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Preface

This year, Journal of Environmental Science and Sustainable Development (JESSD) is proud to hold its second international virtual symposium, featuring world-class speakers and editors worldwide. We were incredibly honored to have invited RR. Ratih Dyah Kusumawati, Ph.D. from Center for Resilience and Sustainability Studies (CRESS), Department of Management, Faculty of Economics and Business, Universitas Indonesia, Assoc. Prof. Hui Nee Au Yong, Ph.D. from Faculty of Business and Finance, Universiti Tunku Abdul Rahman (UTAR), Mari Eko Mulyani, Ph.D. from School of Geography and The Environment, University of Oxford, Oxford, United Kingdom and School of Environmental Science, Universitas Indonesia, Indonesia, Assoc. Prof. Hironori Hamasaki from Graduate School of Fisheries and Environmental Sciences, Nagasaki University, Japan, Dian Novarina, M.Sc. from Deputy Director of Sustainability and Stakeholder Engagement, PT Riau Andalan Pulp and Paper (APRIL), Jessica Hanafi, Ph.D. from Executive Director PT. Life Cycle Indonesia, and Dr. Ir. Haruki Agustina M.Sc. from Director of Contaminated Land Recovery and Emergency Response Hazardous and Toxic Waste and Non-Hazardous and Toxic Materials, Ministry of Environment and Forestry.

The symposium was held in virtual format due to related restrictions during COVID-19 pandemic. I appreciate everyone's participation in the second JESSD Symposium: International Symposium of Earth, Energy, Environmental Science, and Sustainable Development, despite the restrictive situation caused by the global COVID-19 pandemic. Instead of being postponed, this symposium was conducted virtually in response to emerging issues mainly related to earth science, energy, environmental science, and sustainability. Moreover, this symposium also facilitates the publications of qualified research on COVID-19 to contribute to the global response towards the pandemic situation.

This symposium is slightly different from the previous symposium and conference held last year. By making the best use of development in telecommunication platforms, we are able to gather virtually to share our insights and progress covering numerous subjects ranging from: the broad earth science, energy, and environmental science, and the special issues of COVID-19 Research as well as Community Engagement for Better Environment. This symposium utilized Zoom and Youtube, a widely known cloud-based video conferencing tool, as its telecommunication platform.

The symposium was held on 27-28 August 2022. Committees are based in School of Environmental Science, Universitas Indonesia, Jakarta, Indonesia. We are aware that a virtual setup will not provide the same experience as an on-site symposium. However, it is in our nature as researchers to be undeterred by new challenges. The opportunity to host this event virtually allows us to facilitate cross-borders discussion and collaboration at lower cost and less impact on the environment through reducing carbon footprint. We have invited some prominent speakers from various regions to provide lectures on a wide range of environmental research. In addition, we have also invited world-class speakers and editors to help with your scientific publication process. The participants (presenters) are

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coming from 16 different countries all around the world, including: Malaysia, South Korea, Netherland, Ukraine, Thailand, Uzbekistan, Vietnam, Nigeria, Bangladesh, Russia, Brazil, Poland, China, Germany, Tunisia, and Indonesia.

We are glad that we received lots of submissions from the symposium and selected a bunch of high-quality papers and compiled them into the proceedings after reviewing them using the double-blind peer review procedure. The symposium is considered successful. Signal loss and some technical issues happened during parallel sessions but had been well and quickly addressed by technical assistants, without causing any significant delay. I express my deep gratitude to the editors: Editors committee: Dr. Ahyahudin Sodri, Dr. Herdis Herdiansyah, Mari E. Mulyani, D.Phil., Dr. Stefanie Steinebach, Prof. Dr. Ing. Ir. Misri Gozan, M.Tech., Dr. Djoni Hartono, Ratih Dyah Kusumastuti, Ph.D., Prof. Dr. Ivandini Tribidasari Anggraningrum, and committees Dr. Herdis Herdiansyah, Nova Amalia Sakina, Azhar Firdaus, Arty Dwi Januari, Hafizha Ilma Qadriina, Sinan Vidi Lazuardi, Salma Mar'atus Sholihah, and HIMPASILING UI Team for their time, hard work, and contribution to support this symposium during this challenging time.

