



# Community-Based Local Food System in Nutritional Problems Management of Children Under 5 Years: a Qualitative Study in Banyumas District

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## ABSTRACT

The nutritional difficulties of children under the age of five in Banyumas Regency rank fifth in Central Java. Provision of Supplementary Food Recovery prepared from local ingredients is currently underutilized as one of the district's local potentials for overcoming nutritional difficulties. The goal of this study was to see how prepared the community was for the local food security system to handle nutritional issues affecting children under the age of five in Banyumas Regency. The assessment was carried out through direct observation of 39 Puskesmas, individual interviews with policymakers at each health center, the Banyumas District Health Office, health and nutrition implementing partners, midwives as health workers, cadres, and the community. Nutritional cases are assessed at each health center using direct measurements. This study is a mixed method of quantitative and qualitative research with a sequential explanatory model, with qualitative data analysis followed by quantitative data analysis utilizing a cross sectional technique. Regional maps give case data on nutrition and local food potential. There were 4016 wasting cases from 39 health centers, 399 toddlers with multiple wasting, 11536 toddlers with stunting, and 7807 toddlers with underweight. Cassava and soybeans account up the majority of the local cuisine in Banyumas Regency. It may be stated that nutritional disorders like as underweight, stunting, various wasting, and wasting are still prevalent in Banyumas Regency.

**Keywords:** *Malnutrition; Children Under Five; Community-Based Nutrition Management; Local Food*

## 1. INTRODUCTION

The challenge of developing a nation is the development of quality, healthy, intelligent and productive Human Resources (HR). Efforts to develop the quality of human resources by optimizing the potential for child growth and development can be carried out evenly if the community-based health service system can be carried out effectively and efficiently and can reach all targets that require services [1]. Nutritional problems are an indicator of increasing human resources. Toddlers are a group that is vulnerable to nutritional problems. The target of the prevalence of nutritional problems in children under five for 2020 is 24.1%. Meanwhile, reports from 34 provinces show that of 11,499,041 children under five whose nutritional status was measured based on height according to age, there were 1,325,298 (11.6%) under-fives experiencing

nutritional problems. From these calculations, it is known that the percentage indicator of stunting under five exceeds the set target. Because the toddler era, which lasts from 1 to 5 years, is one of rapid growth and development, it is often referred to as both the golden period and the critical period.

The impact of malnutrition in children under five causes susceptibility to infection, under-five mortality, failure to thrive, low intelligence abilities, and behavioural problems [2]. Nutritional status is the state of the body as a function of nutrient ingestion and utilization. If the amount of nutrients taken does not correspond to the nutritional needs of the body, it can lead to nutritional issues such as malnutrition and malnourishment. Indonesia is currently experiencing serious nutritional problems. According to the 2018 Basic Health Research, 5.7% of children under five were malnourished

and 13.9% were undernourished [3]. United Nations Children's Fund (UNICEF) reports that Indonesia is ranked fifth for countries experiencing nutritional problems [2].

According to UNICEF 1998, the main cause of malnutrition and malnutrition is poverty. There are still a large number of poor families in Indonesia, namely 28.28 million (11.25%) resulting in a lack of a family to meet the nutritional needs of their toddlers and finally malnutrition and malnutrition occur in toddlers [2]. Central Java Province is a province of Indonesia. with the poorest population ranked tenth out of 34 provinces [4]. Government program efforts in overcoming undernourished children under five are given the Provision of Recovery Supplementary Food [5]. The provision of supplementary food for recovery uses mostly manufactured food produced by large industries. One of the root causes of under-five nutrition problems is poverty. Provision of supplementary food manufacturers makes it difficult for the poor to buy supplementary food because it is expensive, so alternative local foods are needed to overcome the problem of malnutrition.

Nutrition planning and programs are used to improve the nutritional status of the community. via means of dietary planning and programs The national government's efforts take the shape of policies and coordinated measures in the realm of food and nutrition, such as the National Action Plan for Food and Nutrition and the First 1000 Days of Life Movement [5]. The program that has been carried out has not been able to produce a maximum reduction in nutritional status. So it is necessary to think about utilizing the existing local potential in order to streamline the program and maximize the results to be achieved [6].

