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Analysis Of The Priority Handling Of Enveromental Drainage Construction Project At Dinas Pekerjaan Umum Dan Penataan Ruang Banjarbaru City

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ABSTRACT. Flood is one of the main problems of big cities in Indonesia, including Banjarbaru City. This is often caused by the not supportive existing drainage capacity when compared to the increasing of crowded urban conditions and reduced green open space. Handling of drainage including rehabilitation is necessary so that drainage can function properly as expected. On the other hand the Banjarbaru City Government has a limited budget each year that can be disbursed for drainage handling. The purpose of this thesis is to analyze criteria and subcriteria that are important in determining the priority of drainage handling. The ANP (Analytic Network Process) method is analyzed using the criteria in the Minister of Public Works regulation number 12/PRT/M/2014 tentang Penyelenggaraan Sistem Drainase Perkotaan to determine priorities for handling environmental drainage with important criteria, namely aspects of inundation, economic loss, social disruption and government facilities, loss of disturbance. transportation, loss to residential areas, and loss of personal property rights. Based on these 6 criteria, priorities for handling environmental drainage in Banjarbaru City are determined. Furthermore, an analysis is carried out to evaluate the priority of the choices that occur. This study suggests to decision makers that ANP can be used to analyze drainage management priorities in Banjarbaru City. This research focuses on variables consisting of criteria or considerations which form the background for priorities in handling the environmental drainage system in Banjarbaru City. The primary data results obtained from the field survey were followed by analysis using the ANP method with data tabulation calculations and assisted by Super Decisions software to determine the priority scale for handling environmental drainage in Banjarbaru City. The treatment priority scale in the Super Decisions software, the data of which is based on field survey results and data tabulation calculations, found that there are several locations that have a large priority scale but treatment has not been carried out due to several factors that are not contained in Minister of Public Works Regulation 12/PRT/M/2014 concerning Implementation of Urban Drainage Systems.

Keywords: Handling Priorities, Free Floods and Expectations, ANP, Super Decisions

1. INTRODUCTION

Urban drainage has the function of preventing flooding due to rain that occurs in a city or residential area. This urban drainage often does not function or in other words, flooding still occurs due to technical and social factors. Drainage is the term used for a system for handling excess water. According to Halim (2011), the urban drainage network system is generally divided into 2 parts, namely the macro drainage system and the micro drainage system. This urban drainage often does not function or in other words, inundation still occurs due to technical and social factors (Yulianur,

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2011). According to Andayani (2012), urban drainage channels are found in 88% of all sub-districts in cities, but good drainage channels are only found in 48.4% of all sub-districts and villages.

The existence of a number of problematic drainage systems while the resources to overcome them are limited requires selecting priority drainage systems. However, determining priorities is a problem in itself. One source of complexity in decision-making problems is the existence of selection criteria that are always diverse. The amount of known information influences the speed and complexity of decision making. Drainage management has so far been based on location proposals which are more about regional planning, not based on problems of inundation or flooding at the proposed location. Therefore, in this research, the ANP (Analytic Network Process) method was used to determine the priority scale for treatment.

In determining drainage aspect criteria, ANP (Analytic Network Process) is a decision-making tool in solving drainage system maintenance problems, such as allocating resources, analyzing benefit or cost decisions, determining the ranking of several alternatives, carrying out projected future planning and setting priorities. development and maintenance of drainage. This research focuses on the Banjarbaru City Area. Similar previous studies stated that there are factors that influence the performance of the drainage system. Some of these factors are the status of each drainage system, the level of damage, the social and economic losses that occur every time a flood occurs in the drainage system, the community's concern for the drainage system in their environment and the demands of the surrounding community for improvements to the drainage system.

2. RESEARCH METHOD

Preliminary Stage

The preliminary stage is the stage of determining the problem and determining the topics to be studied in this study. In the introductory section, the background, problem formulation, research objectives, and problem boundaries are formulated. The results of this preliminary study are The research location is Banjarbaru City, The object of this research was the Banjarbaru City PUPR Service, Banjarbaru City BPS, and community leaders/drainage expert lecturers, Literature or reference literature as a reference for the theoretical basis was obtained from several books and research journals related to drainage systems and ANP methods, The software as a tool for analyzing this research is the Super Decisions program.

