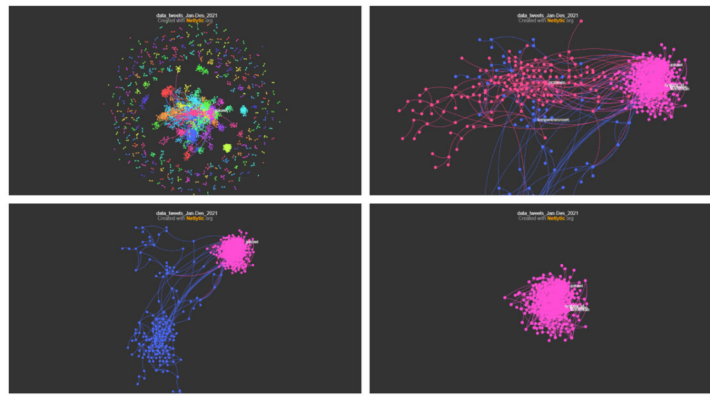


Figure 15 Network cluster of #Foodestate issues in 2021

Table 3 Network Structure Year 2022

Analysis	Data
<i>Diameter</i>	26
<i>Density</i>	0.000510
<i>Reciprocity</i>	0.013770
<i>Centralization</i>	0.062070
<i>Modularity</i>	0.753800

Based on data from January 2022-November 2022, a *diameter* value of 26 was obtained. That is, the farthest distance in this network passes through 26 *nodes*. The spread of messages in this network is wide and can reach Twitter *netizens* to engage in conversational interactions. However, the spread of the message is slow because, for a message to reach the farthest distance, it must go through 26 stages first.

The *density* value obtained from the 2022 data is 0.000510. This number is getting further away from number 1 and closer to number 0. That is, this network's relationship or relationship building is still low, and not many participants are involved in a conversation about #foodestate issue.

The *reciprocity* value obtained is 0.013770, meaning that the interaction in this conversation is low. This is because many accounts only make tweets or do *likes* and *retweets*. However, in it, there is still interaction, albeit a small number.

The *centralization* value in 2022 data is 0.062070. Accounts that dominate or influence conversations about #foodestate issues are carried out by one account, and multiple accounts spread the information.

The *modularity* value obtained is 0.753800, meaning that the value is more than 0.5. This shows that in this network cluster, the participants involved come from different circles or accounts from different backgrounds.

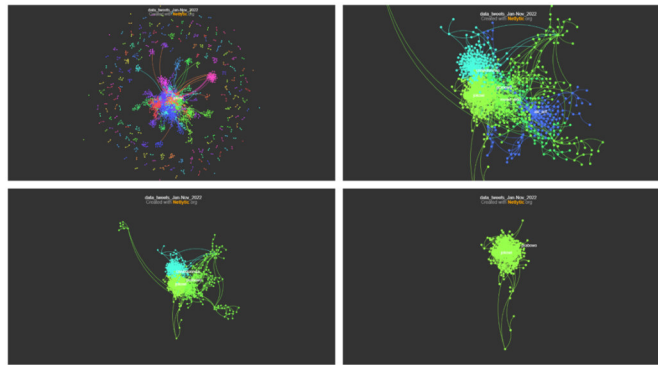


Figure 16 Network cluster of #Foodestate issues in 2022

Influential Actors

Social network research places emphasis not on the attributes of actors but on the relationships between actors, who are influential or hold important roles and how the network structure is elaborated and explained (Kilduff & Krackhardt, 2008; Eriyanto, 2014). The term *centrality* in communication networks refers to how influential or dominant actors are over the flow of information in the network. The lower the centralization or close to 0, it can be said to be decentralized, where information flows freely between many *nodes*.

Actors can be referred to as main actors or influential actors in information networks when they have high popularity in disseminating information (Tomasoa et al., 2019; Utami et al., 2021). On #foodestate issue, data was obtained that actors who have high popularity in information dissemination relations have changed from 2020 to 2022.

The leading actor is essential in forming a group within a network of #foodestate issues. The popularity of actors can be done by looking at the *degree of centrality*, where the actor has many relationships that can influence other actors (Bratawisnu & Alamsyah, 2018).

To determine who the influential actors can be known by looking at the value of the *in-degree*, which is greater than the *outdegree* value. Actors have a high *in-degree* score if the actor's tweets are often *mentioned*, *retweeted*, or *replied to*. While the *outdegree* score obtained by the actor shows that the actor often mentions, *retweets*, or *replies* to the tweets of other Twitter users. In this case, the actor who obtained a high *outdegree* score is an active user on Twitter, but that does not mean that the account always posts tweets. It could be just *likes*, *retweets*, or *replies to* other accounts' tweets.

