

Analysis of Community Participation and Empowerment in the Innovation of One Food Data Integration Services

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ABSTRACT

This study analyzes community participation and empowerment in the innovation of One Food Data integration services implemented by the National Food Agency of Indonesia. This study employed a descriptive qualitative approach using interviews, observations, focus group discussions, and literature review. Data were obtained from government officials, academics, practitioners, and community representatives and analyzed using the Miles and Huberman interactive model through data reduction, data display, and conclusion drawing. The findings indicate that community participation in One Food Data remains predominantly passive to consultative. Direct public access to contribute, validate, and update food data through the platform remains limited. Community empowerment is also relatively low because access to digital infrastructure, data literacy, and opportunities to utilize food data remain uneven. These findings indicate that One Food Data has significant potential to strengthen participatory governance and community empowerment, but its implementation requires broader public access, digital literacy development, participatory mechanisms, and stronger collaboration among government, academia, and community stakeholders.

INTRODUCTION

Food security is the main foundation for the stability and progress of a nation, which includes food availability, a country's ability to produce, distribute, and provide access to sufficient, safe, and nutritious food for all its citizens in a sustainable manner. This is in accordance with the second Asta Cita, which is to strengthen the country's security defense system and encourage national independence through self-sufficiency in food, energy, water, creative economy, green economy, and blue economy.

One of the goals of the government's role in food sovereignty is to implement policies and programs to meet the food needs of its people while also improving the welfare of the main business actors in food agriculture. Food is an important and strategic commodity for every nation and is a basic human need that must be met by both the central government, the regions and the community together as mandated by law. (Septima S et al., 2022) As a form of food integration service innovation, the National Food Agency launched the One Food Data Portal. This portal provides convenience for the government, industry players, and the public to access information related to food security, food distribution, as well as food consumption and production trends.

Support from various parties is needed, including in terms of the availability of information on national food conditions and developments through One Food Data. According to the provisions of the Regulation of the National Food Agency of the Republic of Indonesia Number 3 of 2023 concerning One Food Data, Food Data Producers can cooperate in relation to the implementation of One Food Data. This is an opportunity to create community participation and community empowerment.

The people's participation in local development works remains deeply rooted in the dynamics of the evolution of local government bodies. Local government institutions and the mechanism of people's participation with those agencies have changed in tune with the changes of the socio-political situation. (Uddin, 2019)

According to the Regulation of the National Food Agency of the Republic of Indonesia Number 3 of 2023 concerning One Food Data, One Food Data is a data governance policy within the National

Food Agency to produce accurate, up-to-date, integrated, and accountable data, as well as easily accessible and shared through the fulfillment of data standards, metadata, data interoperability, and using reference codes and master data. Food data dissemination is an activity to provide access, distribution, and exchange of food data. In practice, problems may occur in Food Data, including conditions: a. food data is damaged and/or contains dangerous codes; b. not in accordance with the technical instructions for the implementation of the One Data Indonesia Portal; c. food data sources cannot be accessed by the One Data Indonesia secretariat at the central level; and/or d. The data is under review by the One Data Indonesia forum.

The use of technology is one of the solutions in improving the quality and quality of public services. Big Data technology that continues to develop is an opportunity as well as a challenge for the government to innovate to integrate public services in the community (Islah, 2018). The challenge of data dissemination lies in the readiness of digital infrastructure, namely the construction of an integrated data center and the construction of a single application that can be used by all central and regional government institutions, as well as the challenge of lack of data competence. (Islami, 2021)

Therefore, there needs to be support from various parties so that the data is accurate so that the public can feel the benefits, especially everything related to food development and the latest food conditions. The National Food Agency must have prepared for a more systematic use of data, adequate data availability and an emphasis on data analysis capabilities. The outcome is the expertise to read data, the presentation of honest analysis results, and the formulation of policies for appropriate decision-making. In addition, it is also important to carry out cross-sector coordination and formal collaboration between Ministries/Institutions to build the successful use of new technologies. (3) According to the provisions,

Food Data Producers may cooperate in relation to its implementation, including with: 1. Central Government; 2. Regional Governments; 3. College; 4. Research Institute; 5. Other parties. This is an opportunity for participation in efforts to support the development of One Food Data, and can open up empowerment opportunities for people who are active in supporting food security programs, food independence and the openness of food-related information services.

