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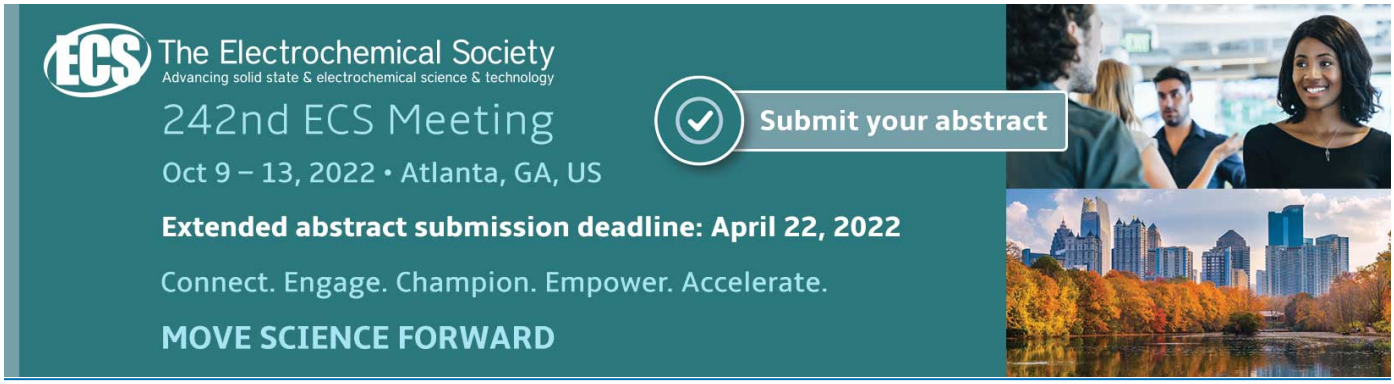

Priority Analysis of Regional Rehabilitation Activities Irrigation Way Apu System by using Simple Additive Weighting (SAW) Method

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Abstract: Currently, the facilities and infrastructure of the Way Apu System Irrigation Area have degraded in function, thus disrupting the level of agricultural productivity in Buru Regency. Therefore, to restore the function of irrigation infrastructure, it is necessary to carry out rehabilitation activities. Ideally, rehabilitation activities should be carried out comprehensively and simultaneously, but it is necessary to select priority activities due to budget constraints. Various methods can select activity priorities, but in this study, the simple additive weighting method is used, namely the method by finding the weighted summation of the performance ratings of each alternative on all attributes. This study showed that the activity that became the priority with a score of 0.707 was the rehabilitation of the Way Pamali weir. Meanwhile, other activities can be carried out according to the available budget.

1. Introduction

The need for food from time to time is increasing in line with the increasing population growth rate. In Maluku Province, Buru Regency is one of the centers for producing food crops with a harvested area of 13,111.04 Ha in 2020 with productivity of 38.57 tons/ha [1] In Buru Regency, there is an irrigation area with the central authority, namely the DI Way Apu system (Sub DI. Way Pamali, Way Leman, and Way Lo) with a total potential area of 4,174 ha and a functional area of 1,007 ha. The condition of irrigation infrastructure in the Way Apu DI system is currently experiencing degradation due to the age of the building and the high sedimentation in the Way Apu river; this causes a decrease in the performance of the irrigation network so that irrigation network rehabilitation is needed.Ideally, rehabilitation activities should be carried out comprehensively and simultaneously so that the irrigation system is maintained. However, in reality, the government budget is minimal, so it is necessary to select a priority scale for the items of rehabilitation work to be carried out.

To maintain the function of irrigation, it is necessary to carry out rehabilitation activities periodically. The practice in the field so far has distinguished light, moderate and severe rehabilitation. This rehabilitation classification is characterized by the level of technical difficulty, the scope of work, level of damage, and the number of rehabilitation costs.

Minor rehabilitation is carried out due to the accumulation of residual damage that cannot be repaired during annual maintenance; it used to be called special maintenance (special maintenance)

Rehabilitation is being carried out due to accumulated damage and neglect of OP activities over an intermediate period.

