Mapping The Poverty Rate Of The South Sulawesi Region

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Muh Said[1], Feri Padli[2], Muhammad Zulfadli[3], Rusdi[4], Syarifah Balqis[5]

[1]Social Science Education, Faculty of Social Sciences, Makassar State University
[2]Social Science Education, Faculty of Social Sciences, Makassar State University
[3]Social Studies Education, Faculty of Social Sciences, Makassar State University
[4]Social Studies Education, Faculty of Social Sciences, Makassar State University
[5]Social Science Education, Faculty of Social Sciences, Makassar State University
Email: feripadli@unm.ac.id

ABSTRACT

Poverty has become a classic problem until today on a national and even global scope. The government has tried a lot of efforts in making policies, such as monitoring the regional poverty level and planning to overcome these problems. The Central Bureau of Statistics every period releases survey results in the form of tabulations, diagrams or maps on a national scale. For the purpose of presenting information on a smaller regional scale and comparing the conditions of each region. Researchers conducted a poverty mapping technique based on geospatial information. Utilizing the Geographic Information System (GIS) application, namely ArcMap with conversion tools techniques. Data collection techniques with literature study. The poverty level data is processed into tabulation form in the excel application. Meanwhile, the regional base map is first input into the ArcMap application to overlay all regions in one province. The product is a map of the poverty level of the district/city community in the administrative area of South Sulawesi Province. The map will show an image of the area by color category. The dark color gradation means the area with the highest poverty rate and the lightest color means the area with the lowest poverty rate. The results obtained indicate that the districts with the highest poverty rates are Makassar City and Bone District. Meanwhile, the areas with the lowest poverty rates are Barru Regency, Sidenreng Rappang Regency, Pare-Pare City and Palopo City.

Keywords: Poverty, Mapping, GIS, South Sulawesi

FOREWORD

Poverty is still a social problem in every region in the archipelago. This has become a classic problem since it has always existed in every human civilization and has never been resolved, especially in Indonesia. Not only this country, several other countries are also experiencing the same problem. Common causes include the level of education, the availability of natural resources, the availability of jobs, limited capital (Itang, I. 2017), unemployment and etc. Meanwhile, the Bureau of Budget Analysis and Implementation of the State Budget – General Secretary of parliament RI explained that in general poverty can be caused by two factors. First, because of natural poverty that occurs due to limited natural resources, low use of technology and natural disasters. Secondly, "artificial" poverty caused by existing institutions in society makes some members of the community unable to control the economic

facilities and various other facilities available, so that they remain poor.

This condition cannot be fully borne by the government alone, but requires awareness of shared responsibilities. Shared awareness can have an effect on reducing the number of poverties. For example, the application of the concept of *gotong royong* in society will reduce the burden on families who have financial limitations. One of the important aspects to support poverty reduction strategies is the availability of accurate poverty data (Central Bureau of Statistics 2021)

The availability of poverty data can be accessed on the website of the Central bureau of Statistics (BPS). However, to be able to read well, the distribution table data presentation model is not very attractive so it needs adjustment. The goal is to be understood by more users of the information. One method that can be done is the presentation of visual data. The visual model is a map formed based on regional poverty conditions. The data is distributed into an area image known as the mapping method. The Central Statistics Agency has carried out mapping but nationally, namely the entire territory of Indonesia. Research is needed to reconstruct the special map for the province of South Sulawesi to provide a more specific and easy-to-read picture on a micro scale.

Mapping is one way of interpreting data visually. Mapping is the activity of managing spatial data into graphical information. Mapping can be done with a computer system (Padli, F, et al 2016). Mapping is more often used to describe natural features, such as mapping water areas, land areas, or land contours.

In its development, mapping is not only used to visualize location data processing. However, mapping is also used to describe the appearance of a particular area based on attribute data, such as data on population

distribution, poverty, and the impact of disease. Like Husaini, et al (2017) conducted research on school mapping in Wonodadi District, Blitar Regency based on Web-GIS. School mapping has also been carried out by Hasanuddin and Ilyas (2017). In the previous year, Rahayu, Muludi, and Hijriani (2016) conducted a mapping of population data. Health data has also been mapped, for example about the incidence of Leptospiros in Sampang Regency (Rahim and Yudhastuti, 2016). Mapping has also been used on poverty data, as has been done by Supriyanto, Winanrno, and Utomo (2011).