The formulation of the problem in this study is:

1. How is community participation manifested in the innovation of One Food Data integration services?
2. How is community empowerment manifested in the innovation of One Food Data integration services?

This community participation and empowerment will increase transparency, data accuracy and accountability. Increased transparency, traceability, and accountability will enable organizations to effectively reduce impacts and build trust among stakeholders and demonstrate commitment to sustainable practices. (Vikaliana et al., 2024) The increase in public participation shows progress in the implementation of open data and egovernment-based commitments through the open government national action plan. (DESA, 2020)

Based on the literature reviewed in this study, research specifically examining community participation and empowerment in the implementation of One Food Data integration services remains limited. Previous research on One Data Indonesia has primarily addressed data governance and implementation challenges, while this study specifically examines the extent to which communities can participate in the One Food Data ecosystem and how the service can contribute to community empowerment.

Therefore, this study addresses the research gap by analyzing (1) the forms and levels of community participation in One Food Data integration services and (2) the forms and levels of community empowerment associated with the utilization of integrated food data. The study applies the Cohen and Uphoff participation framework and the Kartasasmita empowerment framework to interpret empirical findings obtained through interviews, observations, and focus group discussions. The contribution of this study lies in connecting the technical and institutional dimensions of food-data integration with the social dimension of citizen participation and empowerment. The findings are expected to provide an empirical basis for developing a more participatory, inclusive, and community-

oriented One Food Data service. Previous studies have primarily examined One Data Indonesia from the perspectives of data governance, implementation challenges, and critical success factors. However, limited attention has been given to the position of communities as active actors in the production, validation, utilization, and evaluation of food data within the One Food Data ecosystem. This study addresses this gap by examining community participation and empowerment through the dimensions of decision-making, implementation, benefit utilization, and evaluation, while also examining the enabling, empowering, and protecting dimensions of community empowerment.

LITERATURE REVIEW

There are 2 approaches used in this study, namely:

1. Community Participation Approach According to Cohen and Uphoff (Dwiningrum, 2011), participation can be briefly explained in 4 stages, namely:
 - a. Decision making stage, determination of alternatives with the community to reach agreement from various ideas related to common interests related to food data.
 - b. Implementation stage, mobilization of resources and funds in the development of the portal and is a determinant of the success of one food data by involving the community.
 - c. Benefit taking stage, participation is related to the quality and quantity of results from the existence of the one food data portal.
 - d. Evaluation stage, related to the existence of the one food data portal as a whole. this stage aims to find out how one food data works and provides benefits.
2. Community Empowerment Approach According to Kartasasmita (Kartasasmita, 1996), empowering the community can be done in three ways which include:
 - a. Creating an atmosphere or climate that allows the potential of the community to develop (enabling). Every individual and society has potential that can be developed, including in the food sector. Efforts to develop the potential possessed by individuals and society can basically increase their empowerment.
 - b. Strengthening the potential or power possessed by the community (empowering). To strengthen the potential or power of the community, it is carried out by increasing the level of education, capital, technology, information, employment and food-related markets. The community needs to be given ease of access to infrastructure and facilities.
 - c. Empowering also means protecting. In the empowerment process, the community is not made to become increasingly dependent on various development programs that are charitable in nature. Everything that the community has must be produced by its own efforts and efforts, the results of which can be exchanged with other parties.

Food security must be carried out systemically by involving cross-sectoral participation. This is done in order to realize adequate food availability through domestic food production and trade; Achieving stability of food availability and access to macro and micro, the fulfillment of quality (food diversity and safety) and quantity of food consumption supported by infrastructure improvements. Meanwhile, community empowerment is one of the solutions to achieve food security through social engineering so that people have motivation and knowledge, as well as independence to return to agricultural land. (Faizanudin & Sulistiani, 2022)

Problem-Solving Strategies In its implementation, One Food Data consists of: a. food data planning; b. food data collection; c. food data checking; and d. dissemination of food data. Meanwhile, in its collection, One Food Data is in accordance with: a. data standards; b. a list of food data that has been determined in the One Data Indonesia forum; and c. the schedule for updating food data or releasing food data.