Heavy rehabilitation is usually carried out due to natural disasters and neglect of OP activities for an extended period, so irrigation performance falls below the economic performance limit. The experience so far is that several DI are rehabilitated once every 20 to 25 years.)[2]

1.1 Simple Additive Weighting Method

The SAW method is often also known as the weighted addition method. The basic concept of the SAW method is to find the weighted sum of the performance ratings on each alternative for all attributes.

The steps for modeling decision support using the SAW method)[2]and)[3] are as follows:

- Determining the criteria that will be used as a reference in decision-making is symbolized by Ci.
- Determine the suitability rating of each alternative on each criterion
- Make a decision matrix based on the criteria (Ci), then normalize the matrix based on the equations that are adjusted to the type of attribute in order to obtain a normalized matrix. The first step in the SAW method is to make a decision matrix for each alternative for each attribute of Cij
- $Cij = \begin{pmatrix} x_{11} & x_{12} & x_{13} \\ x_{21} & x_{22} & \ldots. \\ x_{31} & x_{23} & \ldots. \end{pmatrix}$
- Determine the weight value that shows the relative importance of each attribute (W$W = \{w_j, w_{j,}, \ldots \ldots . w_n\}$Perform normalizing the decision matrix (X) to a scale that can be compared with all existing alternative ratings. The normalized matrix R is obtained from the equation[4]

$$Rij = \frac{x_{ij}}{Max\ x_{ij}}$$ If j is a benefit attribute

$$Rij = \frac{x_{ij}}{Min\ x_{ij}}$$ If j is a cost attribute (cost)

The final result is obtained from the ranking process, namely the addition of the normalized matrix multiplication R with the weight vector so that the largest value is chosen as the best alternative (Ai) as the solution

$$A_i = \sum_{j=1}^{n} w_j r_{ij} \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots$$

2. Methods

This study begins with identifying problems, namely the decline in the function of irrigation facilities and infrastructure that requires rehabilitation activities. However, on the one hand, there are limited costs/budgets for next year.

Furthermore, a literature study and secondary data collection were carried out from previous studies.

After the data is collected, the weighting and priority scale calculations are carried out using the SAW method.

