

IDENTIFICATION OF INFRASTRUCTURE AVAILABILITY FOR ECO-FRIENDLY SCHOOLS : EMPRICAL EVIDENCE FROM SOUTH MANOKWARI, WEST PAPUA, INDONESIA

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ABSTRACT

The availability of infrastructure is very important to support learning activities, improve school quality, and achieve school goals. The research aims to identify school infrastructure facilities in 6 districts in South Manokwari Regency. As respondents are students from elementary (grades 4, 5, and 6), junior high, and senior high school, as well as school' teachers and principals. Student samples were determined by the Slovin formula, while school' teachers and principals samples were determined purposively. Data was collected based on answers from questionnaires assessed using the Likert scale. Thirty-one questionnaires were made in accordance with the Eco-friendly Guidelines for Environmental Care and Culture Schools. The results showed that the infrastructure and educational facilities availability index (IEFI) from schools in South Manokwari is still in the Moderately Available and Available categories. In conclusion; schools in South Manokwari still require a lot of improvement in environmentally friendly infrastructure to form an eco-friendly school.

Keywords: South Manokwari, Eco-friendly School, Ief Index, Junior High School.

1. INTRODUCTION

To create an environment that is free of pollution, healthy, and beautiful in Indonesia, in general, and West Papua in particular, calls for more love for the environment have been intensified. Environmental pollution can hurt survival and the surrounding environment, including reducing oxygen and water sources (Oskamp, 2000). Actions for the love of the environment, such as; invites to dispose of trash in its place, dispose of waste according to its origin, planting trees, or slogans for loving the environment, such as; My sky is blue, My earth is green, the environment is clean, life is healthy, let's save our earth; never stop to be conveyed to the community. Through the education sector, the government, in this case, the Ministry of Environment, has been working with the Ministry of National Education since 1996 to try implementing a learning program about the environment known as the Adiwiyata Program or Eco-friendly school program even though it was officially launched only in 2006. The Adiwiyata Award is given to schools that have successfully implemented the environmental care movement or known as the CCES movement (Caring and Cultured Environment in Schools). The environmental care movement is considered very important to be introduced to children from an early age (Afandi, 2013; Muslicha, 2015; Rezkita and Wardani, 2018).

West Papua Province, especially South Manokwari Regency, is not left behind in this regard. South Manokwari Regency is one of the regencies in West Papua Province which was formed on November 17, 2012, through Law Number 23 of 2012. The area of South Manokwari Regency is 2,789.12 km² with geographical boundaries as follows: to the west by Arfak mountains and Teluk Bintuni Regencies, to the north by Manokwari Regency, to the east by Teluk Wondama Regency and to the south it is bordered by Teluk Bintuni Regency and Teluk Wondama (BPS Kabupaten Manokwari Selatan, 2019). South Manokwari Regency consists of 6 (six) districts namely Tahota, Dataran Isim, Neney, Momiwaren, Ransiki, and Oransbari District. An environmental movement or action in South Manokwari Regency through the formation of an eco-friendly school has been tried in 2017, but unsuccessful. The failure to implement the eco-friendly school was partly due to the lack of elements or criteria required as a condition for forming an eco-friendly school.

In implementing the eco-friendly school program or Adiwiyata program in according to the Regulation of the Minister of Environment of the Republic of Indonesia Number 05 of 2013, four main criteria are required, namely school policy, curriculum, school activities, and infrastructure that supports the implementation of environmentally friendly schools (Pradini *et al.*, 2018; Nuzulia *et al.*, 2019). Among these main criteria, infrastructure related to the environment occupies the highest percentage. Without infrastructure support, the basic principles of the eco-friendly school program will not be achieved and the implementation of it will not run smoothly (Putri and Sulasminten, 2014). Other criteria can be completed after the infrastructure that supports environmentally friendly programs is met. Infrastructure facilities must be available, managed and utilized properly to support learning activities and improve school quality (Fadila *et al.*, 2020), as well as to achieve school goals (Rohmawati, 2015; Fadila *et al.*, 2020). Therefore this study aimed to identify the availability of infrastructure in all schools in South Manokwari Regency as one of the eligibility prerequisites for becoming an Eco-friendly or Adiwiyata School.

