

Spatial Analysis on Stunting Events Based on Community Led Total Sanitation and Poor families in Cianjur District

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Abstract- Stunting is a condition of failure to thrive in children under five (infants under five years old), a result of chronic malnutrition so that the child experiences a size that is too short of her age in general (National Team for the Acceleration of Poverty Reduction (2017). In the first 1000 days, from conception to age 2 years a window of critical opportunity, where timely intervention can have a measurable impact on the prevention of stunting in children. The stunting problem illustrates the existence of chronic nutritional problems, influenced by the condition of the mother, the condition of the fetus, and infancy including illnesses suffered during that period. By using secondary data which is then processed using geographic information system(GIS) software, the percentage of stunting, community- based total sanitation stop chapter can be seen so that it can be known priority areas in Cianjur district.

Index Terms- stunting, poor family, community led total sanitation, GIS

I. INTRODUCTION

stunting is one form of malnutrition problem that causes linear growth delay [1]. Short stunting increases the risk of child mortality, adversely affects cognitive and motor development decreases school performance, increases the risk of excess nutrition and non-communicable diseases, and reduces future productivity[2]. Stunting children are also at risk of experiencing a decrease in Intelligence Quotient (IQ) of 10-15 points[1].

Stunting is a condition of failure to thrive in children under five (infants under five years old), a result of chronic malnutrition so that the child experiences a size that is too short of his age in general [3]. In the first 1000 days, from conception to age 2 years a window of critical opportunity, where timely intervention can have a measurable impact on the prevention of stunting in children. The stunting problem illustrates the existence of chronic nutritional problems, influenced by the condition of the mother, the condition of the fetus, and infancy, including diseases suffered during this period [4].

According to WHO, the prevalence of stunting is a serious health problem in the community. When compared with other neighboring countries, Indonesia has the highest prevalence of stunting compared to Myanmar (35%), Vietnam (23%), Malaysia (17%), Thailand (16%) and Singapore (4%). The 2014 Global Nutrition Report shows that Indonesia is included in 17 of 117 countries, which have three nutritional problems, namely stunting, wasting and overweight in infants [4].

National stunting prevalence in 2013 was (37.2%), an increase compared to 2010 (35.6%) and 2007 (36.8%). Short prevalence of (37.2%) consisting of (18.0%) was very short and (19.2%) short. In 2013 the very short prevalence showed a decline, from (18.8%) in 2007 and (18.5%) in 2010. Short prevalence increased from (18.0%) in 2007 to (19.2%) in the year 2013 [5]

One of the factors that influence stunting is the condition of sanitation and environmental hygiene in pregnant women and children under the age of two years because they are vulnerable to various infections and diseases (MCA-Indonesia & Ministry of the Republic of Indonesia, 2015a). Access to clean water and poor sanitation facilities can increase the incidence of infectious diseases which can make energy for growth diverted to the body's resistance to infection, difficult to absorb nutrition by the body and hampered growth[4]. Increased adolescent nutrition and access to family planning will increasingly contribute to stunting reduction, such as the promotion of handwashing, access to clean water and sanitation [6].

Cutting the chain of bad sanitation and preventing stunting, pregnant women and children must live in a clean environment, do not defecate carelessly, and wash their hands with soap. Sanitation and hygiene interventions with a coverage of 99% reported an impact on reducing diarrhea by 30%, which then reduced the prevalence of stunting by 2.4% [7]

Previous research was also conducted in Indonesia, where it was found that household sanitation and drinking water treatment were strong predictors of stunting in the population of children aged 0-23 months in Indonesia. This finding adds to the increasing national and global evidence regarding the link between Household Water, Sanitation and Hygiene and linear growth in early life and shows that program policies and actions to overcome stunting must pay greater attention to Household Water, Sanitation and Hygiene interventions in Indonesia[2]

Health development in Indonesia, especially hygiene and sanitation is still a huge challenge. Integrated intervention is needed through a sanitation approach, which is a government program, namely Community Led Total Sanitation. The implementation of the Community Led Total Sanitation with five pillars will facilitate efforts to improve access to better community sanitation and change and maintain the sustainability of a clean and healthy culture. The five pillars are related to stopping open defecation, washing hands with soap, managing drinking water, and household food, securing household waste and securing household liquid waste. The implementation of Community Led Total Sanitation in the long term can reduce morbidity and mortality caused by poor sanitation, and can encourage the realization of a healthy, independent and just society