Literature Study Stage

This research is divided into three parts, namely data collection, data processing, and the results of data analysis in the form of priority weights for aspects of the criteria for determining priorities for improving the drainage system in Banjarbaru City.

Data Collection Stage

Data collection is carried out to obtain the information needed in order to achieve research objectives. One important component in research is the process of data collection. Errors made in the data collection process will make the analysis process difficult, besides that the results and conclusions to be obtained will be ambiguous if the data collection is not carried out correctly. The data obtained is based on the planned research location. Types of data used for data collection and sources of collection, including primary data and secondary data.

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Primary Data Collection

Primary data is data obtained directly from field surveys which includes inundation data in the form of inundation height and inundation frequency, and commercial places according to the proposed location with the aim of determining the weight of the sub-criteria. This data was obtained from field surveys and interviews with local communities.

- Surveys

  Surveys are a method of searching for data on a problem based on specified criteria.

- Observation

Field observations to see directly the proposed location for handling environmental drainage in the city of Banjarbaru.

Secondary Data Collection

Secondary data for this research includes data taken from several agencies related to handling environmental drainage in Banjarbaru City. Secondary data in this research was obtained from related agencies, namely BAPPEDA Banjarbaru City, Banjarbaru City Central Statistics Agency (BPS), and Banjarbaru City PUPR Service

Research variable

The variables used in this research consist of criteria or considerations that form the background for priorities in handling the environmental drainage system in Banjarbaru City. The criteria in this research are based on the Minister of Public Works regulation number 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems, namely the aspects of inundation, economic loss, social disruption and government facilities, loss of transportation disruption, loss to residential areas, and loss of private property rights. selected as criteria that are considered to influence the determination of priorities for improving the environmental drainage system in Banjarbaru City.

The weights obtained will then be converted to get a value that will be analyzed using the ANP method which contains an assessment of criteria values, namely direct priorities where the criteria values are in the form of numerical data. Criteria data values can be quantity, price, speed and other quantitative data. In the direct priorities method, the final value entered in the ANP model, which is given the symbol N, is obtained from the following equation:

$$N = \frac{X_n}{\Sigma_1^n X} \qquad (2.1)$$

N = ANP priority scale criteria value

X = Criterion value data

Calculation of priority scale criteria values using the ANP method is assisted by Super Decisions Software. The following are the steps for carrying out data analysis using the ANP method using Super Decisions Software :

1. Create a 3 cluster design (Priority, Criteria, and Location).
2. Create nodes in each cluster according to the cluster title.
3. Connect one-way nodes in the priority cluster to the criteria cluster and two-way nodes in the criteria cluster to the location cluster.

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4. Enter relative values for each comparison between nodes.

For example, a comparison of the location of A56 to A57 regarding the Inundation Criteria. If the relative values A56=6 and A57=1, then the formula values used are:

NI = (NRB – NRK) + 1 (2.2)

NI = Software Input Value

NRB = Greater Relative Value

NRK = Smaller Relative Value

5. After the relative values have been entered for all nodes, you can see the priority value of each location with a comparison between connected locations.

3. RESULTS AND DISCUSSION

Identification of Flood Locations and Flood Prone Areas in Banjarbaru City

- Identification of Locations of Inundation and Flooding in North Banjarbaru District

Based on the results of surveys and interviews, the location of inundation and flooding in North Banjarbaru District can be identified. The following are the results of the recapitulation of the location, causes of flood inundation, area of inundation, duration of inundation and height of inundation in North Banjarbaru district.