2. RESEARCH METHOD AND MATERIAL

The object of this research is all schools in South Manokwari Regency starting from Elementary Schools, Junior High Schools, and Senior High Schools. Students from elementary schools are limited to grades 4, 5, and 6. The total schools involved were 28 (twenty-eight) elementary schools (ES), 11 (eleven) junior high schools (JHS), and 7 (seven) senior high schools (SHS) spread across 6 (six) districts in South Manokwari Regency. The name of the district and details of the number of schools involved in this study were, Table 1 shows the data.

Table 1. Name of District and Number of Schools

District Name	Elementary School	Junior High School	Senior High School
Tahota district	1 ES	0 JHS	0 SHS
Dataran Isim district	1 ES	1 JHS	1 SHS
Neney district	4 ES	2 JHS	1 SHS
Momiwaren district	6 ES	3 JHS	2 SHS
Ransiki district	8 ES	3 JHS	2 SHS
Oransbari district	8 ES	2 JHS	1 SHS

The method used in this study was the interview method assisted by questionnaires and direct observation. The main respondents in this study were school students, teachers, and school principals. The sampling technique for teachers and principals is a purposive sampling technique, while proportionate random sampling was used to determine students who were used as samples based on the Slovin formula (Sugiyono, 2017) as follows:

$$N = \frac{N_i}{N} (d^2 + 1)$$

where,

n= sample total

N_i= total of student on i (i= school in each district)

N= student population

d= 0,05

There are 31 (thirty-one) questionnaires made concerning environmentally friendly school infrastructure and educational facilities. Questions consisted of to 2 major components in accordance with the Eco-friendly or Adiwiyata Guidelines for Environmental Care and Culture Schools on the management of environmentally friendly supporting facilities (Tim Adiwiyata Tingkat Nasional, 2011), namely:

Part One : Availability of environmentally friendly supporting infrastructure.

This component is divided into 2 sub-components, namely:

1. Availability of infrastructure to overcome environmental problems in schools. Included in this infrastructure by Permendiknas no. 24 of 2017, among others; are clean water, garbage bins, composters, drainage, green open spaces, and toilets.
2. Availability of infrastructure to support environment learning. Included in this component among others; are school garden, composting, “toga” gardens, fish pond, biogas making, infiltration wells, and protection parks (Setyobudi and Saliman, 2018, Nivitantia, 2016).

Part Two: Improving the quality of management and utilization of environmentally friendly infrastructure.

This component is divided into 4 sub-components, namely:

1. Maintaining environmentally friendly school infrastructure. Included in this component are; the total number of student in a class, availability of window in a class, shade trees, and paving blocks.
2. Improve the management and maintenance of school sanitation facilities. These sub-components include, among others; there are personnel responsible for the use of infrastructure, there are rules for the use of infrastructure, there is a picket list for the maintenance of infrastructure.
3. Utilize electricity, water, and official stationery efficiently. Included in this sub-component are; electricity, efficient use of lamps, official stationery, and saving water use.
4. Improve the quality of healthy and environmentally friendly canteen services. These sub-components include; canteen availability, healthy food, no expired date of goods, and environmentally friendly food packaging.

The questionnaires were filled out using a Likert scale with a positive question form, where 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree. The number of respondents on each Likert score will be calculated and then summed up. The maximum score is obtained by multiplying the number of respondents times the highest Likert score (Pranatawijaya *et al.*, 2019).

Maximum value= Maximum score x Total of respondent sample x Total of questionnaire

The Infrastructure and Educational Facilities (IEF) Index (%) is obtained by dividing the total Likert score in each school by its maximum value multiplied by 100 or by the following formula:

The IEF Index (%) = (total score of likert scale/maximum value) x 100

The IEF index was divided into 4 categories based on maximum and minimum value as follow:

- Very available (VA) : >80%
- Available (A) : >60-80%
- Moderately Available (MA) : >40-60%
- Less Available (LA) : ≤40%

Before the questionnaires were used, the questionnaires were tested for validity and reliability. In testing the validity and reliability of the questionnaire, 378 (three hundred and seventy-eight) respondents were involved, including elementary, junior, and high school students, school teachers and school principals. We used the SPSS 16.0 (2007) to test the reliability and validity of the data. The results are considered valid if r_{xy} (r count) > r table. The results of the reliability and validity of the questionnaire are listed in Table 2.