Another factor that causes stunting is poverty. Children who experience short are vulnerable and come from poor families. This factor is caused by inadequate feeding and childcare practices during infancy, low access to health services, or poor environmental sanitation. Some studies show that poverty is related to a factor of malnutrition, which in turn will affect children's development. Poverty causes reduced opportunities and the ability of parents to stimulate growth and development in children [8]. Previous research conducted in the City of Botswana showed that children who were significantly affected by wasting, stunting, and underweight were children living in slums[9].

Data from the Ministry of National Development Planning shows that Cianjur District is included in the focus of the integrated stunting prevention intervention in 2019 [3], and Cianjur Regency is also included in 100 districts and cities that have a prevalence, priority stunting and poverty health interventions[7]. The population in 2016 in Cianjur Regency was 2,249,000 people. The number of stunting toddlers in 2013 was 95,023 with the prevalence of stunting in 2013 amounting to 41.76%. The number of poor people in Cianjur Regency in 2016 was 261,000 with a poverty rate in 2016 of 11.62% [7].

The Health Profile of Cianjur Regency in 2017 shows that only 46.1% of villages have implemented community-based total sanitation out of a total of 360 villages / sub-districts in 32 sub-districts. Cianjur Regency is one of the priority areas for implementing community-based total sanitation as an intervention program for the Directorate of Environmental Health, Ministry of Health for handling stunting. In order to support efforts to implement total community-based sanitation and stunting treatment in Cianjur Regency, West Java, adequate information is needed regarding the implementation of total community-based sanitation and the incidence of stunting. Location / spatial based information can describe the actual conditions in the field and can be easily understood. Information on the distribution of implementation of total community-based sanitation and information on the distribution of location / spatial-based stunting events in the region will greatly support the implementation of effective and efficient programs.

II. METHODS

This study uses data from the Cianjur District Health Office of West Java Province 2017 and maps shapefile data from <http://gadm.org/maps>. This study used a descriptive study design by classifying the spatial analysis of the factors of stunting and poor families as well as the implementation of community-based total sanitation based on frequency distribution and administrative areas as well as scoring and weighing the main priority areas for stunting treatment programs based on poor families and implementing community-based total sanitation in Cianjur Regency.

This research was carried out in the area of Cianjur Regency, West Java Province. Data collection and analysis is planned for 3 weeks in December 2018. This study is a further analysis of the profile data of the Cianjur District Health Office in 2017 therefore the population and sample in this study are population and samples used in the profile of the Cianjur District Health Office in 2017. The target population profile of the District Health Office of Cianjur is the entire Regency population Cianjur and the study population was toddlers suffering from stunting in Cianjur Regency.

Spatial analysis is used to examine the patterns of spreading problems in spatial aspects or interactions between human variables and their environment. The type of spatial analysis used in this study is database query and overlay. Queries are used to regain the attributes of community-based total stunting and sanitation data where data that has been processed in the previous stage is classified, then given scores and weights so that they can be grouped into regions or areas that have a potential or a large risk of disease occurrence. The overlay is used to combine stunting data, community-based total sanitation, and poor families based on the region in Cianjur district which is displayed in layers on a thematic map.

III. RESULT

A. Cianjur regency, West Java, Indonesia

Map of the administrative region of Cianjur Regency consists of 32 Districts. The location of Cianjur Regency is geographically located between 6° 48' - 7° 12' South Latitude and 106° 24' - 107° 36' East Longitude, in the central part of West Java Province, with a distance of about 65 km from Bandung and 120 km from Jakarta.

Cianjur Regency with a total area of 3,501,470 Km² In addition to the geographical location that benefits the natural conditions of the Cianjur Regency area it also varies greatly. The expanse of the Cianjur Regency area from the north to the south is highland to the lowlands. Cianjur Regency is located at the foot of Mount Gede which stretches to the coastline of the Indonesian Ocean with a height of about 7 - 2,962 meters above sea level.