Banyumas Regency is one of the priority districts for intervention programs with the number of stunting events in 2019 ranking 5th in Central Java as many as 15.8% of the target of 7.4% [7]. The case of nutritional problems in Banyumas Regency in 2019 ranked 6th in Central Java Province, namely 8.5% of children under five experienced nutritional problems less than the target of 5.4%[8]. Banyumas has a complex local food potential resource that can be used to benefit the community. Banyumas has a complex local food potential resource that can be used to benefit the community. According to the findings of the Handayani research, there are local potentials associated to nutritional status in the form of social systems, cultural systems, and social capital, as well as natural potentials in Indonesia [9].

## 2. METHOD

This is a mixed method or quantitative and qualitative research with a sequential explanatory model, analyzing

data using qualitative research and then quantitative research using a cross sectional approach that emphasizes data collection design and explains the phenomena studied at one point in time [10]. This study included all women in the Banyumas Regency with newborns and toddlers aged 0 to 59 months. This study's sample consists of all infants and toddlers in Banyumas Regency who have nutritional concerns. Direct measures are used to assess nutritional cases in each Puskesmas. In toddlers, nutritional status is assessed using anthropometric parameters such as weight, height, and age. The assessment was conducted through direct observation of 39 Puskesmas, individual interviews with Puskesmas policymakers, the Banyumas District Health Office, and implementing partners in the health and nutrition sector. The data was obtained within a period of 2 months June and July 2021 with the assistance of enumerators from each Puskesmas, namely cadres and midwives in conducting anthropometric examinations, midwives as health workers, cadres, and the community. The qualitative data instruments used are observation guidelines, interviews, Focus Group Discussions and Strengths Weakness Opportunities Threats Analysis which have been conducted Credibility Test with triangulation techniques. Local food data obtained from the determination of the coordinates using the Geographic Information System (GIS) application.

The Ethics and Research Committee of the Harapan Bangsa University Faculty of Health granted ethical approval (Health Research Ethics Committee number B.LPPM-UHB/583/11/2021). Quantitative data analysis approaches employ descriptive data, while qualitative data analysis techniques use Miles and Huberman models analysis, which incorporates three simultaneous activities: data reduction, data display, and verification [11].

## 3. RESULT AND DISCUSSION

### 3.1. Overview of Nutritional Problems for Infants and Toddlers in Banyumas Regency

The description of nutritional problems for infants and toddlers based on the nutritional status of underweight, stunting, several wasting, and wasting is in Table 1.

According to the data, the working area of Sokaraja I Health Centre had the most wasting cases (419 (12.5 percent), the working area of Kembaran II Health Centre had the most wasting cases (383 (16.5 percent), and Cilongok I Health Centre had the most stunting cases. 786 (18.1 percent) stunted infants and toddlers and 167 (3.9 percent) underweight infants and toddlers were the most underweight