Table 2. The results of the reliability and validity of the questionnaires of school infrastructure

Questionnaire	r_{xy}	r table, 5% (N=378)	Status
1	0.497	0.101	valid
2	0.287	0.101	valid
3	0.538	0.101	valid
4	0.398	0.101	valid
5	0.549	0.101	valid
6	0.477	0.101	valid
7	0.429	0.101	valid
8	0.490	0.101	valid
9	0.403	0.101	valid
10	0.374	0.101	valid
11	0.389	0.101	valid
12	0.525	0.101	valid
13	0.494	0.101	valid
14	0.491	0.101	valid
15	0.376	0.101	valid

16	0.548	0.101	valid
17	0.256	0.101	valid
18	0.269	0.101	valid
19	0.395	0.101	valid
20	0.434	0.101	valid
21	0.482	0.101	valid
22	0.396	0.101	valid
23	0.595	0.101	valid
24	0.651	0.101	valid
25	0.560	0.101	valid
26	0.505	0.101	valid
27	0.596	0.101	valid
28	0.441	0.101	valid
29	0.431	0.101	valid
30	0.334	0.101	valid
31	0.338	0.101	valid

Primary Data Processed, 2023

3. RESULTS AND DISCUSSIONS

Result

The total of elementary schools in South Manokwari Regency is 28 schools which are located in 6 districts. Oransbari district has 8 elementary schools, Ransiki has 8 elementary schools, Momiwaren has 6 elementary schools, Neney district has 4 elementary schools, and Tahota and Dataran Isim districts have only 1 schools, respectively. The percentage of infrastructure and educational facilities index (IEFI) from those elementary schools is presented in Table 3.

Table 3. The Percentage of The Infrastructure and Educational Facilities Index (IEFI) of All Elementary Schools in South Manokwari

No.	District	Name of Elementary School	Student	School Teacher	School Principal	Average Index	IEFI Category*	
			(%)					
I	1	Oransbari	Inpres 54 Oransbari	59.59	58.89	49.97	56.15	MA
	2	Oransbari	Inpres 71 Watariri	58.07	60.92	67.50	62.16	A
	3	Oransbari	Inpres 87 Masabui	61.23	37.73	59.97	52.98	MA
	4	Oransbari	YPK 12 Ora et Labora	59.35	59.03	66.11	61,50	A
	5	Oransbari	Inpres 08	63.45	59.70	60.39	61.18	A
	6	Oransbari	Inpres 09	61.28	60.51	66.42	62.74	A
	7	Oransbari	Inpres 11	59.22	59.01	62.19	60.14	A

	8	Oransbari	Inpres Wandoki	111	58.33	61.16	64.92	61.47	A
							average	59.79	MA
II	1	Ransiki	Inpres Nuhuwey	17	59.17	60.42	58.86	59.48	MA
	2	Ransiki	Inpres 30		61.34	58.90	53.17	57.80	MA
	3	Ransiki	Inpres 37		59.69	59.53	62.14	60.45	A
	4	Ransiki	Inpres Yamboi	38	59.19	57.96	63.78	60.31	A
	5	Ransiki	Inpres Sabri	51	60.30	60.13	50.06	56.83	MA
	6	Ransiki	Inpres Susmuruf	117	58.57	54.60	55.97	56.38	MA
	7	Ransiki	YPK 03		59.45	61.11	72.06	64.21	A
	8	Ransiki	YPPGI Tobouw		60.55	53.88	60.83	58.42	MA
							average	59.24	MA
III	1	Momiwaren	Inpres Dembek	2	59.34	60.51	59.33	59.73	MA
	2	Momiwaren	Inpres Gaya Baru	62	60.62	58.11	65.61	61.45	A
	3	Momiwaren	Inpres Siwi	74	60.08	61.47	56.56	59.37	MA
	4	Momiwaren	Inpres Mawi	88	58.23	59.94	53.03	57.07	MA
	5	Momiwaren	Inpres NIJS		57.87	62.36	59.94	60.06	A
	6	Momiwaren	YPK Imanuel	22	59.39	58.04	60.00	59.14	MA
							average	59.47	MA
IV	1	Neney	Pers. Aryawen Moho		56.18	51.25	30.00	45.81	MA
	2	Neney	Persiapan Menyohu		56.25	44.17	45.00	48.47	MA
	3	Neney	YPPGI		55.04	40.00	50.00	48.35	MA
	4	Neney	YPPGI Benyas		53.87	35.83	55.00	48.23	MA
							average	47.72	MA
V	1	Tahota	Inpres 119		54.96	58.17	58.00	57.04	MA
VI	1	Dataran Isim	Inpres 24		55.65	51.30	54.67	53.87	MA