Table 3. 1 Recapitulation of Inundation and Flooding in North Banjabaru District (BAPPEDA, 2019)

District	Subdistrict	Location	Information	Area (Ha)	Total	Time (hour)	Height (Cm)
Banjarbaru Utara	Mentaos	Settlements on Jl. Pinus Indah	Drainage Channel Too Small	1.23	33.11	±2	± 30
	Mentaos	Settlements on Jl. Mentaos Timur	River Water Runoff From River Channels	12.2		±2	±30-40
	Mentaos	Jl. Gotong Royong Gg. Al Husen	Road Topography and River Water Runoff	5.32		± 2	± 20-30
	Komet	Jl. A. Yani	Road Topography	0.55		2-3	± 30-40
	Loktabat Utara	Jl. Karang Anyar I	Blocked Drainage	1.02		±3	± 30-40
	Loktabat Utara	Jl. Kebun Karet	Road topography, river runoff, blocked drainage	12.8		2-3	±30-40

- Identification of Inundation and Flood Locations in Cempaka District

Based on the results of surveys and interviews, the location of inundation and flooding in Cempaka District can be identified. The following is a recap of the location, causes of flood inundation, area of inundation, duration of inundation and height of inundation in Cempaka district.

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Table 3.2 Recapitulation of Inundation and Flooding in Cempaka District (BAPPEDA, 2019)

District	Subdistrict	Location	Information	Area (Ha)	Total	Time (hour)	Height (Cm)
Cempaka	Cempaka	Settlements on Jl. H. Mistar Cokrokusumo	Increased river water discharge and regional topography	269.96	453.74	± 4	±30-40
	Bangkal	Settlements on Jl. H. Mistar Cokrokusumo	Rising water levels and high road topography	29.32		2-3	± 30
	Sungai Tiung	Settlements on Jl. H. Mistar Cokrokusumo	Increased river water discharge and regional topography	146.46		±4	±30-40
	Sungai Tiung	Settlements on Jl. H. Mistar Cokrokusumo	Increased river water discharge and regional topography	8.01		±4	±30-40

- Identification of Locations of Inundation and Flooding in Landasan Ulin District

Based on the results of surveys and interviews, the location of inundation and flooding in Landasan Ulin District can be identified. The following is a recap of the location, causes of flood inundation, area of inundation, duration of inundation and height of inundation in Landasan Ulin district.

Table 3. 3 Recapitulation of Inundation and Flooding in Landasan Ulin District (BAPPEDA, 2019)

District	Subdistrict	Location	Information	Area (Ha)	Total	Time (hour)	Height (Cm)
Landasan Ulin	Landasan Ulin Timur	Jl. A. Yani	Road Topography and River Water Runoff	5.65	39.64	2-3	± 30-40
	Landasan Ulin Timur	Settlements on Gg.Damai	Minor Drainage	4.24		± 2	± 20-30
	Landasan Ulin Timur	Jl. Trikora	Road Topography	0.64		±2	± 30
	Landasan Ulin Timur	Jl. Trikora	Road Topography and River Water Runoff	3.58		± 2	±30
	Landasan Ulin Timur	Jl. Karya Bhakti	Road Topography and River Water Runoff	0.69		± 2	±20-30
	Landasan Ulin Timur	Jl. A. Yani	Road Topography	0.85		±2	±30
	Guntung Manggis	Jl. A. Yani	Road Topography	0.3		± 2	±30
	Guntung Manggis	Jl. A. Yani	Road Topography	1.86		±2	± 30
	Guntung Payung	Jl. A. Yani	Road Topography	0.24		±2	± 30
	Guntung Payung	Jl. A. Yani	Road Topography	0.58		±2	± 30

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Syamsudin Noor	Settlements on Jl. Manggis	Minor Drainage	1.78		± 2	± 20-30
Syamsudin Noor	Jl. Golf	Road Topography and River Water Runoff	0.72		±2	± 30
Syamsudin Noor	Jl. A. Yani - Jl. Tonhar	Road Topography, Small Drainage, River Water Runoff	17.68		± 4	±30-50
Syamsudin Noor	Jl. A. Yani	Road Topography	0.82		± 2	±30

- Identify Locations of Inundation and Flooding in Liang Anggang District

Based on the results of surveys and interviews, the location of inundation and flooding in Liang Anggang District can be identified. The following is a recap of the location, causes of flood inundation, area of inundation, duration of inundation and height of inundation in Liang Anggang district.