Table 4 Actors Degree Centrality 2020

No	Actor	Degree	Indegree	Outdegree
1.	Jokowi	207	207	0
2.	Ministry of Agriculture	73	69	4
3.	syahrul_yl	37	36	1
4.	CNNIndonesia	36	36	0
5.	Prabowo	33	33	0
6.	changeorg_id	33	32	1
7.	Ministry of SOEs	33	31	2
8.	dpr_ri	30	30	0
9.	Ministry of LHK	31	29	2
10.	m_news1d	28	28	0

Table 4 is the result of *degree centrality* analysis which shows the popularity of actors disseminating information #foodestate. The 10 highest-popularity actors in the table are the lead actors who shared tweets with the hashtag #foodestate. The @jokowi account became the most dominant actor with a *degree of centrality* of 207, showing that the @jokowi account had 207 relationships with other actors and was *mentioned*, *retweeted* and *replied to* 207 times by other Twitter users. Then the *outdegree*

value of 0, here shows that the number of *outdegrees* is less so that the @jokowi account never mentions, replies, or retweets from other accounts' tweets.

Other popular accounts with high scores follow @kementan, @syahrul_yl, @cnnindonesia, @prabowo, @changeorg.id, @kemenbumn, @dpr_ri, @kementrianlhk, and @m_news2id. Most of the accounts that have this popularity represent the government. The account also had a higher indegree score than *outdegree* in the #foodestate network, meaning that the account was the most mentioned, retweeted, and replied to by Twitter users.

From the data in table 4, it is also known that the account belonging to Prabowo, the Minister of Defense and Security of Indonesia, is also one of the 10 dominant actors in the #foodestate network. The *degree centrality* score is 33, the indegree is 33, and the *outdegree* is 0. This shows @jokowi account has relationships with 33 others and was retweeted, mentioned, and replied to 33 times. However, the @prabowo account does not mention, retweet, or reply to activity.

Table 5 Actors Degree Centrality 2021

No	Actor	Degree	Indegree	Outdegree
1.	Jokowi	305	305	0
2.	Ministry of Agriculture	67	65	2
3.	Prabowo	54	54	0
4.	syahrul_yl	48	48	0
5.	CNNIndonesia	41	41	0
6.	Susipudjiastuti	37	33	4
7.	msaid_didu	29	29	0
8.	dandhy_laksono	28	27	1
9.	ferdinandhaean3	29	26	3
10.	temponewsroom	27	26	1

The *degree centrality* analysis shown in table 5 explains that there are as many as 10 actors with the highest popularity of disseminating information #foodestate. The @jokowi account is still the most dominant actor as of 2020, with a *degree of centrality* of 305, showing that the @jokowi account has 305 relationships with other actors and was mentioned, retweeted and replied to 305 times by other Twitter users. However, the @jokowi account does not mention, retweet, or reply to tweets from other Twitter users.

Other popular accounts with high values are @kementan, @prabowo, @syahrul_yl, @cnnindonesia, @susipudjiastuti, @msaid_didu, @dandhy_laksono, @ferdinandhaean3, and @temponewsroom. Accounts that play a role in #foodestate network are dominated by accounts representing the government. The account also has a higher indegree score than the outdegree value, so it gets more mentions, retweets, or replies than doing the activity.

From table 5, it is also known that the account of @susipudjiastuti, former Minister of Marine Affairs and Fisheries during the Working Cabinet era, became one of the 10 dominant actors in the #foodestate network. A *degree centrality* value of 37 means it has relationships with 37 other accounts. While the *in-degree* value is 33, other accounts mention, retweet, or reply 33 times. The @susipudjiastuti account here also mentions, retweets, or replies 4 times, known from the *outdegree* value.

Table 6 Actors Degree Centrality 2022

No	Actor	Degree	Indegree	Outdegree
1.	Jokowi	314	314	0
2.	CNNIndonesia	164	164	0
3.	Prabowo	135	135	0
4.	aik_arif	79	74	5

5.	msaid_didu	74	71	3
6.	Gerindra	56	56	0
7.	k1k1taufik	57	47	10
8.	partysocmed	38	36	2
9.	dandhy_laksono	35	33	2
10.	Ministry of Agriculture	33	31	2

Based on table 6 above, the most dominant actor data is @jokowi with a *degree centrality* value of 314 which shows a relationship with 314 accounts, and is mentioned, *retweeted*, or *replied* to 314 times, as seen from the *in-degree* value of 314. As for the *outdegree* value, which is 0, it means that the @jokowi account has never done *mention*, *retweet*, or *reply* activities from other users' Twitter accounts.