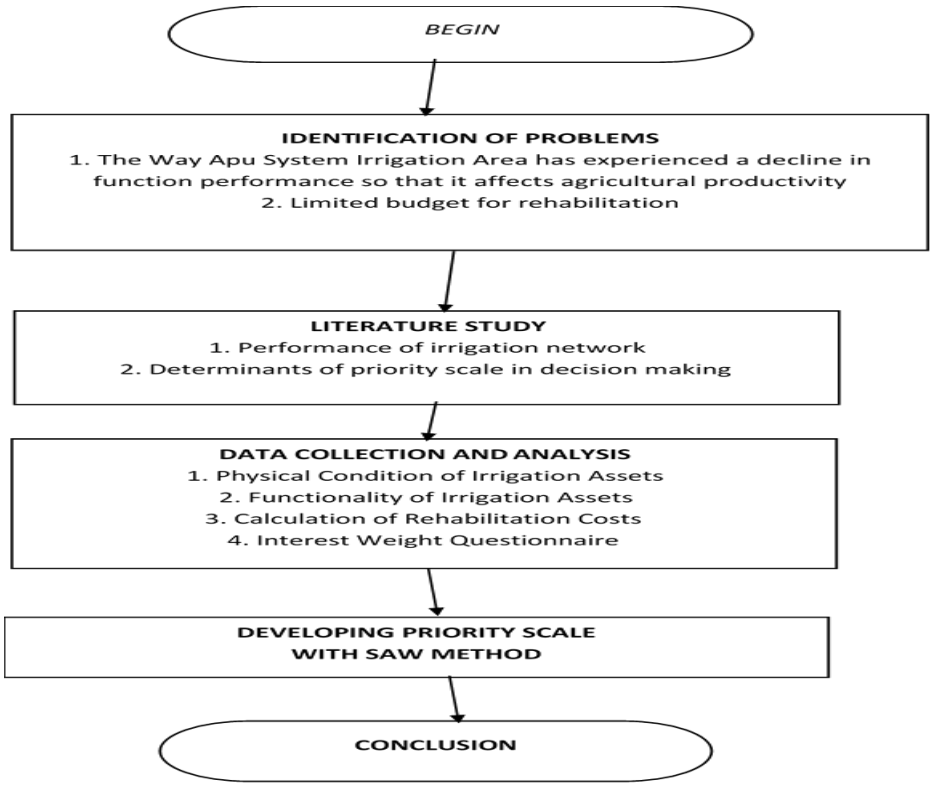

Figure 1. Study Thought

3. Results and discussions

3.1. Assessment of Network Performance Conditions and Rehabilitation Costs

Assessment of the physical condition of buildings or irrigation networks is obtained from visual observations by comparing the amount of damage to existing buildings.Meanwhile, the authority for irrigation management follows the existing regulations, namely for weirs up to primary canals, it is the authority of the River Basin Center, while the network. The secondary becomes the authority of the Provincial Government, and the Regency/City government carries out the tertiary network. Maluku BWS Program Planning. Because these rehabilitation activities aFor the calculation of the rehabilitation costs of each building obtained from the DED Study. The River Basin Center carried out upgrading and Rehabilitation of the Way Apu System by the PPK, so the priority distribution of authority was divided as follows:

Table 1. Priority Value of Authority

No	Authority	Priority Value
1	Center	3
2	Province	2
3	County/City	1

The values of performance, functionality, authority, and rehabilitation costs for each building are shown in Table 2

Table 2. Rehabilitation Costs and Performance Value of Irrigation Buildings IN Way API System

SUB DI	ACTIVITY	COST 1 $ = Rp14,250,00	PERFORMANCE	FUNCTIONALITY	AUTHORITY
SUB DI WAY PAMALI	WAY PAMALI MAIN CHANNEL NORMALIZATION WORK, L = 5.445 m	276,296.22	69%	64%	3
	LEFT APU WAY SECONDARY CHANNEL WORK, L = 6,338 m	321,609.81	89%	84%	2
	GRANDE SECONDARY CHANNEL WORK	56,781.54	95%	90%	2
	GRANDENG TERTIER CHANNEL WORK B.Gr.1 Ki 2, L = 74.30 m	3,770.21	95%	90%	1
	GRANDENG TERTIER CHANNEL WORK B.Gr.3 Ki 2. L = 93.30 m	3,770.21	95%	90%	1
	WAY APU SYSTEM SUPPLEMENT dam	3,028,784.70			3
	WAY PAMALI dam rehabilitation	270,759.37	89%	84%	3
	SADAP BUILDING REHABILITATION	32,275.97	84%	79%	1
	SUPPLEMENTARY BUILDING PLANNING	23,198.23	90%	85%	1
	TERRIER BOX BUILDING PLANNING	2,633.60	95%	90%	1
SUB DI WAY LEMAN	PULU SECONDARY CHANNEL WORK, L = 1,516 m	19,757.49	88%	83%	2
	PULU LEFT SECONDARY CHANNEL WORK, L = 1,669 m	21,751.48	88%	83%	2
	SECONDARY CHANNEL WORK Wp 3 Left, L = 1,578.60 m	20,573.33	89%	84%	2
	WAY TINA SECONDARY CHANNEL WORK, L = 7,881 m	102,710.26	90%	85%	2