Based on the concept of the regulation, it is necessary to analyze how the form and level of community participation can be active in the process of organizing and collecting food data. Meanwhile, related to empowerment, it is necessary to analyze the form and level of community empowerment that can be held based on accurate data on the One Food Data portal. Both analyses aim to increase the value of the benefits of the One Food Data Portal.

Community empowerment can be achieved through active community participation supported by empowerment activities. The main target of empowerment is those who are weak and have no power, power or ability to access productive resources. Meanwhile, the goal of the community empowerment process is the independence of residents in improving their standard of living by optimizing their existing potential. (Widjajanti, 2011)

The previous research that became a reference entitled: "Implementation of One Data Indonesia: Challenges and Critical Success Factors (CSFs)" (Islami, 2021) focused on analyzing the implementation of One Data Indonesia with a literature review approach. Meanwhile, in this study, the focus is on analyzing One Food Data related to community participation and empowerment with a descriptive qualitative approach using data from interviews, observations and FGDs. The advantage of problem solving in this study is that no one has researched related to One Food Data, especially related to the form of community participation and empowerment that can be carried out. The Chair's previous research related to Data Integration was titled: Opportunities and Challenges of Utilizing Big Data Technology to Integrate Government Public Services. In this study, the focus is on analyzing service integration with Big Data technology.

Table 1. operationalization of theory

Concept	Dimension	Analysis Indicator
Community Participation	Decision making	Input, consultation, involvement
	Implementation	Data provision, validation
	Benefit taking	Data utilization
	Evaluation	Feedback, monitoring
Community Empowerment	Enabling	Access and opportunity
	Empowering	Capacity, literacy, technology
	Protecting	Protection from information asymmetry

METHOD

Research Design

This study employed a descriptive qualitative research approach to analyze community participation and empowerment in the innovation of One Food Data integration services. A qualitative approach was selected because the study seeks to understand the forms, experiences, opportunities, and limitations of community involvement in the implementation and utilization of integrated food data. Rather than measuring participation and empowerment statistically, the study explores how these phenomena are manifested in the implementation of One Food Data and interprets the findings using established theoretical frameworks. The analysis was guided by two conceptual frameworks. Community participation was analyzed using the four dimensions proposed by Cohen and Uphoff, namely decision making, implementation, benefit utilization, and evaluation. Community empowerment was analyzed using Kartasmita's three dimensions, namely enabling, empowering, and protecting.

Data Sources and Participants

The study used both primary and secondary data. Primary data were obtained through interviews, observations, and focus group discussions (FGDs). The participants included officials and managers involved in One Food Data at the National Food Agency, academics in public administration and food-related fields, practitioners in public service innovation and food, and community leaders or representatives of non-governmental organizations working in public services or food-related areas.

Secondary data were obtained from books, scientific journal articles, policy documents, regulations, and other relevant sources concerning One Food Data, One Data Indonesia, public service innovation, community participation, community empowerment, and food security. These secondary

sources were used to provide contextual and theoretical support for interpreting the empirical findings. Important the original manuscript does not state the exact number of interviewees, FGD participants, research location, or research period. Therefore, these details should be inserted from the actual research records rather than estimated or fabricated.

Data Collection Techniques

Data were collected using three primary techniques, interviews, observation, and focus group discussions.

1. Interviews

Semi-structured interviews were conducted with stakeholders who had knowledge of or involvement in One Food Data and related public-service and food-sector activities. The interview participants consisted of officials and managers of One Food Data at the National Food Agency, Academics in public administration, Academics in food-related fields, Practitioners in public service innovation, Practitioners in the food sector, and Community leaders or NGO representatives in the fields of public services and food. The interviews explored community access to One Food Data, opportunities to provide and validate data, utilization of food information, mechanisms for providing feedback, and opportunities for community capacity development.