Other popular accounts with high scores are followed by @cnnindonesia, @prabowo, @aik_arif, @msaid_didu, @gerindra, @k1k1taufik, @partaisocmed, @dandhy_laksono, and @kementan. These accounts represent governments, news accounts, and environmental activist accounts. The *indegree* value of this account is also still higher than the *outdegree* value, meaning that the account is more *mentioned*, *retweeted*, or *replied* to other Twitter users than doing *mention*, *retweet*, or *reply* activities in the #foodestate issue network.

From the table above, the @kementan account belongs to the Ministry of Agriculture. It is still the dominant actor in the 10th position with a *degree centrality* of 33, meaning that its relationship with other Twitter accounts is 33. While the *in-degree* value is 31 times, meaning that the account @kementan was mentioned, *retweeted*, and *replied* to 31 times. Then the @kementan account mentions, *retweets*, and *replies* 2 times, known from the *outdegree* value of 2.

The most influential actors in the #foodestate issue network can be determined based on degree centrality analysis. In 2020-2022, @jokowi accounted stably dominated in the first position. @jokowi accounts always earn the highest marks compared to other actors in the #foodestate issue network. So it can be said that the @jokowi account is the leading actor or the one with the most influence.

4. CONCLUSION

Based on the results of research analysis of communication network sentiment through data collected from the *Netlytic* application for 3 years, from 2020-2022, it shows that there are different *top users* in that period.

In 2020, *nodes* as the *top users* who discuss #foodestate topics are @BORNEONEWS. In 2021, it changed to a @mccretivepy account even though the tweets made had nothing to do with #foodestate and only used the hashtag to increase the popularity of the account or sell other information. Meanwhile, in 2022, the top users are @mulyati_yayan accounts. His tweet contained criticism and disappointment with the *government's food estate* program.

While *word cloud* data in a period of 3 years, the words "Food" and "Estate" have always dominated the topic of discussion of #foodestate issue. This shows the consistency of *netizens* in discussing issues. In other words, the issue in 3 years has never subsided in popularity in the community.

Furthermore, findings in sentiment analysis classified in 3 categories (positive, neutral, and negative) from conversations studied over a period of 3 years illustrate that negative tweets always dominate netizen conversations consistently. The distribution of messages in the #foodestate issue network cluster has been in the broad category for 3 consecutive years. The tweets delivered by nodes were able to reach netizens more widely and engage in interaction. But the breadth of reach indicates a slow message reaching netizens in the farthest networks.

Interaction within the network of #foodestate issues is also still low, and few participants are involved in certain conversations. The majority of netizens only make tweets, or just like and retweet without chiming in on the topic being discussed. In conversations about this #foodestate issue, the actors involved in the conversation come from various circles, from public officials or public figures, buzzer accounts or fake accounts, news accounts, and personal accounts belonging to netizens. Meanwhile, based on data from degree centrality analysis, 10 different actors were found to dominate during 2020-

2022. Despite this, Jokowi's account dominated the popularity of the #foodestate issue for 3 years. The dominance of such actors represents the government's interest in spreading issues.

The dominance of negative sentiments as an expression of public dissatisfaction, and the dominance of actors representing government interests and the low response of netizens to engage in conversations about #foodestate issues, can be used as a reference for improving the food estate program as a government food program to overcome the threat of food crisis.