Based on the development of mapping science, this research will map poverty level data for all districts/cities in South Sulawesi which consists of 24 regions. Poverty rate data released by the survey results from the Central Statistics Agency (BPS) in 2021 will be used in research. The districts/cities are Selayar Islands, Bulukumba, Bantaeng, Jeneponto, Takalar, Gowa, Sinjai, Maros, Pangkep, Barru, Bone, Soppeng, Wajo, Sidrap, Pinrang, Enrekang, Luwu, Tana Toraja, North Luwu, East Luwu, Toraja North, Makassar, Pare-Pare, and Palopo. The findings targeted in this research are in the form of a map of the geospatial information model of the poverty rate based on indicators that have been determined by BPS. Furthermore, researchers will create visual information based on geospatial information. The different poverty levels of each area are identified by color in different locations on the map. The researchers formulated the main problems to be written, namely (1) how to distribute poverty data in South Sulawesi Province, (2) how to implement GIS from poverty distribution data in South Sulawesi Province, (3) how to map the distribution of poverty in South Sulawesi Province.

METHOD

Type of research

This research is a literature review type, the method used to identify, review, evaluate, and interpret all available research in the subject area of an interesting phenomenon, as well as certain related research questions (Wahyudin, Y., & Rahayu, D. N. 2020). In writing the research used data that already exists in a credible institution and has full responsibility in collecting poverty data. This research is based on a product that will make it easier for readers to understand poverty data.

Location

The location of the research will be carried out in the laboratory of the Department of Historical Education and Social Sciences Education. Research that relies on the internet network will make it easier to find data and connect all website portals of the institutions involved.

Population and Sample

Population is all population data of South Sulawesi Province. The research sample is the population of South Sulawesi Province which is included in the poor category based on BPS provisions.

Data collection technique

Data collection techniques are carried out in two stages:
1. Download data on the bps.go.ig portal according to the distribution of the required data categories.
2. Submission of data requests of an institutional nature for research purposes. You do this by filling out the form provided by the National Family Planning Coordinating Board (BKKBN).

Research Steps

Below is the diagram of the research flow.
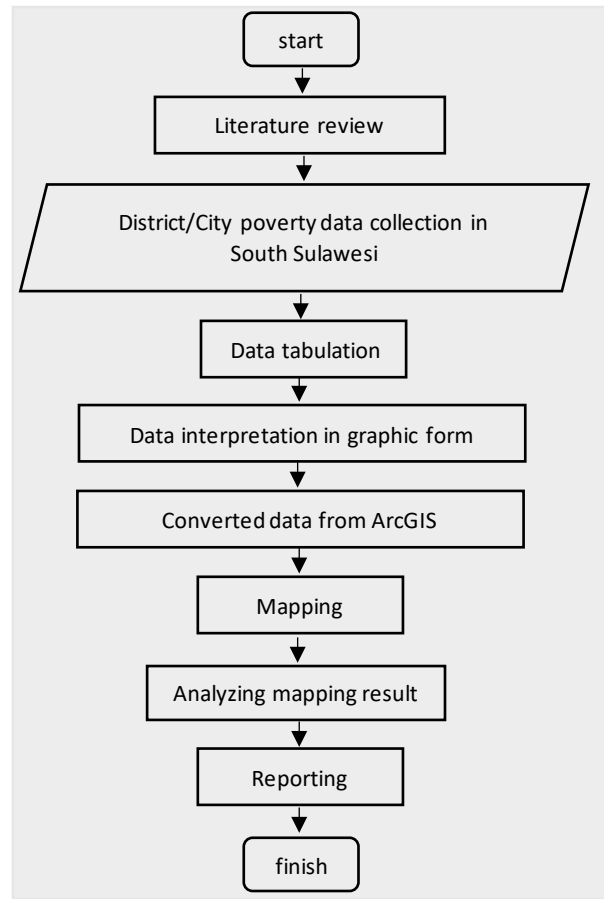
Picture 1. Diagram of research flow

Findings and Discussion

A. Poverty in South Sulawesi Province

Poverty that occurs in the South Sulawesi region is one of the priority programs of the regional government along with other relevant agencies. The government strives continuously to implement various solutions to solve poverty. Over time the number of poor people has also experienced dynamic changes. The changes occur in each district/city. Meanwhile, if viewed what happened in South Sulawesi, the number of poverties actually increased from the last three years.