2. Observation

Observation was conducted to obtain contextual information regarding the implementation and utilization of One Food Data. The observation focused on the availability of information, accessibility of the data platform, mechanisms for data provision and dissemination, and opportunities for community involvement. Observation was used to complement interview and FGD findings.

3. Focus Group Discussion

FGDs were conducted to obtain collective perspectives from relevant stakeholders concerning community participation and empowerment in One Food Data integration services. The discussion addressed the development of One Food Data, opportunities and constraints for community participation, the utilization of food data, and potential mechanisms for strengthening community empowerment. The FGD participants included representatives of the National Food Agency, academics, public service innovation practitioners, food-sector practitioners, and community or NGO representatives.

Data Analysis

The collected data were analyzed using the Miles and Huberman qualitative data analysis model, consisting of data condensation, data display, and conclusion drawing/verification. The analysis was conducted iteratively throughout the research process. First, interview, observation, and FGD data were organized and condensed by identifying information relevant to the research questions. The data were then categorized according to the analytical dimensions of community participation and empowerment.

Data Validity

The validity of the findings was examined through data triangulation. Triangulation was conducted by comparing information obtained from different data-collection techniques, particularly interviews, observations, and FGDs. Information from different stakeholder groups was also compared to identify consistent findings and differences in perspectives. The triangulation process was used to strengthen the credibility of the findings and reduce the possibility that the conclusions would depend solely on the perspective of a particular participant or data-collection technique.

RESULT AND DISCUSSION

Result

Community Participation in One Food Data integration service innovation

Community participation is a form of community involvement or participation in the process of activities that occur in community life. Community participation is a form of community willingness to carry out a joint program to achieve a set goal. (Sony Tambunan, 2022). According to Sawa Suryana, community participation is community involvement in all stages of the development process in a community group. Community participation in a development program is needed because community members are fully aware of the problems that occur in the community. (Suryana, 2010)

Building participatory governance implies developing effective instruments for citizen engagement and deliberative practices, for deepening public participation and direct involvement in public decision-making processes. (Boc, n.d.). To create positive change for society, the government, representing the focal organization that initiates social innovation, lowers its boundaries and stimulates exchange with the periphery. This exchange is fostered by releasing organizational knowledge (e.g., open data) and integrating external knowledge into government decisions and actions. (Schmidhuber et al., 2019). Meanwhile, according to Nuring Septyasa (2013) explained that the forms of community participation are as follows:

- a. Participation of the mind, this participation is carried out by the community by contributing ideas or ideas owned by the community.
- b. Workforce participation, this participation is carried out by the community by donating energy.
- c. Property participation, this participation can be done by the community by making donations in the form of property or money and food that can help the implementation of development.

One Food Data is the presentation of food data carried out by the National Food Agency based on data collected from related parties. One Food Data is under the coordination of One Data Indonesia. The food price data contained in One Food Data comes from market surveys either from surveys conducted under the coordination of the National Food Agency or from market surveys conducted under the coordination of the Regional Government.

Community Participation in the innovation of One Food Data integration services is the active involvement of citizens, both individuals and groups (farmers, fishermen, traders, cooperatives, consumers), in all stages of the implementation of One Food Data starting from decision-making, data collection and provision, information utilization, to system evaluation. Meaning in the context of One Food Data:

- a. In the Planning stage, the community contributes to providing input related to the need for relevant food data.
- b. In the implementation stage, the community participates in filling, validating, and disseminating data (e.g. market prices, local food stocks).
- c. Utilization stage, people use data to improve bargaining positions, plan production, or make consumption decisions.
- d. Evaluation Stage: the community is involved in providing feedback on the accuracy, transparency, and benefits of data portals.