SUB DI	ACTIVITY	COST 1 $ = Rp14,250,00	PERFORMANCE	FUNCTIONALITY	AUTHORITY
	WAY LEMAN RIGHT SECONDARY CHANNEL WORK L = 1.074 m	13,997.06	90%	85%	2
	Tertiary CHANNEL WORK Wp.3 LEFT, L = 521 m	6,790.01	85%	80%	1
	TERRIER CHANNEL WORK B.Wt.3, L = 246 m	3,206.03	85%	80%	1
	TERRIER CHANNEL WORK B.Wt.8, L = 794 m	10,347.92	87%	82%	1
	WAY LEMAN DAM REHABILITATION	582,303.24	80%	75%	3
	SADAP BUILDING REHABILITATION	29,401.41	89%	84%	1
	SUPPLEMENTARY BUILDING PLANNING	45,597.99	89%	84%	1
	TERRIER BOX BUILDING PLANNING	15,915.06	89%	84%	1
SUB DI WAY LO	PRIMARY CHANNEL NORMALIZATION WORK (MASTER CHANNEL WAY LO) L = 2670.00 m	68,652.69	75%	70%	3
	SECONDARY CHANNEL WORK WAY LO RIGHT L = 721 m	18,538.80	80%	75%	2
	SECONDARY CHANNEL WORK BASALALE L = 3347 m	86,060.14	83%	78%	1
	SECONDARY CHANNEL WORK WAY LO DOWN RIGHT L = 7153 m	183,922.36	85%	80%	1
	SECONDARY CHANNEL WORK WAY LO DOWN LEFT L = 1180 m	35,664.45	75%	70%	1
	SECONDARY CHANNEL WORKS WAY LO CENTRAL L = 6620 m	181,225.98	73%	68%	1
	SECONDARY CHANNEL WORK	77,215.00	80%	75%	1

SUB DI	ACTIVITY	COST 1 $ = Rp14,250,00	PERFORMANCE	FUNCTIONALITY	AUTHORITY
	WAY LO LEFT L = 3003 m				
	MASTER TERRIER CHANNEL WORK WAY LO B.Lo.2 L = 149 m	3,831.18	90%	85%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO BOTTOM RIGHT B.Lb.Ka.2b L = 42 m	1,079.93	92%	87%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.2 L = 163 m	4,191.16	92%	87%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.3a L = 20 m	514.25	91%	86%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.4 L = 275 m	7,070.97	95%	90%	1
	SECONDARY TERRIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.4 L = 462 m	11,879.23	92%	87%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.5 L = 437.20 m	11,241.56	92%	87%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.6 L = 698.6 m	17,962.84	90%	85%	1
	SECONDARY TERRIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.7 L = 307.80 m	7,914.34	90%	85%	1

SUB DI	ACTIVITY	COST 1 $ = Rp14,250,00	PERFORMANCE	FUNCTIONALITY	AUTHORITY
	SECONDARY TERRIER CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ka L = 120 m	3,085.51	91%	86%	1
	SECONDARY TERRIER CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ki L = 341 m	8,768.00	91%	86%	1
	WAY LO DAM REHABILITATION WORKS	134,875.40	80%	75%	3
	SADAP BUILDING REHABILITATION WORKS	58,056.04	90%	85%	1
	SUPPLEMENTARY BUILDING REHABILITATION WORK	43,324.31	92%	87%	1
	TERRIER BOX BUILDING REHABILITATION WORKS	4,325.10	92%	87%	1
		-			
	TOTAL	5,861,630.37			
	Maks	3,028,784.70	95%	90%	3
	Min	514.25			

Source: DED Upgrading and Rehabilitation DI Way Apu System

Determining the Weight of Interest

Determination of the importance of priority criteria for the rehabilitation of the Way Apu System irrigation area is preceded by mapping the selected expert respondents. Mapping respondents divided into 3 groups, namely:

1. Water User Farmers Association (P3A) (6 people)
2. Maluku BWS officials who are related to irrigation management, can also act as decision-makers (Head of Integration, Head of OP, PPK of Irrigation, PPK of Planning and Programs) (4 people)

The results of the questionnaire recapitulation obtained are shown in Table 3 below:

Table 3. Recapitulation of Interest Weight Questionnaire

No	Criteria	Very important	important	Quite important	Number of respondents
1	Physical Condition of Irrigation Assets	3	5	2	10
2	Functionality of irrigation assets	3	4	3	10
3	Irrigation Rehabilitation Cost	8	2		10
4	Authority	8	1	1	10

Analysis : 2021

From the data obtained above, then it is processed by multiplying each answer point with a weight determined by a Likert scale (Very Important; 3, Important; 2, Quite Important; 1), the results of calculating the respondents' answers are as follows:

Criteria for the physical condition of irrigation assets

a. Respondents answered very important (3) = 3 x 3 = 9
b. Respondents answered important (5) = 5 x 2 = 10
c. Respondents answered quite important = 2 x 1 = 2

Total Skor = 21

In the same way, each criterion will get a score and each score will be the weight of the assessment. The results of the score and the weight of each criterion can be seen in Table

Table 1. Total Score and Criteria Weight

Criteria	Score	Weight
Physical Condition of Irrigation Assets	21	22%
Functionality	20	21%
Rehabilitation Fee	28	29%
Authority	27	28%
Total Score	96	

The next step is to normalize the decision matrix (X) to a scale that can be compared with all alternative ratings, so that the normalized matrix data (R) is obtained as follows:

Table 2. Normalisation

SUB DI	ACTIVITY	Cost	Performance	Functionality	Authority
SUB DI WAY PAMALI	WAY PAMALI MAIN CHANNEL NORMALIZATION WORK, L = 5.445 m	0,0912	0,72	71%	1,00
	LEFT APU WAY SECONDARY CHANNEL WORK, L = 6,338 m	0,1062	0,94	94%	0,67
	GRANDENG SECONDARY CHANNEL WORK	0,0187	1,00	100%	0,67
	GRANDENG TERTIER CHANNEL WORK B.Gr.1 Ki 2, L = 74.30 m	0,0012	1,00	100%	0,33
	GRANDENG TERTIER CHANNEL WORK B.Gr.3 Ki 2. L = 93.30 m	0,0012	1,00	100%	0,33
	WAY APU SYSTEM SUPPLEMENT dam	1,0000	-	0%	1,00
	WAY PAMALI dam rehabilitation	0,0894	0,94	93%	1,00
	SADAP BUILDING REHABILITATION	0,0107	0,89	88%	0,33
	SUPPLEMENTARY BUILDING PLANNING	0,0077	0,94	94%	0,33
	TERTIER BOX BUILDING PLANNING	0,0009	1,00	100%	0,33
SUB DI WAY LEMAN	PULU SECONDARY CHANNEL WORK, L = 1,516 m	0,0065	0,93	92%	0,67

SUB DI	ACTIVITY	Cost	Performance	Functionality	Authority
	PULU LEFT SECONDARY CHANNEL WORK, L = 1,669 m	0,0072	0,93	92%	0,67
	SECONDARY CHANNEL WORK Wp 3 Left, L = 1,578.60 m	0,0068	0,94	93%	0,67
	WAY TINA SECONDARY CHANNEL WORK, L = 7,881 m	0,0339	0,95	94%	0,67
	WAY LEMAN RIGHT SECONDARY CHANNEL WORK L = 1.074 m	0,0046	0,95	94%	0,67
	Tertiary CHANNEL WORK Wp.3 LEFT, L = 521 m	0,0022	0,89	89%	0,33
	TERTIER CHANNEL WORK B.Wt.3, L = 246 m	0,0011	0,89	89%	0,33
	TERTIER CHANNEL WORK B.Wt.8, L = 794 m	0,0034	0,92	91%	0,33
	WAY LEMAN DAM REHABILITATION	0,1923	0,84	83%	1,00
	SADAP BUILDING REHABILITATION	0,0097	0,94	93%	0,33
	SUPPLEMENTARY BUILDING PLANNING	0,0151	0,94	93%	0,33
	TERTIER BOX BUILDING PLANNING	0,0053	0,94	93%	0,33
SUB DI WAY LO	PRIMARY CHANNEL NORMALIZATION WORK (MASTER CHANNEL WAY LO) L = 2670.00 m	0,0227	0,79	78%	1,00
	SECONDARY CHANNEL WORK WAY LO RIGHT L = 721 m	0,0061	0,84	83%	0,67
	SECONDARY CHANNEL WORK BASALALE L = 3347 m	0,0284	0,87	87%	0,33
	SECONDARY CHANNEL WORK WAY LO DOWN RIGHT L = 7153 m	0,0607	0,89	89%	0,33
	SECONDARY CHANNEL WORK WAY LO DOWN LEFT L = 1180 m	0,0118	0,79	78%	0,33
	SECONDARY CHANNEL WORKS WAY LO CENTRAL L = 6620 m	0,0598	0,77	76%	0,33
	SECONDARY CHANNEL WORK WAY LO LEFT L = 3003 m	0,0255	0,84	83%	0,33
	MASTER TERTIER CHANNEL WORK WAY LO B.Lo.2 L = 149 m	0,0013	0,95	94%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY	0,0004	0,97	97%	0,33