**Table 1** Overview of Nutritional Problems for Infants and Toddlers in Banyumas Regency 2021

Community Health centers	Nutritional Problems			
	Underweight	Stunting	Severel Wasting	Wasting
1. Lumbir	138 (5%)	338 (12.4%)	0	57 (2.1)
2. Wangon I	243 (7%)	327(9.4%)	1	81 (2.3%)
3. Wangon II	75 (6.2%)	133 (11.1%)	2 (0.2 %)	38 (3.2%)
4. Jatilawang	418 (10.4%)	637 (15.8%)	7 (0.2%)	137 (3.4%)
5. Rawalo	208 (7.2%)	335 (11.7%)	6 (0.2%)	166 (5.8%)
6. Kebasen	433 (10.49%)	689 (16.7%)	32 (0.8%)	180 (4.4%)
7. Kemranjen I	212 (10.2%)	231 (11.1%)	4 (0.2%)	68 (3.3%)
8. Kemranjen II	173 (8.05%)	175 (8.1%)	8 (0.4%)	102 (4.7%)
9. Sumpiuh I	141 (9.4%)	162 (10.8%)	0	113 (7.5%)
10. Sumpiuh II	115 (9.9%)	145 (12.5%)	0	50 (4.3%)
11. Tambak I	155 (8.8%)	229 (13%)	1 (0.1%)	76 (4.3%)
12. Tambak II	78 ( 8.2%)	187 (19.7%)	7 (0.7%)	40 (4.2%)
13. Somagede	137 (6.4%)	258 (12%)	3 (0.1%)	69 (3.2%)
14. Kalibagor	187 ( 6.3%)	293 (9.9%)	21 (0.7%)	116 (3.9%)
15. Banyumas	267 (8.4%)	448 (14.2%)	8 (0.3%)	103 (3.3%)
16. Patikraja	298 ( 8.1%)	367 (9.9%)	28 ( 0.8%)	135 (3.7%)
17. Purwojati	140 (6.4%)	210 (9.6%)	4 (0.2%)	64 (2.9%)
18. Ajibarang I	218 ( 6.6%)	391 (11.9%)	17 (0.5%)	139 (4.2%)
19. Ajibarang II	107 (3.9%)	197 (7.2%)	1	51 (1.9%)
20. Gumelar	141 (5.3%)	323 (12.2%)	3 (0.1%)	65 (2.5%)
21. Pekuncen I	127 (7.2%)	261 (14.9%)	3 (0.2%)	39 (2.2%)
22.Cilongok I	448 (10.3%)	786 (18.1%)	26 (0.6%)	167 (3.9%)
23. Cilongok II	248 (6.5%)	398 (10.4%)	1	120 (3.2%)
24. Karanglewas	304 (9.2%)	513 (15.5%)	4 (0.1%)	96 (2.9%)
25. PWT Barat	171 (8.9%)	265 (13.8%)	43 (2.2%)	145 (7.6%)
26. PWT Timur I	25 (2.1%)	24 (2%)	0	10 (0.9%)
27. PWT Timur II	60 (9.3%)	80 (12.4%)	5 (0.8%)	36 (5.6%)
28. PWT Selatan	209 (6.8%)	100 (3.3%)	28 (0.9%)	116 (3.8)
29. PWT Utara I	67 (7.2%)	53 (5.7%)	2 (0.2%)	55 (5.9%)
30. PWT Utara II	98 (8.7%)	133 (11.9%)	11 (1%)	66 (5.9%)
31. Sokaraja I	419 (12.5%)	199 (5.9%)	45 (1.3%)	362 (10.8%)
32. Sokaraja II	125 (6%)	193 ( 9.2%)	3 (0.1%)	95 (4.6%)
33. Kembaran I	208 (8.8%)	197 (8.4%)	3 (0.1%)	78 (3.3%)
34. Kembaran II	186 (8%)	383 (16.5%)	47 (2%)	138 (5.9%)
35. Sumbang I	347 (10.7%)	510 (15.8%)	6 (0.2%)	155 (4.8%)
36. Sumbang II	244 (7.6%)	428 (13.5%)	7 (0.2%)	136 (4.3%)
37. Baturaden I	157 (9.3%)	224 (13.3%)	2 (0.1%)	81 (4.8%)
38. Baturaden II	76 (5.2%)	126 (8.6%)	2 (0.1%)	44 (3%)
39.Kedung Banteng	289 (7.3%)	374 (9.5%)	6 (0.2%)	147 (3.7%)
<b>TOTAL</b>	<b>7807 (7.9%)</b>	<b>11536 (11.7%)</b>	<b>399 (0.4%)</b>	<b>4016 (4.1%)</b>

### 3.2. Overview of local food in Banyumas Regency

The description of local food in Banyumas Regency based on the regional map of each sub-district is described in Figure 1 and 2.

Farming business for cassava commodity in Banyumas Regency is classified as potential to be developed further. The distribution of cassava production is shown in Figure 1. The districts with the most potential for the development of this type of commodity include Purwojati, Jatilawang, Somagede and Sumpiuh sub-districts. Other areas that have a high level of production are the Districts of Gumelar, Lumbir, Cilongok, Kebasen,

Kaliobagor and Patikraja. However, the production level of the last 6 sub-districts shows a downward trend.

Processed cassava is further processed as input for the production of Mocaf flour.