*IEFI category: VA: Very Available (>80-100%), A: Available (>60-80%), MA: Moderately Available (>40-60%), LA: Less Available (<40%)

Table 3 shows that eleven (11) out of 28 elementary schools in South Manokwari or 39% elementary schools concerning environmentally friendly school infrastructure were categorized as having Available of IEFI, and seventeen (17) schools or 60.71% were categorized as having Moderately Available of IEFI, none of schools was categorized as Very Available or Less Available of IEFI. Based on the district, the availability of infrastructure and educational facilities in all elementary schools in South Manokwari was still in Moderately Available categories.

To support the implementation of learning, in addition to requiring professional educators, adequate infrastructure and educational facilities are needed. The role of infrastructure and educational facilities is very important in facilitating the implementation of the learning process and influencing student learning outcomes (Putri and Sulasminten, 2014). Although the results of infrastructure and educational facilities concerning the requirement of eco-friendly schools have not yet been in the Very Available category, the fact that none of the schools was categorized as Less Available indicated that the elementary schools in South Manokwari were progressing positively toward the eco-friendly schools. Among the schools, the IEF index of Availability ranged from 60.06 to 64.21%, whereas the IEF index of Moderately Available ranged from 45.81 to 59.73%. The elementary schools whose infrastructure index was included in the three highest scores were found at YPK 03 Ransiki (64.21%), Inpres 09 Oransbari (62.74%), and Inpres 71 Watariri Oransbari (62.16%), while the three lowest scores were found at Pers. Aryawen Moho Neney (45.81%), YPPGI Benyas Neney (48.23%), and YPPGI Neney (48.35%).

To look deeper into infrastructure and educational facilities that need improvement, the author tries to further examine the value per component. The percentage result of infrastructure components availability in efforts to establish eco-friendly schools is presented in Table 3a.

Table 3a. The Availability of Elementary School Infrastructure Components of Each District in South Manokwari Concerning Eco-friendly Schools Requirement

No.	District	Respondent	A		B			
			1	2	1	2	3	4
			(%)					
I	Oransbari	Student	61.05	60.33	59.14	58.85	60.74	60.32
		School Teacher	58.32	58.39	58.56	57.46	55.53	54.47
		School Principal	60.31	52.50	64.38	61.67	65.50	68.75
		Average	59.89	57.07	60.69	59.33	60.59	61.18
II	Ransiki	Student	60.17	60.85	56.66	60.76	60.32	59.61
		School Teacher	60.66	59.86	51.32	60.46	58.39	59.21
		School Principal	60.94	59.17	51.88	59.17	66.50	60.00
		Average	60.59	59.96	53.29	60.13	61.74	59.61
III	Momiwaren	Student	58.76	59.82	54.56	60.39	61.62	60.42
		School Teacher	60.84	59.78	55.48	60.54	62.96	60.83
		School Principal	55.42	63.89	57.50	62.22	58.67	58.33
		Average	58.34	61.16	55.85	61.05	61.08	59.86
IV	Neney	Student	60.68	61.04	53.23	59.64	59.15	55.34
		School Teacher	61.98	59.43	54.01	62.99	58.75	56.43
		School Principal	53.75	45.84	61.25	65.00	65.00	56.25
		Average	58.80	55.44	56.16	62.54	60.97	56.01

No.	District	Respondent	A		B			
			1	2	1	2	3	4
			(%)					
V	Tahota	Student	57.65	61.96	50.29	62.16	59.76	37.94
		School Teacher	56.25	64.17	62.50	53.33	51.00	43.75
		School Principal	52.50	63.33	70.00	53.33	44.00	50.00
		Average	56.30	55.38	60.93	56.27	52.59	43.90
VI	Dataran Isim	Student	59.36	59.44	54.85	61.01	60.12	39.09
		School Teacher	57.92	57.78	54.17	51.11	49.33	37.50
		School Principal	55.00	40.00	65.00	60.00	64.00	40.00
		Average	57.43	52.41	58.01	57.37	57.82	38.86
Average in South Manokwari			58.56	56.90	57.49	59.44	59.13	53.24

A: The availability of environmentally friendly supporting infrastructure consists of A1: Availability of infrastructure to overcome environment problems in schools, A2: Availability of infrastructure to support environment learning, B: Improving the quality of management and utilization of environmentally friendly infrastructure consists of: B1: maintaining environmentally friendly school infrastructure, B2: improving the management and maintenance of school sanitation facilities, B3: utilizing electricity, water and office stationery efficiently, B4: improve the quality of healthy and environmentally friendly canteen services.