Table 3. 4 Recapitulation of Inundation and Flooding in Liang Anggang District (BAPPEDA, 2019)

District	Subdistrict	Location	Information	Area (Ha)	Total	Time (hour)	Height (Cm)
Liang Anggang	Landasan Ulin Barat	Jl. Karya Indah	Road Topography	4.43	37.40	±2	±20-30
	Landasan Ulin Barat	Jl. Gubernur Soebardjo	Road Topography and River Water Runoff	10.04		±2	±20-30
	Landasan Ulin Utara	Jl. A. Yani - Jl. Golf	Road Topography and River Water Runoff	16.4		± 4	±30-40
	Landasan Ulin Tengah	Jl. A. Yani	Road Topography and River Water Runoff	6.43		±4	±30-40

Calculation of the Priority Scale for Handling Environmental Drainage in Banjarbaru City

- Alternative Condition Assessment

Assessment of alternative conditions is carried out according to observations in the field. The assessment is carried out based on criteria and sub-criteria which refer to Minister of Public Works Regulation number: 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems. The assessment of alternative conditions is calculated using the following equation formula:

For sub-criteria for inundation, use the formula:

$$NKA = \left(\frac{NP}{100}\right) \times \left(\frac{NSK}{100}\right) \times BK \quad (3.1)$$

For the sub-criteria of economic loss, social disruption and government facilities, transportation disruption loss, loss to residential areas, and loss of personal property rights, use the formula:

$$NKA = (NSK/100) \times BK \quad (3.2)$$

NKA : Alternative Condition Value
NP : Percentage Value
NSK : Sub Criteria Value
BK : Criteria Weight

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Table 2.5 Table of Weighting Calculation Results

No. Code	Total Weight						
	flooded area	Economic Losses	Social Disorders and Government Facilities	Transportation Disruption Losses	Losses in Residential Areas	Loss of Private Property Rights	Total Weight
A1	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A2	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A3	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A4	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A5	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A6	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A7	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A8	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A9	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A10	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A11	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A12	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A13	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A14	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A15	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A16	0.83	0.83	0.00	10.83	5.00	0.00	17.50
A17	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A18	0.83	0.83	0.83	10.83	0.83	0.00	14.17
A19	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A20	0.83	0.83	0.83	10.83	5.00	0.00	18.33
A21	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A22	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A23	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A24	0.83	5.00	5.00	5.00	0.83	0.00	16.67
A25	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A26	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A27	0.83	0.83	0.83	5.00	5.00	0.00	12.50
A28	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A29	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A30	0.83	10.83	10.83	16.67	10.83	0.00	50.00
A31	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A32	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A33	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A34	0.83	10.83	0.83	16.67	10.83	0.00	40.00

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No. Code	Total Weight						Total Weight
	flooded area	Economic Losses	Social Disorders and Government Facilities	Transportation Disruption Losses	Losses in Residential Areas	Loss of Private Property Rights	
A35	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A36	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A37	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A38	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A39	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A40	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A41	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A42	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A43	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A44	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A45	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A46	0.83	0.83	0.83	5.00	5.00	0.00	12.50
A47	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A48	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A49	0.83	0.83	0.83	10.83	5.00	0.00	18.33
A50	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A51	0.83	0.83	5.00	10.83	5.00	0.00	22.50
A52	0.83	10.83	0.83	5.00	5.00	0.00	22.50
A53	0.83	10.83	0.83	16.67	10.83	0.00	40.00
A54	0.83	10.83	0.83	10.83	5.00	0.00	28.33
A55	0.83	10.83	0.83	16.67	16.67	0.00	45.83
A56	10.83	10.83	0.83	16.67	10.83	0.83	50.83
A57	0.83	0.83	0.00	10.83	0.83	0.00	13.33

- Relative Value Weighting

Condition value weighting is obtained from the condition value of an alternative divided by the largest condition value. After getting the weight of the alternative condition values, it is necessary to convert them into relative values so that they can be used in the ANP method which will be input into the Super Decision software. The relative value is obtained using the equation:

$$\text{Relative Value} = \frac{NKA}{NBK} \text{ x NS} \quad (3.3)$$

NKA : Alternative Condition Value
NBK : Criteria Weight Value
NS : Highest comparison value in Super Decisions software