REFERENCE

- [1] Aprilia, E. A., Kayan, S., & Sumarjono. (2014). *Berakhirnya Pemerintahan Presiden Soeharto Tahun 1998*. Repository Universitas Jember. 1352, 1-9.
- [2] Bappenas. (2010). *Rencana Pembangunan Jangka Menengah Nasional (RPJMN) 2010-2014*. Jakarta: Bappenas.
- [3] Bratawisnu, M. K., & Alamsyah, A. (2018). Social Network Analysis untuk Analisa Interaksi User di Media Sosial Mengenai Bisnis E-Commerce (Studi Kasus: Lazada, Tokopedia, dan Elevania). *Jurnal Manajemen dan Bisnis (ALMANIA)*, 2(2), 110.
- [4] Bosch, B., & Patricia M. (2013). *Theories of Public Opinion*. Handbook of Communication Science: Theories and Models of Communication. 1, 289-308.
- [5] Citradi, T. (2020, Juli 8). Pernah Gagal Zaman Soeharto, Food Estate Jokowi Bagaimana. CNBC Indonesia. <https://www.cnbcindonesia.com/news/20200708141414-4-171215/pernah-gagal-zaman-soeharto-food-estate-jokowi-bagaimana>.
- [6] Eriyanto. (2014). *Analisis Jaringan Komunikasi*. Jakarta: Kencana.
- [7] Eriyanto. (2019). Media dan Opini Publik: Bagaimana Media Menciptakan Isu (Agenda Setting), Melakukan Pembingkai (Framing), dan Mengarahkan Pandangan Publik (Priming). Depok: Raja Grafindo Persada.
- [8] Eriyanto. (2021). *Analisis Jaringan Media Sosial, Dasar-Dasar dan Aplikasi Metode Jaringan Sosial untuk Membedah Percakapan Media Sosial*. Jakarta: Kencana.
- [9] Fahira, P. A., Jihan, A. F., Amouda, L. N. Gita, A., Philipus, M. P. N., & Safril, M. (2022). Analisis Komparatif Kebijakan Food Estate Presiden Susilo Bambang Yudhoyono dan Joko Widodo sebagai Upaya Ketahanan Pangan Nasional. *Jurnal Sosiologi Dialektika*. 17(2), 195-206.
- [10] FAO. (2011). *FAO in the 21st Century, Ensuring Food Security in Changing World*. Rome: FAO.
- [11] Gruz, A., Paulin, D., & Caroline, H. (2016). *Analyzing Social-Media and Learning Through Content and Social Network Analysis: A Faceded Methodological Approach*. Journal of Learning Analytics. 3(3), 46-71.
- [12] Hadna, N. M., Paulus, I. S., & Winarno, W. W. (2016). Studi Literatur Tentang Perbandingan Metode Untuk Proses Analisis Sentimen di Twitter. Yogyakarta: Seminar Nasional Teknologi Informasi dan Komunikasi.
- [13] Hartono, D. N. (2021). *Food Estate, Menakar Politik Pangan Indonesia Kajian atas Proyek Food Estate Kalimantan Tengah*. Palangkaraya: Walhi Kalimantan Tengah.
- [14] Kilduff, M., & Krackhardt, D. (2008). *Interpersonal Networks in Organizations: Cognition, Personality, Dynamics, and Culture (Structural Analysis in the Social Sciences)*. Cambridge: Cambridge University Press.
- [15] Kurnia, N., & Amalinda, S. (2021). *Big Data Untuk Ilmu Sosial: Antara Metode Riset dan Realitas Sosial*. Yogyakarta: Gajah Mada University Press.
- [16] Limpo, S. Y., Kuntoro, B. A., & Imam, M. (2022). *Menapak Pemikiran Syahrul Yasin Limpo*. Jakarta: Kementerian Pertanian.
- [17] Novianty, D. (2021, November 4). Kominform: Pengguna Internet Indonesia Terbesar ke-4 di Dunia. *Suara*. <https://www.suara.com/tekno/2021/11/04/143806/kominform-pengguna-internet-indonesia-terbesar-ke-4-di-dunia>.
- [18] Putra, A., & Irwansyah. (2020). Orkestrasi Buzzer melalui Media Sosial Microblogging dalam Kampanye Penanganan Virus Covid-19. *Jurnal Riset Komunikasi Jurkom*. 3(2), 267-288.

- [19] Saraswati, M. S. (2018). *Social Media and the Political Campaign Industry in Indonesia*. Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia. 3(1), 51-65.
- [20] Suryana, A. (2014). Menuju Ketahanan Pangan Indonesia Berkelanjutan 2025: Tantangan dan Penangannya. Form Penelitian Agro Ekonomi. 32(2), 123-135.
- [21] Tomasoa, L., Iriani, A., & Irwan, S. (2019). Ekstraksi Knowledge Tentang Penyebaran #Ratnamiliki siapa Pada Jejaring Sosial (Twitter) Menggunakan Social Network Analysis (SNA). Jurnal Teknologi Informasi dan Ilmu Komputer (JTIIK). 6(6), 677-686.
- [22] Troussas, C., Maria, V., Kurt, K. J. E., Kevin, L., & Jaime, C. (2013). *Sentiment analysis of Facebook Statuses using Naive Bayes Classifier for Language Learning*. IEEE Explore. <https://ieeexplore.ieee.org/document/6623713>.
- [23] Utami, S. R., Safitri, R. N., & Kuncoroyakti, Y, A. (2021). Analisis Jaringan dan Aktor #BatalkanOmnibusLaw di Media Sosial Twitter Menggunakan Social Network Analysis (SNA). Journal of Media and Communication Science, 4(3), 135-148.
- [24] Yamamoto, M. N. S., & Bae, S. Y. (2019). *Social Media Prosumption and Online Political Participation: An Examination of Online Communication Processes*. New Media & Society. 2(10), 1885-1902.