Referring to the Cohen & Uphoff framework, participation can be examined in four stages:

- a. Community decision-making plays a role in contributing local ideas, needs, and experiences related to food data. Participation at this stage determines the extent to which the One Food Data portal is relevant to the reality on the ground. If this process is minimal, there is a risk that the data will be top-down and less responsive to local dynamics.
- b. The implementation of community involvement in the provision of field data (production, price, distribution) is very important. The strength of this participation will determine the success of

data quality. The challenges that arise are the readiness of digital literacy and the availability of infrastructure in the regions.

- c. Community utilization will be more active if they can see direct benefits, such as access to food price information, supply predictions, or market opportunities. Participation tends to weaken if the benefits are only felt by bureaucracy and large industries.
- d. Evaluation Participation in the evaluation stage provides an opportunity for the public to assess the transparency and accuracy of the system.

Community-based feedback mechanisms can strengthen accountability. Based on the level of Participation it can be explained:

- a. Passive: the public only receives information (e.g. reading the price dashboard).
- b. Consultative: the public is asked for an opinion but does not make a decision.
- c. Interactive: the community participates in filling, validating, and utilizing data.
- d. Self-initiative: the community is able to initiate their own data collection/analysis and integrate it with the portal.

Factors that support community participation in the community development sector in Medan City in 2019 are: First, Internal Factors, in the form of awareness and willingness from the community to participate; the better the level of public education that directs attitude change by being careful; as well as a better level of community income. Second, External Factors, in the form of local governments play an active role in involving the community in various development activities, starting from the planning, budgeting, implementation, and monitoring and evaluation stages. (Sony Tambunan, 2022)

Regarding public participation in the innovation of the One Food Data integration service, only related parties or cooperating parties can participate in submitting data, to be further processed by the National Food Agency before being displayed in One Food Data. The general public has not been able to update food independently through the One Food Data portal. Basically, collaboration opportunities between the National Food Agency and the community can be realized if the public is given access to update market prices specifically on the One Food Data portal so that market prices are more up to date and when certain cases occur can be handled immediately. However, this must be coordinated on the procedure for presenting One Food Data data which is under One Data Indonesia. This collaboration opportunity will open up opportunities for community participation and empowerment in the One Food Data portal integration service.

The access to information is not limited by any law that prevents information disclosure. According to the law, every citizen has the right to obtain information from the authority and the authority is obliged to provide the information upon the citizen's request. (Uddin, 2019)

Basically, artification is not just the goal of a government program but is an integral part of the implementation of the program, the existence of community participation indicates the existence of a whole human existence, in line with the awareness of the rights and obligations of citizens. The preparation of participatory planning is needed by the community through focused and directed discussions of community groups.

There are some formal mechanisms of ensuring community participation in planning, implementing and monitoring. It is expected that civic participation in local decision making takes place as the elected representative are supposed to be accountable to the people. (Uddin, 2019). Behind the rhetoric of participation that affects, it will be argued that citizens as information providers can play a co-producer role only if they are given back the control over the data they produce. On this basis, it will be argued that the development of a usercentric personal data ecosystem is an enabling condition for citizens' participation as information providers. (Mainka et al., 2016)

The main goal of the Participatory initiative has been to develop and strengthen participatory local governance by empowering local communities while increasing decisional transparency and making more sustainable public decisions. The participatory process was structured on three stages

which involved neighborhood meetings/workshops, each with its specific level of participation. (Boc, n.d.)

In carrying out government programs, community participation can increase community independence and accelerate development. The community can participate starting from the planning, implementation, and evaluation stages of government programs in development so that cooperation is established to make the program a success. (Soliman Abd El Aliem et al., 2020)

Discussion

Community empowerment on One Food Data integration service innovation

Community empowerment is the process of creating conditions, capacity, and protection so that people are able to access, understand, utilize, and control the benefits of food data in order to improve their welfare and independence.

The meaning in the context of One Food Data is as follows:

- a. Enable, ensuring that people have easy access to data portals with user-friendly interfaces, including in remote areas.
- b. Empowering, increasing digital literacy, data analysis capacity, and access to technology so that people can use data for food businesses.
- c. Protecting, ensuring that the data used does not harm small communities (e.g. protecting against price speculation or information monopoly by large actors).