Table 3a shows that infrastructure components in elementary schools in Oransbari District that still needed improvement were: 1) A1 component, related to the availability of infrastructure to overcome environment problems in schools with a percentage of 59.89%, 2) A2 component, the availability of infrastructure to support environment learning with the percentage of 57.07%, and 3) B2 component, the availability of infrastructure to support environment learning with the percentage of 59.33%. In Ransiki District, the weakness of infrastructure facilities lied in A2, B1 and B4 components. Elementary schools in the Ransiki district have only implemented the requirement for the A2 component by 59.96%, for the B1 component related to maintaining environmentally friendly school infrastructure by 53.29%, and for the B4 component related to efforts to improve the quality of healthy and environmentally friendly canteen services by 59.61%.

Momiwaren District still had weaknesses in A1, B1 and B4 components. Elementary schools in the Momiwaren district have implemented the A1 component by 58.34%, the B1 component by 55.85%, and the B4 component by 59.86%. In Neney District, almost all of the infrastructure components to form an eco-friendly school still needed improvement, they were A1, A2, B1, and B4 components. The implementation of A1, A2, B1 and B4 components in elementary schools in Neney district was 58.80%, 54.44%, 56.16%, and 56.01%, respectively. In Tahota District, except for the B1 component, other components still needed improvement. The A1 component had only implemented by 56.30%, the A2 component by 55.38%, the B2 component by 56.27%, the B3 component by 52.59%, and the B4 component by 43.90%. Although almost all of the elementary school infrastructure components in Tahota needed to be improved to form an eco-friendly school, the improvement might be focused more on the B4 component since the percentage of the B4 component was below 50%.

The infrastructure in Dataran Isim District needed an improvement in all components. Regarding the requirements of component A1 has only reached 57.43%, component A2 has only reached 52.41%, component B1 has only reached 58.01%, component B2 has only reached 57.37%, component B3 has only reached 57.82% and component B4 has only reached 38.86%. Dataran Isim district also needed to focus more on improving the B4 component since the percentage was below 50%. Overall, the infrastructure of elementary schools in South Manokwari still needed improvement since the A1 component had only implemented by 58.56%, the A2 component by 56.90%, the B1 component by 57.49%, the B2 component by 59.44%, the B3 component by 59.13%, and the B4 component had only implemented by 53.24%.

As for junior high schools in South Manokwari Regency, there are 11 (eleven) schools which are located in 5 districts, namely; Oransbari, Ransiki, Momiwaren, Neney, and Dataran Isim Districts. There is no junior high school in Tahota District. The Infrastructure and Educational Facilities index from all junior high schools in South Manokwari is presented in Table 4.

Table 4. Infrastructure and Educational Facilities Index of All Junior High Schools in South Manokwari

No.	District	Name of JHS	Student	School Teachers	School Principal	Average	IEFI Category*	
						Index (%)		
I	1	Oransbari	Yapis Oransbari	60.26	58.37	58.92	59.18	MA
	2	Oransbari	Negeri 6	62.34	58.26	77.14	65.91	A
						average	62.55	A
II	1	Ransiki	Negeri Ransiki	64.20	61.01	56.14	60.45	A
	2	Ransiki	YPK Lacharoi	60.61	59.69	60.33	60.21	A
	3	Ransiki	YPPGI Tobou	58.96	55.69	61.83	58.83	MA
					average	59.83	MA	
III	1	Momiwaren	Negeri Momiwaren	59.31	64.15	61.25	61.57	A
	2	Momiwaren	Kristen Syalom Terpadu	58.83	59.38	57.50	58.57	MA
	3	Momiwaren	Satap Mawi	60.09	62.93	59.83	60.95	A
					average	60.36	A	
IV	1	Neney	YPPGI Nenei	56.17	50.57	53.86	53.53	MA
	2	Neney	YPPGI Hamor	54.59	53.33	51.97	53.30	MA
					average	56.35	MA	
V	1	Dataran Isim	Negeri 24	53.26	56.47	52.72	54.15	MA