SUB DI	ACTIVITY	Cost	Performance	Functionality	Authority
	LO BOTTOM RIGHT B.Lb.Ka.2b L = 42 m				
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.2 L = 163 m	0,0014	0,97	97%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.3a L = 20 m	0,0002	0,96	96%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.4 L = 275 m	0,0023	1,00	100%	0,33
	SECONDARY TERTIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.4 L = 462 m	0,0039	0,97	97%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.5 L = 437.20 m	0,0037	0,97	97%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.6 L = 698.6 m	0,0059	0,95	94%	0,33
	SECONDARY TERTIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.7 L = 307.80 m	0,0026	0,95	94%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ka L = 120 m	0,0010	0,96	96%	0,33
	SECONDARY TERTIER CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ki L = 341 m	0,0029	0,96	96%	0,33
	WAY LO DAM REHABILITATION WORKS	0,0445	0,84	83%	1,00
	SADAP BUILDING REHABILITATION WORKS	0,0192	0,95	94%	0,33
	SUPPLEMENTARY BUILDING REHABILITATION WORK	0,0143	0,97	97%	0,33
	TERTIER BOX BUILDING REHABILITATION WORKS	0,0014	0,97	97%	0,33

The following process is to multiply the normalization matrix by the weight of each criterion as written in the formula below:

$$A_i = \sum_{j=1}^{n} w_j r_{ij} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots$$

The results of the calculation of priority for the rehabilitation of the way APU system irrigation area are shown in Table 6.