Researchers collect data from BPS from 2019 to 2021. It can be seen that the number of poor people is 2,329,610 people. The data is obtained from the BPS South Sulawesi website which is the result of a 10-year census as well as a survey in a

predetermined period. This data was chosen based on the consideration that it was very valid and also the entire population was taken without a sample system. The following is the data that has been collected:

Table 1. Data on the Number of Poor Residents of Regencies/Cities in South Sulawesi from 2019 to 2021

Region/city	Number of Poor People (Thousand People) by Regency/City in South Sulawesi (Thousand People)		
	2019	2020	2021
Kepulauan Selayar	17.36	17.04	16.93
Bulukumba	30.49	30.00	31.31
Bantaeng	16.91	16.84	17.78
Jeneponto	54.05	53.24	52.35
Takalar	25.93	25.38	24.60
Gowa	57.99	57.68	58.66
Sinjai	22.27	22.06	21.69
Maros	34.85	34.62	34.11
Pangkep	47.07	47.12	48.40

Region/city	Number of Poor People (Thousand People) by Regency/City in South Sulawesi (Thousand People)		
	2019	2020	2021
Barru	14.92	14.44	15.18
Bone	76.25	81.33	79.64
Soppeng	16.45	17.23	17.27
Wajo	27.48	27.69	26.22
Sidrap	14.44	15.36	15.25
Pinrang	31.85	33.56	33.51
Enrekang	25.40	25.25	26.13
Luwu	46.18	46.04	46.26
Tana Toraja	28.87	28.41	29.33
Luwu Utara	42.48	42.20	43.15
Luwu Timur	20.83	20.82	20.99
Toraja Utara	28.64	27.88	28.39
Makassar	65.12	69.98	74.69
Pare Pare	7.62	7.96	7.93
Palopo	14.37	14.71	15.21
SOUTH SULAWESI	767.80	776.83	784.98

The blue color is 2019 data, orange is 2020 and green is the last data for 2021.

Chart of changes in the poor population of South Sulawesi 2019-2021
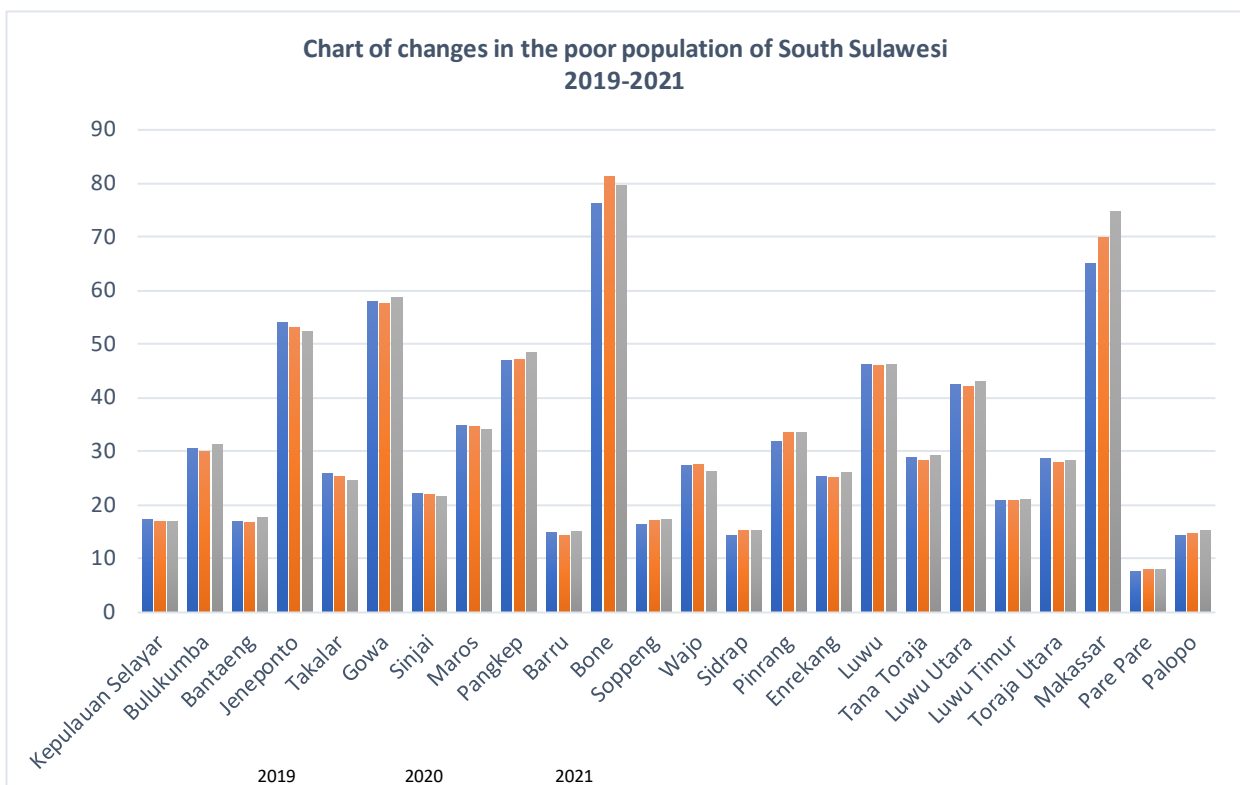
The distribution of data in table 1. shows that the total poor population from all districts/cities in South Sulawesi Province has increased in the last three years. From 2019 there were 767,800 people, then it increased to 776,830 people in 2020. The latest data shows that in 2021 it will be 784,980 people.