*IEFI category: VA: Very Available (>80-100%), A: Available (>60-80%), MA: Moderately Available (>40-60%), LA: Less Available (<40%)

Table 4 showed that five (5) out of 11 junior high schools in South Manokwari concerning environmentally friendly school were categorized as having Available of IEFI, whereas six (6) schools were categorized as having Moderately Available of IEFI. The five junior high schools in South Manokwari where the IEF index were categorized as Available were a junior high school of Negeri 6 Oransbari, IEF index 65.91%, junior high school of Negeri Ransiki, IEF index of 60.45%, junior high school of YPK Lacharoi Ransiki, IEF index of 60.21, junior high school of Negeri Momiwaren, IEF index of 61.57%, and junior high school of Satap Mawi Momiwaren, IEF index of 60.95%. Based on the district, the availability of infrastructure and educational facilities in Oransbari and Momiwaren had been categorized as Available, whereas Ransiki, Neney and Dataran Isin were in the category of Moderately Available. The percentage of infrastructure components in junior high schools related to the environment in efforts to establish eco-friendly school is presented in Table 4a.

Table 4a. The Average of Availability of Junior High School Infrastructure Components of Each District in South Manokwari Concerning Eco-friendly Schools Requirement

No.	District	Respondent	A		B			
			1	2	1	2	3	4
			(%)					
I	Oransbari	Student	60.81	60.07	64.36	60.06	62.68	59.82
		School Teacher	59.55	61.71	54.86	63.65	53.04	57.08
		School Principal	55.00	73.33	67.50	73.34	74.00	65.00
		Average	58.45	65.04	62.23	65.68	63.24	60.63
II	Ransiki	Student	64.35	60.01	60.22	59.30	65.75	57.91
		School Teacher	59.44	56.25	61.09	60.02	58.74	57.23
		School Principal	55.83	48.89	50.00	68.89	61.33	71.67
		Average	59.87	55.05	57.10	62.74	61.94	62.27
III	Momiwaren	Student	60.05	59.81	54.78	61.30	59.96	60.57
		School Teacher	60.58	62.42	63.03	63.11	62.97	60.82
		School Principal	57.50	62.22	58.33	71.11	61.33	66.67
		Average	59.38	61.48	58.71	65.17	61.42	62.69
IV	Neney	Student	57.09	61.26	53.70	60.94	62.14	37.16
		School Teacher	49.38	56.02	53.75	51.48	58.56	39.86
		School Principal	55.00	56.67	52.50	43.34	60.00	50.00
		Average	53.82	57.98	53.32	51.92	60.23	42.34
V	Dataran Isim	Student	48.00	56.05	52.41	61.48	57.78	43.70
		School Teacher	59.50	61.33	62.00	60.00	52.00	44.00
		School Principal	55.00	53.33	40.00	60.00	60.00	55.00
		Average	54.17	56.90	51.47	60.49	56.59	47.57
Average in South Manokwari			57.14	59.29	56.57	61.20	60.68	55.10

A: The availability of environmentally friendly supporting infrastructure consists of A1: Availability of infrastructure to overcome environment problems in schools, A2: Availability of infrastructure to support environment learning, B: Improving the quality of management and utilization of environmentally friendly infrastructure consists of: B1: maintaining environmentally friendly school infrastructure, B2: improving the management and maintenance of school sanitation facilities, B3: utilizing electricity, water and office stationery efficiently, B4: improve the quality of healthy and environmentally friendly canteen services.

Table 4a shows that in Oransbari District the infrastructure that still needed improvement was the A1 component. In Ransiki District, the weakness of infrastructure facilities lay in A1, A2, and B1 components. Momiwaren District still had weaknesses in A1 and B1 components. In Neney District, infrastructure components that need attention were almost all components except the B3 component. The infrastructure in Dataran Isim District that needs an improvement were also almost all component except the B2 component. Junior high schools in Neney and Dataran Isim Districts had the lowest score on B4 components with the percentage availability below 50%. This indicated that there were no canteen yet in their schools. Overall, the infrastructure of junior high schools in South Manokwari which needed attention were almost all components except B2 and B3 components. The percentage availability of the A1 component was only 57.14%, the A2 component 59.29%, the B1 component 56.57%, and the B4 component 55.10%.