Table 3. Calculation of the Rehabilitation Priority Scale in the Way Apu System

SUB DI	ACTIVITY	R (B)	Cost Score	R(Kin)	Cost Score	R(Ke)	Cost Score	R(W)	Cost Score	Total Skor
		29%	R(b) x W (k)	22%	R(Kin) x W (k)	21%	R(Kin) x W (k)	28%	R(W) x W (k)	
SUB DI WAY PAMALI	WAY PAMALI MAIN CHANNEL NORMALIZATION WORK, L = 5.445 m	0,0912	0,0266	0,7228	0,1581	0,7074	0,1474	1,0000	0,2813	0,6133
	LEFT APU WAY SECONDARY CHANNEL WORK, L = 6,338 m	0,1062	0,0310	0,9389	0,2054	0,9356	0,1949	0,6667	0,1875	0,6188
	GRANDENG SECONDARY CHANNEL WORK	0,0187	0,0055	1,0000	0,2188	1,0000	0,2083	0,6667	0,1875	0,6201
	GRANDENG TERTIER CHANNEL WORK B.Gr.1 Ki 2, L = 74.30 m	0,0012	0,0004	1,0000	0,2188	1,0000	0,2083	0,3333	0,0938	0,5212
	GRANDENG TERTIER CHANNEL WORK B.Gr.3 Ki 2. L = 93.30 m	0,0012	0,0004	1,0000	0,2188	1,0000	0,2083	0,3333	0,0938	0,5212
	WAY APU SYSTEM SUPPLEMENT dam	1,0000	0,2917	0,0000	0,0000	0,0000	0,0000	1,0000	0,2813	0,5729
	REHABILITATION OF THE WAY APU SYSTEM SUPPLEMENT dam and the existing WAY APU dam	0,0894	0,0261	0,9368	0,2049	0,9333	0,1944	1,0000	0,2813	0,7067
	SADAP BUILDING REHABILITATION	0,0107	0,0031	0,8854	0,1937	0,8791	0,1831	0,3333	0,0938	0,4737
	SUPPLEMENTARY BUILDING PLANNING	0,0077	0,0022	0,9435	0,2064	0,9403	0,1959	0,3333	0,0938	0,4983
	TERTIER BOX BUILDING PLANNING	0,0009	0,0003	1,0000	0,2188	1,0000	0,2083	0,3333	0,0938	0,5211
SUB DI WAY LEMAN	PULU SECONDARY CHANNEL WORK, L = 1,516 m	0,0065	0,0019	0,9263	0,2026	0,9222	0,1921	0,6667	0,1875	0,5842
	PULU LEFT SECONDARY CHANNEL WORK, L = 1,669 m	0,0072	0,0021	0,9263	0,2026	0,9222	0,1921	0,6667	0,1875	0,5844
	SECONDARY CHANNEL WORK Wp 3 Left, L = 1,578.60 m	0,0068	0,0020	0,9368	0,2049	0,9333	0,1944	0,6667	0,1875	0,5889
	WAY TINA SECONDARY CHANNEL WORK, L = 7,881 m	0,0339	0,0099	0,9474	0,2072	0,9444	0,1968	0,6667	0,1875	0,6014
	WAY LEMAN RIGHT SECONDARY CHANNEL WORK L = 1.074 m	0,0046	0,0013	0,9474	0,2072	0,9444	0,1968	0,6667	0,1875	0,5928
	Tertiary CHANNEL WORK Wp.3 LEFT, L = 521 m	0,0022	0,0007	0,8947	0,1957	0,8889	0,1852	0,3333	0,0938	0,4753
	TERTIER CHANNEL WORK B.Wt.3, L = 246 m	0,0011	0,0003	0,8947	0,1957	0,8889	0,1852	0,3333	0,0938	0,4750
	TERTIER CHANNEL WORK B.Wt.8, L = 794 m	0,0034	0,0010	0,9158	0,2003	0,9111	0,1898	0,3333	0,0938	0,4849

SUB DI	ACTIVITY	R (B)	Cost Score	R(Kin)	Cost Score	R(Ke)	Cost Score	R(W)	Cost Score	Total Skor
	WAY LEMAN DAM REHABILITATION	0,1923	0,0561	0,8421	0,1842	0,8333	0,1736	1,0000	0,2813	0,6951
	SADAP BUILDING REHABILITATION	0,0097	0,0028	0,9368	0,2049	0,9333	0,1944	0,3333	0,0938	0,4960
	SUPPLEMENTARY BUILDING PLANNING	0,0151	0,0044	0,9368	0,2049	0,9333	0,1944	0,3333	0,0938	0,4975
	TERTIER BOX BUILDING PLANNING	0,0053	0,0015	0,9368	0,2049	0,9333	0,1944	0,3333	0,0938	0,4947
SUB DI WAY LO	PRIMARY CHANNEL NORMALIZATION WORK (MASTER CHANNEL WAY LO) L = 2670.00 m	0,0227	0,0066	0,7895	0,1727	0,7778	0,1620	1,0000	0,2813	0,6226
	SECONDARY CHANNEL WORK WAY LO RIGHT L = 721 m	0,0061	0,0018	0,8421	0,1842	0,8333	0,1736	0,6667	0,1875	0,5471
	SECONDARY CHANNEL WORK BASALALE L = 3347 m	0,0284	0,0083	0,8737	0,1911	0,8667	0,1806	0,3333	0,0938	0,4737
	SECONDARY CHANNEL WORK WAY LO DOWN RIGHT L = 7153 m	0,0607	0,0177	0,8947	0,1957	0,8889	0,1852	0,3333	0,0938	0,4924
	SECONDARY CHANNEL WORK WAY LO DOWN LEFT L = 1180 m	0,0118	0,0034	0,7895	0,1727	0,7778	0,1620	0,3333	0,0938	0,4319
	SECONDARY CHANNEL WORKS WAY LO CENTRAL L = 6620 m	0,0598	0,0175	0,7684	0,1681	0,7556	0,1574	0,3333	0,0938	0,4367
	SECONDARY CHANNEL WORK WAY LO LEFT L = 3003 m	0,0255	0,0074	0,8421	0,1842	0,8333	0,1736	0,3333	0,0938	0,4590
	MASTER TERTIER CHANNEL WORK WAY LO B.Lo.2 L = 149 m	0,0013	0,0004	0,9474	0,2072	0,9444	0,1968	0,3333	0,0938	0,4981
	SECONDARY TERTIER CHANNEL WORK WAY LO BOTTOM RIGHT B.Lb.Ka.2b L = 42 m	0,0004	0,0001	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5071
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.2 L = 163 m	0,0014	0,0004	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5074
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.3a L = 20 m	0,0002	0,0000	0,9579	0,2095	0,9556	0,1991	0,3333	0,0938	0,5024
	SECONDARY TERTIER CHANNEL WORK WAY LO DOWN LEFT B.Lb.Ki.4 L = 275 m	0,0023	0,0007	1,0000	0,2188	1,0000	0,2083	0,3333	0,0938	0,5215
	SECONDARY TERTIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.4 L = 462 m	0,0039	0,0011	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5081
	SECONDARY TERTIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.5 L = 437.20 m	0,0037	0,0011	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5081
	SECONDARY TERTIER CHANNEL WORK WAY LO CENTRAL B.Lo.Tg.6 L = 698.6 m	0,0059	0,0017	0,9474	0,2072	0,9444	0,1968	0,3333	0,0938	0,4995
	SECONDARY TERTIER CHANNEL WORKS WAY LO CENTRAL B.Lo.Tg.7 L = 307.80 m	0,0026	0,0008	0,9474	0,2072	0,9444	0,1968	0,3333	0,0938	0,4985
	SECONDARY TERTIER	0,0010	0,0003	0,9579	0,2095	0,9556	0,1991	0,3333	0,0938	0,5027