Referring to Kartasasmita (2010), empowerment includes three aspects:

- a. Enabling Portal should open up easy-to-understand data access, with a user-friendly interface, including local languages. This allows village communities and food MSME actors to utilize data for decision-making.
- b. Empowering (Strengthening Potential) Empowerment requires increasing community capacity through data literacy training, access to technology (internet, mobile applications), and capital support. Without this, the portal could potentially only be used by the middle to upper class.
- c. Protecting Empowerment must prevent dependence on aid alone. Food data is supposed to protect farmers from price fluctuations, information asymmetry, and speculative practices. For example, transparent daily price information can strengthen farmers' bargaining positions in the market.

If viewed from the level of community empowerment, it can be explained that:

- a. Not yet empowered: if the public does not know or is unable to access the data.
- b. Start empowered: if the community is already using data, but still depends on other parties (e.g. companions/NGOs).
- c. Quite empowered: if the community can analyze and use data for business/production decision-making.
- d. Self-reliant: if the community is able to develop its own data-driven innovations (e.g. creating local applications for marketing or food logistics).
- e. Participatory: emphasizes the active involvement of the community in the process, while empowerment emphasizes capacity building for meaningful participation.
- f. Complementing each other without empowerment: participation can be pseudo-but empowerment loses relevance.

So according to the level of community empowerment, it can be said that the empowerment of the One Food Data integration service innovation is starting to be empowered. However, there may be some people who are quite empowered and some are even not empowered. Though a long time has passed after introducing these participatory mechanisms, very few studies have undertaken to assess the people's participation in local government. Additionally, no single initiative was undertaken to assess how empowerment of marginalized people happened through these initiatives as empowering community people is the key objective of it. (Uddin, 2019)

Stakeholders, whether they are from public services, local firms, or the citizens, work together and spur each other on. Innovative ideas can come from each stakeholder include from citizens. During transformation process, participatory and service design offer great possibilities to achieve innovative and inspiring place and an enjoyable community center that promotes self-made culture and is a platform for people's own initiatives and a facilitator of change. (Mainka et al., 2016)

Thus, for making local government bodies effective, accountable, transparent and pro-poor, a strong political vision is necessary that would decentralize more power to local government bodies, would take necessary initiatives to build capacity of local government representatives and would also initiate a program to empower the people by building awareness vis-à-vis their political rights. (Uddin, 2019)

CONCLUSION

This study concludes that community participation in One Food Data remains predominantly passive to consultative because direct public access to contribute and validate food data is still limited. Community empowerment also remains limited and uneven due to disparities in digital literacy, infrastructure, and access to food data. The study contributes by demonstrating that the effectiveness of One Food Data integration depends not only on technical data integration but also on the development of participatory and empowering mechanisms for communities.

Policy Implications

1. Citizen data contribution mechanism
2. Digital literacy program
3. Community feedback mechanism
4. Collaboration among government–academia–community

Basically, community participation has been carried out, but only among those or parties who have indeed collaborated or supported programs at the National Food Agency. In addition, participation also comes from data obtained from the regions, where the regions conduct surveys by inviting the local community to participate. For the public in general, they have not been able to participate directly in the One Food Data platform. This participation should not be just a formality (tokenism), but must be used as a co-creation mechanism between the government, academics, and the community. Currently, public participation in Indonesia tends to be at the passive to consultative stage. To achieve interactive and self-sustaining initiatives, it is necessary to have a digital literacy strategy, participation incentives, and user-friendly portal design.

Empowerment in One Food Data means the transformation of society from mere recipients of information to actors who are able to use data to increase bargaining power, productivity, and food economic independence. If empowerment is not accompanied by affirmative intervention, there is a risk of a digital divide that will widen the gap between developed and disadvantaged regions. This means that the level of empowerment of the Indonesian people related to food data is currently still low. Most farmers and MSME actors are not used to the use of digital data. However, in the implementation of community empowerment in One Food Data, only data from the regions involves community elements in surveying.

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Contributorship

The authors in this article are all main contributors.

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