There are 7 (seven) senior high schools in South Manokwari which were located in 5 (five) districts, namely Oransbari, Ransiki, Momiwaren, Neney, and Dataran Isim. Tahota district has no senior high school. The Infrastructure and Educational Facilities index from all senior high schools in South Manokwari is presented in Table 5.

Table 5. Infrastructure and Educational Facilities Index of All Senior High Schools in South Manokwari

No.	District	Name of SHS	Student	School Teachers	School Principal	Average Index	IEF Category*	
			(%)					
I	1	Oransbari	Negeri Oransbari	61.44	61.91	58.39	60.58	A
II	1	Ransiki	Negeri 1 Ransiki	57.58	60.34	47.58	55.17	MA
	2	Ransiki	YPK Lacha Roi	60.19	60.90	56.14	59.08	MA
						average	57.13	MA
III	1	Momiwaren	Syalom Terpadu	59.53	56.19	56.92	57.55	MA
	2	Momiwaren	Negeri Momiwaren	59.42	58.52	59.58	59.17	MA
						average	58.36	MA
IV	1	Neney	Negeri Neney	55.62	54.44	52.83	54.30	MA
V	1	Dataran Isim	Negeri Isim	51.63	51.42	51.39	51.48	MA

*IEFI category: VA: Very Available (>80-100%), A: Available (>60-80%), MA: Moderately Available (>40-60%), LA: Less Available (<40%)

Table 5 shows that only one of senior high schools in South Manokwari about environmentally friendly school was categorized as having Available of IEFI, whereas the rest (6 schools) were categorized as having Moderately Available of IEFI. The senior high school which had the IEF index in the Available category was Senior High School of Negeri Oransbari with the average index of 60.58%. Based on the district, only the Oransbari district had the infrastructure and educational facilities in the Available category, whereas other districts were in the category of Moderately Available. The percentage of infrastructure components in senior high schools related to the environment in efforts to establish eco-friendly school is presented in Table 5a.

Table 5a. Average Availability of Senior High School Infrastructure Components of Each District in South Manokwari Concerning Eco-friendly School Requirement

No	District	Respondent	A		B			
			1	2	1	2	3	4
			(%)					
I	Oransbari	Student	58.89	59.41	71.29	61.78	58.89	58.37
		School Teacher	62.68	58.45	69.64	59.50	58.86	62.32
		School Principal	60.00	60.00	55.00	73.33	72.00	30.00
		Average	60.52	59.29	65.31	64.87	63.25	50.23
II	Ransiki	Student	59.22	60.28	54.88	60.90	58.94	59.13
		School Teacher	60.86	62.54	57.41	62.04	58.45	65.46
		School Principal	52.50	48.34	40.00	43.33	62.00	65.00
		Average	57.53	57.05	50.76	55.42	59.80	63.20
III	Momiwaren	Student	59.60	61.14	54.26	59.42	61.96	60.48
		School Teacher	57.10	63.09	51.63	56.69	62.80	57.84
		School Principal	70.00	63.34	50.00	46.67	62.00	57.50
		Average	62.23	62.52	51.96	54.26	62.25	58.61
IV	Neney	Student	61.43	59.12	54.69	58.91	60.90	38.67
		School Teacher	56.70	59.52	53.57	61.90	57.71	37.14
		School Principal	60.00	60.00	40.00	40.00	72.00	45.00
		Average	59.38	59.55	49.42	53.60	63.54	40.27
V	Isim	Student	47.96	56.05	52.41	51.85	57.78	43.70
		School Teacher	59.50	49.33	53.00	50.67	52.00	44.00
		School Principal	55.00	53.33	40.00	60.00	60.00	40.00
		Average	54.15	52.90	48.47	54.17	56.59	42.57
Average in South Manokwari			58.76	58.26	53.18	56.46	61.09	50.98

A: The availability of environmentally friendly supporting infrastructure consists of A1: Availability of infrastructure to overcome environment problems in schools, A2: Availability of infrastructure to support environment learning, B: Improving the quality of management and utilization of environmentally friendly infrastructure consists of: B1: maintaining environmentally friendly school infrastructure, B2: improving the management and maintenance of school sanitation facilities, B3: utilizing electricity, water and office stationery efficiently, B4: improve the quality of healthy and environmentally friendly canteen services.