B. Techniques for Implementing Geographic Information Systems (GIS) in Poverty Distribution in South Sulawesi Province

Geographic Information System (GIS) has been widely used by practitioners as a formula for collecting geographic data of a region. From these data practitioners explain the data in spatial form. Then the local government to the center takes the spatial data for planning and policy determination. GIS is very helpful in presenting spatial data because of its ease and operational efficiency.

The Geographic Information System (GIS) will analyze the poverty level of the region based on the categories determined by the cartograph (map maker). The application used is ArcMap which is part of ArcGIS and Google Earth which is used to retrieve regional data and validate regional boundaries. The application was chosen because of the relevance of its function in managing spatial data which is easy and can be used to determine regional categories. So that researchers can conduct mapping efficiently and effectively.

The techniques and steps involved will be described as follows:

1. Add data base map to ArcMap
2. Data that has been processed by BPS is input into the ArcMap application by adding fields and adding new columns. Next, the data is distributed into the respective district/city area columns. Another method can also be done by converting excel file tools into table attributes.
3. Base map and quantitative data are overlaid into one visual information in the form of a map.
4. The map will display color gradations that vary according to the level of poverty. Until this process, the map can show the areas that have the poorest people in the dark to light color categories.
5. The next step is the map layout by including all the elements needed. Starting from the title, wind direction, scale, information description (object category), map data source, maker, year of publication, and map inset.

The results displayed will illustrate visual information to the reader. The benefit for the reader is that it makes it easier to understand the information. The results of the implementation of GIS from the data table are presented with the division of categories. 5 categories of categories are distinguished by color hue. Dark colors will be applied to areas with a high category and vice versa.
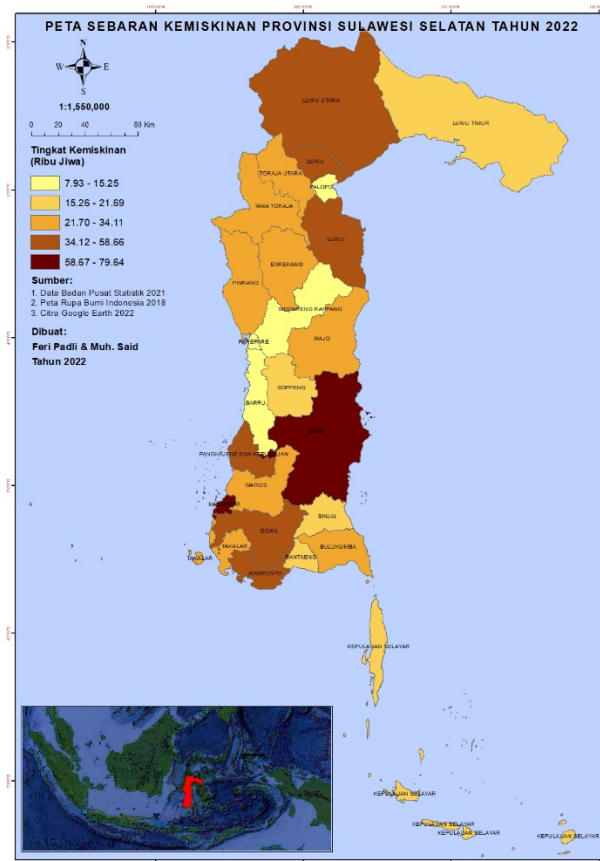
C. Poverty Distribution Map in South Sulawesi Province

The results show that the map of the distribution of poverty in the administrative area of South Sulawesi Province varies. It can be seen from the color gradations that vary from 24 districts. Darker color means higher poverty rate and lighter color means lower poverty rate. The following figure presents poverty information in the form of a Map. Visual images in the form of maps can provide convenience for readers and see directly.

In detail, the results shown in Figure 1 show that the Bone district is the area with the darkest color along with the city of Makassar. The area is in the category of the highest poverty level with a score of 58,670 people to 79,640 people. While the brightest colors are Barru and Sidenreng

Rappang regencies and the cities of Pare-pare and Palopo.

Based on the category of poor population in the urban district, it is indicated that a larger population is one of the factors. Because the map also describes simply the area based on the number indicator.

Picture. 3. Poverty Distribution Map of South Sulawesi Province in 2022.

THANK-YOU NOTE

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