SUB DI	ACTIVITY	R (B)	Cost Score	R(Kin)	Cost Score	R(Ke)	Cost Score	R(W)	Cost Score	Total Skor
	CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ka L = 120 m									
	SECONDARY TERTIER CHANNEL WORK WAY LO LEFT B.Lo.Ki.9Ki L = 341 m	0,0029	0,0008	0,9579	0,2095	0,9556	0,1991	0,3333	0,0938	0,5032
	WAY LO DAM REHABILITATION WORKS	0,0445	0,0130	0,8421	0,1842	0,8333	0,1736	1,0000	0,2813	0,6521
	SADAP BUILDING REHABILITATION WORKS	0,0192	0,0056	0,9474	0,2072	0,9444	0,1968	0,3333	0,0938	0,5033
	SUPPLEMENTARY BUILDING REHABILITATION WORK	0,0143	0,0042	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5112
	PEKERJAAN REHABILITASI BANGUNAN BOX TERSIER	0,0014	0,0004	0,9684	0,2118	0,9667	0,2014	0,3333	0,0938	0,5074

4. Conclusion

Based on the calculation of the priority scale using the SAW method and the availability of the budget in 2022, which is $ 1,754,385.96 ., - then the activities that may be prioritized for rehabilitation that can be carried out are

ACTIVITY	Total Score	Cost 1$ = 14,250.0
WAY PAMALI dam rehabilitation	0,707	270.76
WAY LEMAN DAM REHABILITATION	0,695	582.30
Way Lo . Weir Rehabilitation Work	0,652	134.88
PRIMARY CHANNEL NORMALIZATION WORK (MASTER CHANNEL WAY LO) L = 2670.00 m	0,623	68.65
GRANDENG SECONDARY CHANNEL WORK	0,620	56.78
LEFT APU WAY SECONDARY CHANNEL WORK, L = 6,338 m	0,619	321.61
WAY PAMALI MAIN CHANNEL NORMALIZATION WORK, L = 5.445 m	0,613	276.30
WAY TINA SECONDARY CHANNEL WORK, L = 7,881 m	0,601	102.71

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