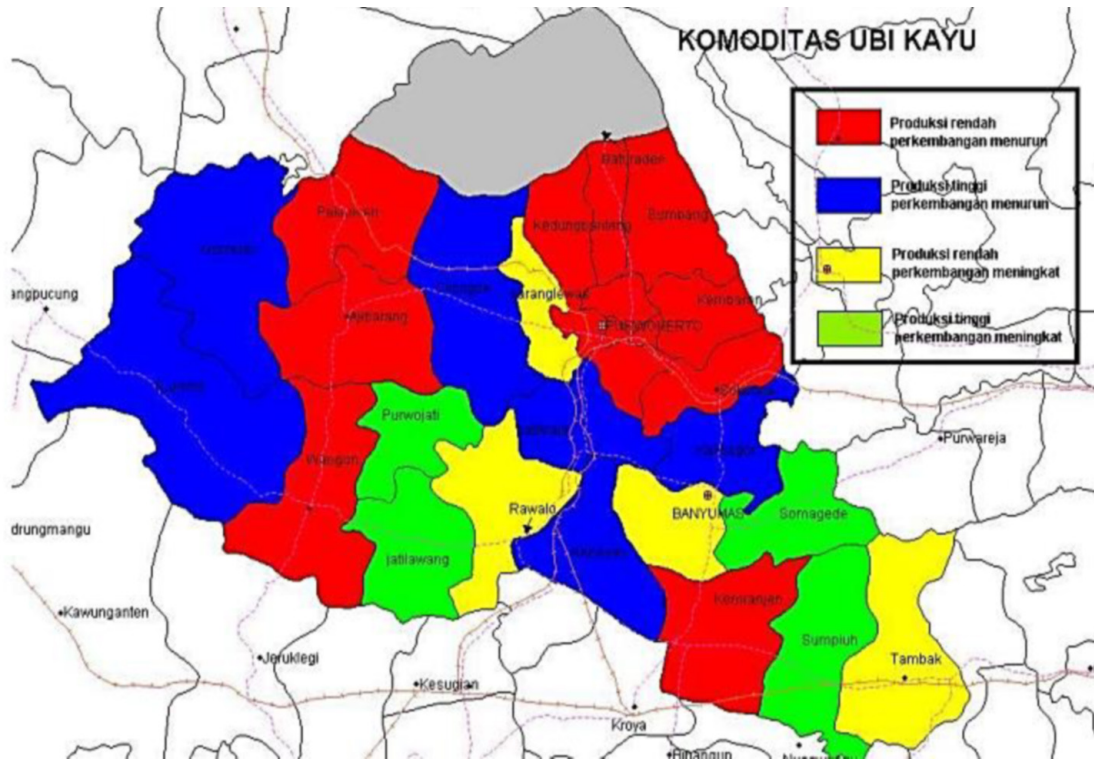


Figure 1 Map of the local food area of Cassava

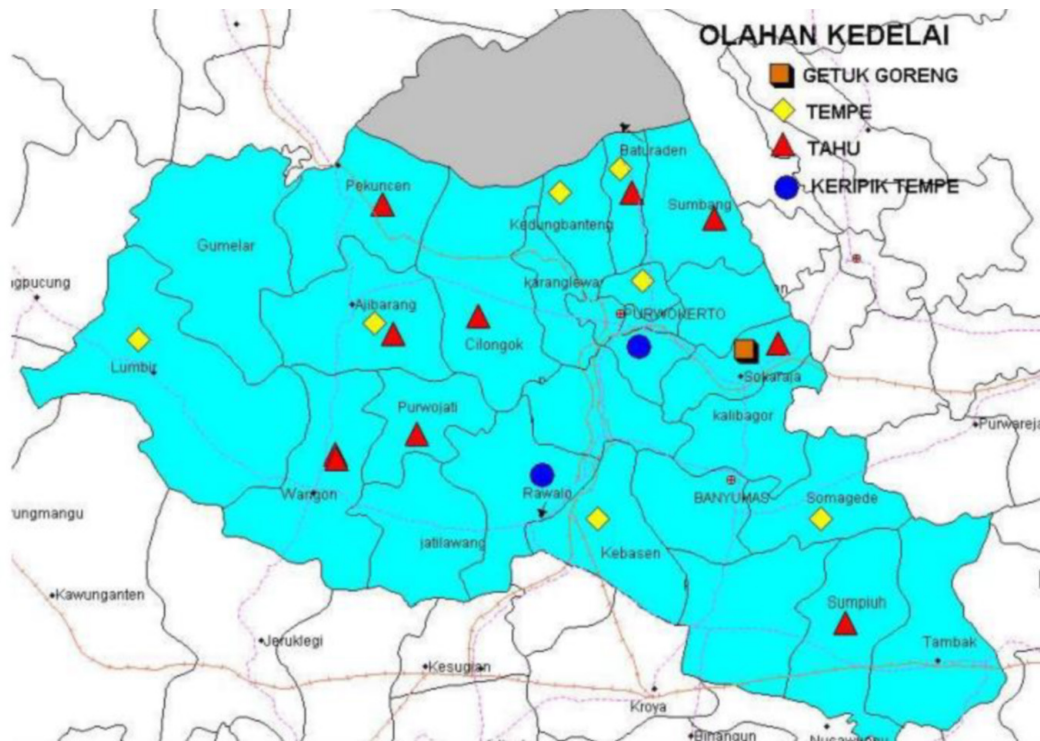


Figure 2 Map of the local food area of Soybean

In the potential of agro-industry made from soybeans, commodities produced in Banyumas include fried getuk, tempeh, tofu and tempeh chips. The potential for tofu development is for Sokaraja, Baturraden, Pekuncen,