Figure 1. Cianjur regency, West Java, Indonesia

B. Poverty Relations with Stunting

Some perspectives in defining the concept of poverty, first, from the point of view of measurement, poverty is divided into two namely absolute and relative poverty. Second, from the point of view of causes, poverty can be grouped into natural and structural poverty. One of the important conditions for a poverty alleviation policy to be achieved is that there must be clarity about the criteria for who or which group of people falls into the category of poverty and becomes the target of the program.

Poverty is relatively a state of comparison between income groups in society, namely between groups that may not be poor because they have higher income levels than the poverty line, and relatively richer community groups. By using income measures, this situation is referred to as inequality in terms of income distribution [10].

In general, the population classified as poor is a "residual group", namely a group of people who have not been touched by a variety of specifically concentrated government policies, such as the Farmers and Fishermen Income Improvement Program. This group includes being difficult to touch because of the low quality of resources so that it does not utilize the facilities, including production factors. They also lack the ability, low level of education, very minimal training, including utilizing assistance for basic human needs, and legal protection or legislation that is not in their favor.

Some other criteria regarding poor occupation are related to the implementation of the Sub District Development Program according to the version of the National Family Planning Coordinating Board that to determine the poor population at least fulfills the following 6 criteria, namely self-owned and not self-owned, access to clean water and sanitation, income / converted to expenditure, asset ownership, frequency of meals (more than 2 times a day) and nutritional quality of food and in a year can buy at least 1 set of new clothing.

Of the six variables, if you get a score of 3 or more, the family is categorized as poor. Therefore, the commitment and consistency of the government in increasing economic growth in equitable ways without excluding the poor will increase social cohesion with politics

still limited access to quality early learning services (only 1 in 3 children aged 3-6 years has not been enrolled in Early Childhood Education / Early Childhood Education services).

3. Still, the lack of household/family access to nutritious food. This is because the price of nutritious food in Indonesia is still relatively expensive. According to several sources[5], food commodities in Jakarta are 94% more expensive than in New Delhi, India. Prices of fruits and vegetables in Indonesia are more expensive than in Singapore. Limited access to nutritious food in Indonesia has also been noted to have contributed to 1 in 3 pregnant women who have anemia.
4. Lack of access to clean water and sanitation. data obtained in the field shows that 1 in 5 households in Indonesia still defecates in open spaces, and 1 in 3 households do not yet have access to clean drinking water[12]

Lack of nutrition, especially stunting is an agenda that never ends and is a serious concern of the Government of Indonesia. The prevalence of stunting in children under the age of five (5) years is relatively high and does not show a significant decline over the past 10 years. National stunting prevalence among children under the age of five is 36.2%, 35.6%, and 37.2% respectively in 2007, 2010 and 2013 [5]

Stunting problems are influenced by various interrelated factors. Directly, stunting is influenced by the quality and quantity of inadequate and chronic nutrition, especially since the fetus until the age of 2 years, and a sick child. While indirectly affected by food security at home, handling health and nutrition and sanitation and hygiene behavior, as well as access to quality health and nutrition services. The state of sanitation and hygiene, especially the habit of defecating and washing hands with soap, has been proven conclusively to influence stunting.