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Table 2.6 Table of Relative Value Conversion Results

No. Code	flooded area	Relative Value	Economic Losses	Relative Value	Social Disorders and Government Facilities	Relative Value	Transportation Disruption Losses	Relative Value	Losses in Residential Areas	Relative Value	Loss of Private Property Rights	Relative Value
A1	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A2	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A3	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A4	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A5	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A6	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A7	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A8	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A9	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A10	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A11	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A12	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A13	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A14	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A15	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A16	0.83	1.00	0.83	1.00	0.00	0.00	10.83	6.00	5.00	3.00	0.00	0.00
A17	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A18	0.83	1.00	0.83	1.00	0.83	1.00	10.83	6.00	0.83	1.00	0.00	0.00

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No. Code	floode d area	Relative Value	Economic Losses	Relative Value	Social Disorders and Government Facilities	Relative Value	Transportation Disruption Losses	Relative Value	Losses in Residen tial Areas	Relative Value	Loss of Private Property Rights	Relative Value
A19	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A20	0.83	1.00	0.83	1.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A21	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A22	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A23	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A24	0.83	1.00	5.00	3.00	5.00	3.00	5.00	3.00	0.83	1.00	0.00	0.00
A25	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A26	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A27	0.83	1.00	0.83	1.00	0.83	1.00	5.00	3.00	5.00	3.00	0.00	0.00
A28	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A29	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A30	0.83	1.00	10.83	6.00	10.83	6.00	16.67	9.00	10.83	6.00	0.00	0.00
A31	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A32	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A33	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A34	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A35	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A36	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A37	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A38	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A39	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00

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No. Code	floode d area	Relative Value	Economic Losses	Relative Value	Social Disorders and Government Facilities	Relative Value	Transportation Disruption Losses	Relative Value	Losses in Residential Areas	Relative Value	Loss of Private Property Rights	Relative Value
A41	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A42	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A43	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A44	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A45	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A46	0.83	1.00	0.83	1.00	0.83	1.00	5.00	3.00	5.00	3.00	0.00	0.00
A47	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A48	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A49	0.83	1.00	0.83	1.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A50	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A51	0.83	1.00	0.83	1.00	5.00	3.00	10.83	6.00	5.00	3.00	0.00	0.00
A52	0.83	1.00	10.83	6.00	0.83	1.00	5.00	3.00	5.00	3.00	0.00	0.00
A53	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.00	0.00
A54	0.83	1.00	10.83	6.00	0.83	1.00	10.83	6.00	5.00	3.00	0.00	0.00
A55	0.83	1.00	10.83	6.00	0.83	1.00	16.67	9.00	16.67	9.00	0.00	0.00
A56	10.83	6.00	10.83	6.00	0.83	1.00	16.67	9.00	10.83	6.00	0.83	1.00
A57	0.83	1.00	0.83	1.00	0.00	0.00	10.83	6.00	0.83	1.00	0.00	0.00

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Determining Priority Results

Determining priority results can be known after inputting the relative value of each criterion into the super decision software. The priority results obtained can be seen in the following figure