Cilongok, Ajibarang, Wnagon and Purwojati sub-districts. For tempe commodities, it is spread in the Districts of Baturraden, Kedungbanteng, North Purwokerto, Ajibarang, Lumbir, Somagede and Kebasen.

Tempe chips agroindustry has the potential to be developed in the Districts of South Putrowerto and Rawalo.

### 3.3. Qualitative Data Analysis

Qualitative data were obtained by using Focus Group Discussions (FGD) with 39 cadres and midwives, 3 from the Banyumas District Health Office, nutrition

and child health department, and 20 mothers of infants and toddlers. There were 4 themes and 10 sub-themes developed from the FGD responses. Themes include mothers' perceptions of complementary foods made from local food, feeding practices, local food processing (food storage, safety, preparation) and support from the government for nutritional issues, support for local food processing. The Data are summarized in the SWOT analysis in Table 2.

**Table 2** SWOT Analysis for Development of Local Food Potential in Banyumas Regency in 2021

<b>Strength</b>	<ol style="list-style-type: none"> <li>1. cadres, midwives and nutritionists are active and creative in carrying out food processing activities, posyandu. the provision of additional food carried out in Posyandu activities is also made from local food</li> <li>2. The Health Office always provides pre-made food assistance for people with nutritional problems in every Posyandu</li> <li>3. The Health Office always provides pre-made food assistance for people with nutritional problems in every Posyandu</li> <li>4. Communication between health institutions, communities and related institutions is easier (because it is located near the centre of government).</li> <li>5. Availability of food that is easily available.</li> <li>6. Information related to health and nutrition is easier to obtain</li> <li>7. Availability of adequate transportation facilities and infrastructure</li> </ol>
<b>Weakness</b>	<ol style="list-style-type: none"> <li>1. Consists of regions with good, middle and less economic levels</li> <li>2. the potential of local food in the form of cassava and soybeans that have not been used as complementary foods for nutritional problems</li> <li>3. There are no special officers to handle nutritional problems (nutritionists)</li> <li>4. The social system in the form of kinship, cooperation and mutual assistance has weakened, each with its problems individually</li> <li>5. the creativity of cadres and mothers of babies and toddlers to process local food is still lacking because there has never been training in local food management</li> </ol>
<b>Opportunity</b>	<ol style="list-style-type: none"> <li>1. There are many variations or kinds of snacks for toddlers and children, both those that meet the healthy and unhealthy requirements</li> <li>2. There are nutrition programs and policies from the central ministry</li> </ol>
<b>Treat</b>	<ol style="list-style-type: none"> <li>1. The habit of working mothers so that parenting for toddlers is left to grandmothers, older children or paid caregivers</li> <li>2. Norms of shame and prestige if children participate in malnutrition programs</li> <li>3. The risk of contamination from street food is greater and it is difficult for children to consume homemade food that is prepared by themselves</li> <li>4. Often circulated promotions and misleading information</li> </ol>

### 3.4. Discussion

Toddlers aged 1-3 years are passive consumers and 3-5 years old are active consumers. The World Health Organization (WHO) recommends that food consumption for children aged 2-3 years should be as frequent as possible, namely as much as family meals such as 3 times a day (portion of plate) and snacks 2 times [12], [13]. The case of nutritional problems in Banyumas Regency in 2019 ranked 6th in Central Java Province, namely 8.5% of children under five experienced nutritional problems less than the target of 5.4%[8]. According to table 1, the most wasting cases in Banyumas Regency were in the working area of Sokaraja I Health Center (419 (12.5%), the most several wasting instances were in the working area of Kembaran II Health Center 383 (16.5%), and Cilongok I Health Center with stunting cases. 786 (18.1 percent) stunted infants and

toddlers and 167 (3.9 percent) underweight infants and toddlers were the most underweight.