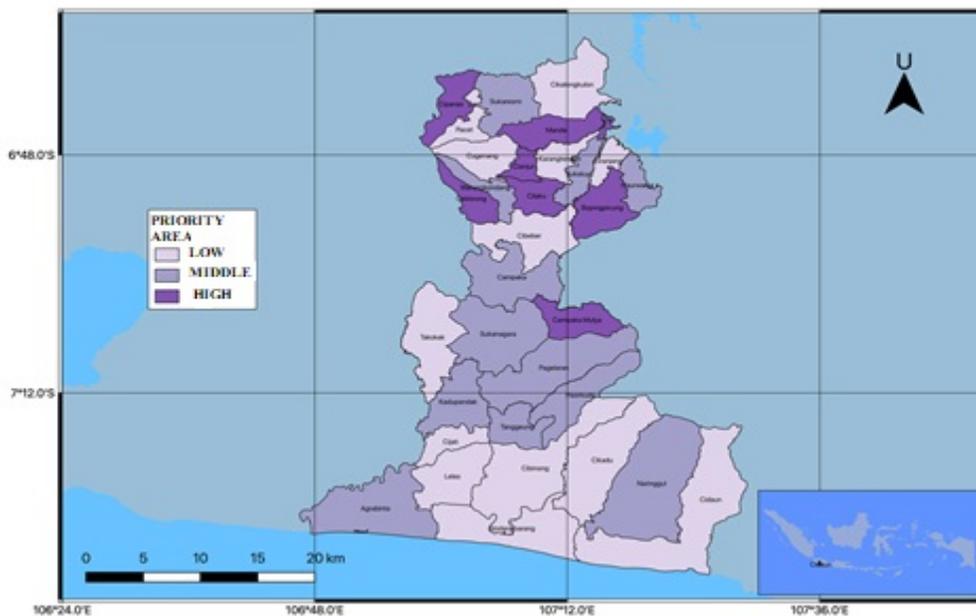


Figure 3 Management Program based on Poor Families and Implementation of CLTS in Cianjur Regency, West Java Province, Indonesia
Based on Figure 3, it can be seen that the areas that are the priority of the Stunting management program are based on poor families and Community Led Total Sanitation, namely Cipanas District, Mandeh, Cianjur, Gekbrong, Cilaku, Bojongpicung, and Campaka Mulya. The problem of malnutrition in children is the impact of complex food insecurity. Children who experience short (stunted), in food insecure environments and come from poor families.

IV. DISCUSSION

Community Led Total Sanitation, in this program is intended to improve sanitation conditions in order to reduce the prevalence of stunting in Indonesia through changes in sanitation behavior and community hygiene. Changes in sanitation and hygiene behavior are carried out through community empowerment to improve access to sanitation.

Lack of nutrition, especially stunting is an agenda that never ends and is a serious concern of the Government of Indonesia. The prevalence of stunting in children under five (5) years is relatively high and does not show a significant decline over the past 10 years. National stunting prevalence among children under five years of age was 36.2%, 35.6% and 37.2% respectively in 2007, 2010 and 2013[5].

Stunting problems are influenced by a variety of interrelated factors. Directly, stunting is influenced by the quality and quantity of inadequate and chronic nutrition, especially since the fetus until the age of 2 years, and / or a sick child. While indirectly affected by food security at home, handling health and nutrition and sanitation and hygiene behavior, as well as access to quality health and nutrition services. The state of sanitation and hygiene, especially the habit of defecating and washing hands with soap, has been proven conclusively to influence stunting.

2013 Basic Health Research (Riskesdas) data showed the prevalence of family stunting with adequate sanitation conditions (using healthy latrines) of 23.9%, while for families with poor sanitation conditions (not using latrines or using unhealthy latrines) at 35.5%. In terms of water treatment behavior in households, the prevalence of family stunting using processed drinking water is 27.3% while families using non-processed drinking water are 38.0% [13]

The condition of poor sanitation also affects the nutrition of children which ultimately also affects the incidence of stunting. Based on previous research conducted by Adiyanti, it was found that there was a significant relationship between the types of latrines used, protected water sources, and easily available water sources. Inappropriate types of latrines indicate that children tend to suffer from stunting 1.3 times higher than those who have proper latrines. Unprotected water sources are also 1.3 times higher than those protected [14]. Not only that, poor family factors can also influence the incidence of stunting.

V. CONCLUSION

Stunting summarizes various originating variables including the problem of poverty and community-based sanitation, then by presenting analysis in spatial form can help decision makers to understand easily the problem of stunting in Cianjur district. Stunting's analysis of spatial data in this study seems to vary based on poor family variables. It is known that the highest area is in Gekbrong sub-district (59.27%). The highest case variable is severe stunting in Sukaluyu Subdistrict (11.95%). (stunting) is highest in Haurwangi District (20.08%), low access sanitation variables are in Campaka Mulya District (26.17%), Variable access to Stop BABS is still low in Cijati District (30%), Top priority for Stunting handling programs based on poor families and Community Led Total Sanitation, namely in Cipanas District, Mande, Cianjur, Gekbrong, Cilaku, Bojongpicung, and Campaka Mulya.

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