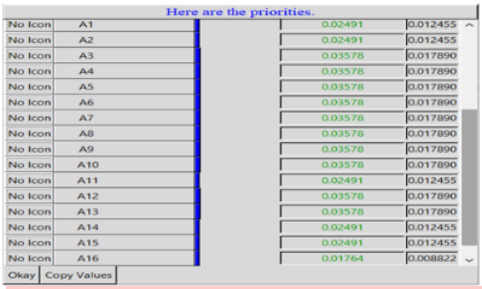

Figure 3.1 Priority Values for Landasan Ulin District

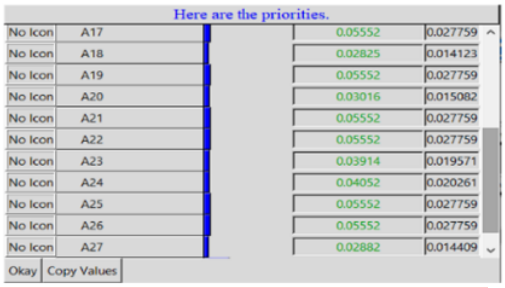

Figure 3.2 Priority Values of Liang Anggang District

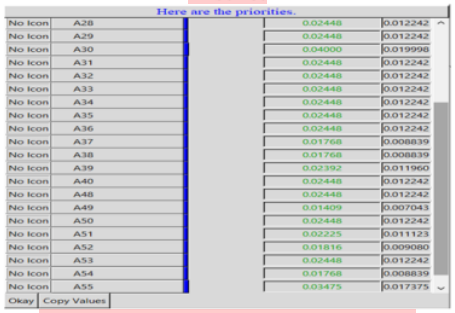

Figure 3.3 Priority Values for North Banjarbaru District

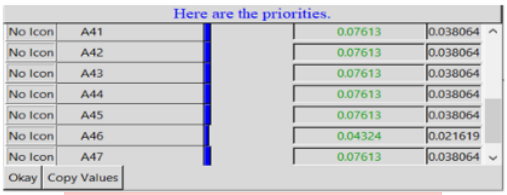

Figure 3.4 Priority Values for South Banjarbaru District

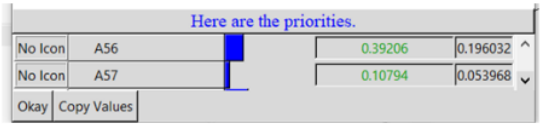

Figure 3.5 Cempaka District Priority Values

After carrying out an analysis using the ANP (Analytic Network Process) method with the help of super decision software, the priority locations for drainage channel improvements were obtained from highest to lowest in each sub-district, namely in Jl. Al Hidayah I RT. 08 RW. 02, Jl. Berlina Jaya I, Komplek Chandra Utama RT. 007 RW. 006, Komplek Angkasa Karina Resort Jl. Kurnia KM. 23 RT. 07 RW. 03, Jl. Sukamaju Komplek Citra Mandiri Permai 2 RT. 04 RW. 01, Komplek Wengga 4 RT. 04 RW. 05, Jalan Oxygen RT. 05 RW. 01, Jl. Asoka RT. 20 RW. 11, Komplek Aulia Raya Jl. Taruna Praja RT. 48 RW. 12, Jl. Puyau Kel. Sungai Besar, Jl. London, Jl. KP. Karindangan Komp. Halim Permai RT. 05 RW. 05, dan Komplek Graha Citra Megah Blok B dan C RT. 40 RW. 11.

Next, interviews were conducted with competent experts in their fields to provide suggestions and input on the research and analysis results. Interviews were conducted with several experts who are competent in their fields, namely:

1. Head of the Human Settlement Division, Banjarbaru City PUPR Service
2. Head of the Water Resources Division of the Banjarbaru City PUPR Service
3. Head of the Highways Division of the Banjarbaru City PUPR Service
4. Head of the Infrastructure and Regional Division of BAPPEDA Banjarbaru City

Based on the results of interviews with several experts who are competent in their fields, it can be concluded that:

- Before determining priorities for handling environmental drainage, an analysis of the proposed proposal is carried out which refers to the criteria based on Minister of Public Works Regulation 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems.
- Provide information and education to the proposer regarding the criteria for handling drainage in accordance with Minister of Public Works Regulation 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems.
- It is necessary to involve technical agencies where each proposal is expected to be problem-based in accordance with the 6 criteria in Minister of Public Works Regulation 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems.
- To be able to determine and develop more complex mitigation, even as a recommendation for determining priorities for handling environmental drainage.

4. CONCLUSIONS

The problem with drainage management priorities in Banjarbaru City is that until now the applicant is still proposing treatment locations not based on the priority scale regulated in the Public Works Ministerial Decree because there is no education or knowledge about the priority scale for handling environmental drainage.

The recommended ideal approach in determining the priority scale for handling environmental drainage in Banjarbaru City is to use criteria in accordance with Minister of Public Works Regulation 12/PRT/M/2014 concerning the Implementation of Urban Drainage Systems in the form of inundation criteria, economic loss criteria, social disturbance criteria and government facilities, criteria transportation disruption losses, criteria for losses in residential areas, and criteria for private property rights.

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