Table 5a shows that in Oransbari District the infrastructure components that still need attention were A2 and B4 components. In Ransiki District, the weakness of infrastructure facilities lay almost in all components except B4. Momiwaren District still had weaknesses in B1, B2 and B4 components. In Neney District, infrastructure components that need attention consisted of 5 components, namely A1, A2, B1, B2, and B4 components. The infrastructure in Dataran Isim District that needs attention was all components. Among all components, it seems that the B4 component need improvement more than other components. Even the percentage of B4 component in Neney and Dataran Isim Districts was below 50%. Overall, the infrastructure of senior high schools in South Manokwari which needed attention were almost all components except the B3 component. The A1 component had only reached 58.76%, the A2 component by 58.26%, the B1 components by 53.18%, the B2 component by 56.46%, and the B4 component had only reached by 50.98%.

3. DISCUSSIONS

From the results above, it can be seen that the number of elementary schools and junior high schools in South Manokwari that have infrastructure and educational facilities in the Available category for the establishment of environmentally friendly schools had only reached 39.29% for elementary schools and 45.45% for junior high schools. As for the number of high schools in South Manokwari that have infrastructure in the available category for the establishment of environmentally friendly schools was only 1 school (14.29%) out of 7 (seven) schools, namely the senior high school of Negeri Oransbari. This indicated that schools in South Manokwari have not been able to fully meet the requirements needed to support the development of environmentally friendly schools because the requirements for supporting infrastructure towards environmentally friendly schools are still below 50%.

Even so, it can be said that schools in South Manokwari, either elementary, junior high, or high schools, have the potential to become environmentally friendly schools because at least the infrastructure facilities are already in the Moderately Available and Available categories. The availability of infrastructure facilities is very important in the formation of environmentally friendly schools. Because of the importance, even Palei (2015) stated that the infrastructure can affect national economic growth. Edsand and Broich (2020) reported that quality of school education resources was very decisive in improving education. Resources in education include human resources, non-human resources, physical resources, and financial resources. Physical resources such as infrastructure facilities must be available, managed and utilized properly to support learning activities and improve school quality (Fadila *et al.*, 2020), as well as to achieve school goals (Rohmawati, 2015; Fadila *et al.*, 2020).

Among the components of A1 to B4, the B4 component always have the lowest score either in elementary school, junior high school, or senior high school. In addition, among the 6 districts, Neney, Tahota and Dataran Isim Districts always have the lower percentage of B4 component than others. The B4 component is about the procurement of the canteen and everything related to the food sold in the canteen. The schools in Neney, Tahota and Dataran Isim districts do not yet have canteens, so understandably, the value of the B4 component was low in the three districts. The availability of infrastructure for the B4 component in those three districts was even lower than 50%, except for elementary schools which reached an average of 56.01%.

4. CONCLUSION

To form an eco-friendly school in South Manokwari, existing schools at the elementary, junior high, and senior high school still require a lot of improvement in environmentally friendly infrastructure. Of the three school levels, those that has the potential to be upgraded to environmentally friendly schools are first, junior high schools with IEFI Available reaching around 45%, second, elementary schools with IEFI reaching around 39%, and lastly, senior high schools where IEFI only reaches 14%. The name of Junior High Schools that have the potential to be developed into environmentally friendly schools are; Negeri 6 Oransabari, Negeri Ransiki, YPK Lacharoi Ransiki, Negeri Momiwaren, and Satap Mawi Momiwaren. The potential elementary schools to be developed into environmentally friendly schools are mostly in the Oransbari district, namely Inpres 71 Watariri, YPK 12 Ora Et Labora, Inpres 08, Inpres 09, Inpres 11, and Inpres 111 Wandoki, followed by the elementary schools in Ransiki District, namely Inpres 37, Inpres 38, YPK 03, and the elementary schools in Momiwaren District, namely Inpres 62 Gaya Baru, and Inpres NIJS. For high school, only one school has the potential to be developed into an environmentally friendly school, namely the senior high school of Negeri Oransbari. Schools in districts located far from the center of government such as Neney, Tahota and Dataran Isim Districts still require attention and hard effort if existing schools are to be developed into environmentally friendly schools. However, there is potential for it because the IEF index of these three districts falls into the Moderately Available category, however, it needs serious attention to the B4 component.

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