Cilongok urban area with the highest incidence of stunting and malnutrition in Banyumas Regency. The area has high potential for local food, namely Cassava. Basically, the lack of intake of nutrients such as zinc, iron, protein, and vitamins is the main trigger for stunted children. However, cassava is a food source that does not have enough protein, although it is very rich in beta-carotene content. This is the main challenge for cassava product development into complete nutritional products to overcome stunting. Research in Kenya and Nigeria showed that cassava contributes to calories, lacks vitamin A and has the lowest energy protein (P:E) ratio, around 2% compared to other staple crops [14], [15]. The most abundant local food in Banyumas Regency is Cassava and tempeh. so it is necessary to develop products for the

manufacture of local food into products with high nutritional value. Fatmah's research suggests that the manufacture of Modified cassava flour tempeh date biscuit supplementation can decrease the prevalence of stunting in toddlers [16]. The use of local food diversity, both vegetable and animal, has the potential to be turned into functional food as nutritious food to prevent stunting in Indonesia. It takes knowledge, technology, and community assistance to build it [6].

The purpose of this study is to investigate the mother's impression of complementary foods created from local breast milk as well as the practice of delivering complementary foods made from local ingredients. Complementary feeding perception: The participants generally believed that complementary feeding entailed giving infants other foods in addition to breastfeeding at any time when it was perceived that breastfeeding alone could no longer satisfy the baby, despite the fact that mothers were aware that complementary foods should be started at six months of age. The Nigeria Federal Ministry of Health and WHO (recommended exclusive breastfeeding for the first six months of life, followed by the introduction of complementary foods that are safe and appropriate using locally available and nutritionally adequate food, in addition to the continuation of breastfeeding for up to two years or beyond the creativity of cadres and mothers of babies and toddlers to process local food is still lacking because no training in local Breastfeeding alone is insufficient to supply the nutritional demands of infants aged 6 months or older. Babies require complementary foods (MPASI) to ensure proper growth and development. The primary goal of administering MPASI is to meet infants' energy and nutritional needs. Nutrients include both macronutrients like carbs, proteins, and fats and micronutrients like vitamins and minerals. Micronutrients such as iron, zinc, calcium, copper, and iodine are essential for the development of the brain (intelligence), immune system, and the growth of the baby's weight and height, and must be acquired in adequate quantities from supplementary foods. Iron intake requirements for infants aged 6 months and up are 11 mg/day. Breast milk only supplies about 2 mg of iron, the rest must be obtained from complementary foods. Foods that are high in iron include beef, beef or chicken liver, and fish. Babies should consume about 400 g of beef per day to meet daily iron requirements. This is of course very difficult to do because of the small stomach capacity of the baby and the inadequate economic capacity of the community. Therefore, we need foods that are high in vitamins and minerals, namely MPASI made from local food.

Diverse and varied complementary foods: The most common foods given to babies are those prepared from sweet potatoes, soybeans, corn, and vegetables. The availability, amount, and quality of these food products are determined by the family's financial situation, particularly the mother's. The number of promotions can

also be threats that need attention, for example the promotion of formula milk or instant porridge with various promising additives or supplements, vitamins that can be healthy and meet all micronutrient needs of children. The level of public education influences absorption and actions in respect to surrounding promotions. The study's findings revealed that the qualities of the area's location played a little effect in children's nutritional status, with the degree of education being the most important element. Where the mother's education degree is a determining element in feeding habits, a high level of education does not automatically imply adequate nutritional knowledge [17][18]. The results of this study obtain a scheme of local potential (local resources) as a supporting factor for nutritional status, so that it can be considered in planning nutrition programs. For further research, research is needed on local food preparations that have standardized special nutritional values to overcome nutritional problems in infants and toddlers. complementary foods that are tested for nutrition and content and are friendly for consumption by infants and toddlers.

#### 4. CONCLUSION

Nutritional issues such as underweight, stunting, multiple wasting, and wasting are still prevalent in Banyumas Regency. Nutrition is a critical issue that must be handled urgently because it impacts the quality of Indonesia's human resources in the future and has a significant impact on the country's survival. Cassava and soybeans have the potential to be native foods in Banyumas Regency. It is necessary to develop local food from Cassava and soybean products as an effort to deal with nutritional problems in Banyumas Regency. In planning a nutrition program, it is necessary to pay attention to the strengths and opportunities that exist as local resources, as well as to consider the existing weaknesses and threats. So, it is hoped that the program can run effectively and efficiently with maximum results.

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