I would like to take this opportunity also to express my gratitude for our sponsors, (Danone Indonesia, Induk Koperasi Kepolisian Negara Republik Indonesia (Inkopol), PT Arlindo Grafimedia, PT Riau Andalan Pulp and Paper (April Group), Bank Rakyat Indonesia, APP Sinar Mas, Harita Nickel, Greenera Consulting, Pertamina Patra Niaga, Starborn Chemical, PT. Prima Kana Energy, Waskita, Roatex, One Global Synergy, and Lintasarta) and also for Himpasiling (Himpunan Mahasiswa Pascasarjana Ilmu Lingkungan) Universitas Indonesia 2022 period for conducting the joint session. Last but not the least, we send our sincere thanks to the IOP publisher for publishing the proceedings.

Jakarta, 27 August 2022 Editor-in-Chief,

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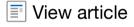


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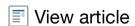


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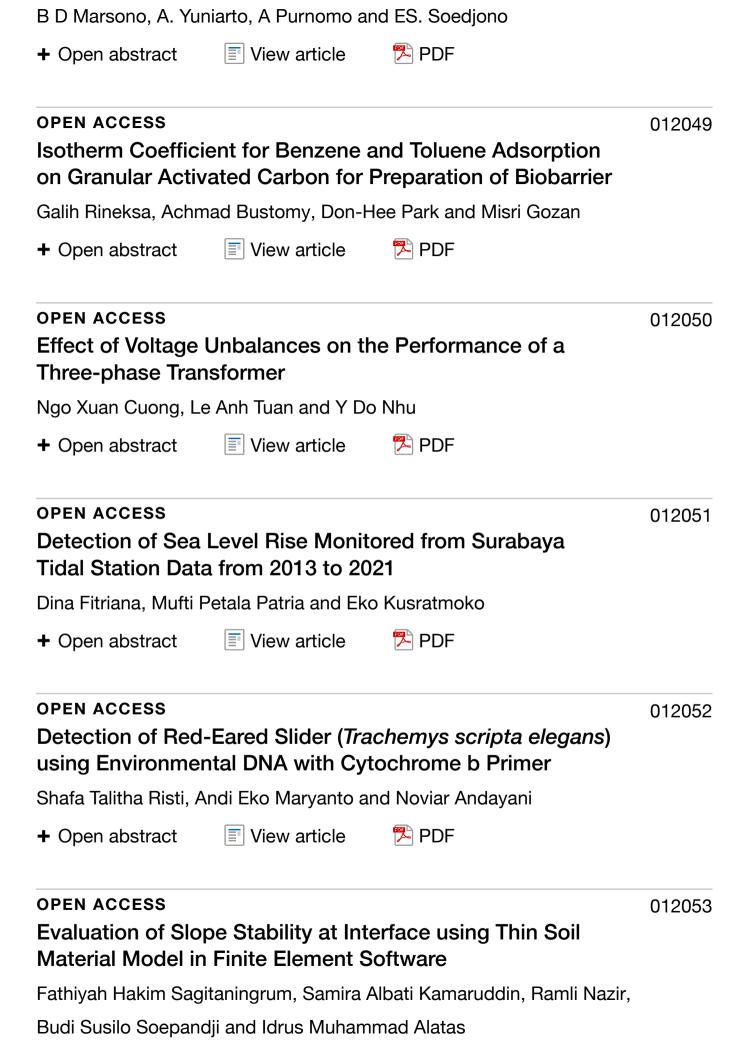
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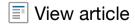


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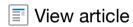


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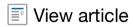


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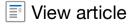


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Determination Strategies for HDI Improvement Using SWOT Matrix Toward Sustainable Development and Good Environment

Nurul Listiyani¹, Rizka Zulfikar^{2*}, Achmad Jaelani³ and Didi Susanto⁴

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Abstract. The SWOT matrix is used in this study. This study aimed to determine strategies to improve the Human Development Index through the dimensions of education in Banjar Regency, South Kalimantan, Indonesia. The data used primarily comes from interviews with respondents who can represent a conclusion. The results of this study indicate that the SWOT matrix can be used to determine strategies to increase the Human Development Index in Banjar Regency is still very large, considering the program synergy carried out by the Education Office and the Ministry of Religion in the commission for education improvement with various policies including the implementation of PKBM and Equality Education in Islamic Boarding Schools. In order to increase the HDI of Banjar Regency through the education dimension, especially the indicator of the average length of schooling, and produce seven strategies that policymakers can use in Banjar Regency. The results of this study, the educational dimension is an essential factor that must be a concern in improving HDI. The education dimension is also part of the SDGs that the government strives to continue to implement in order to create human resources that have an environmental orientation.

1. Introduction

Economic development from a broad perspective is seen as a multidimensional process that includes various fundamental changes to the social structure, society's attitudes, and national institutions, and continuing to pursue the acceleration of economic growth, reducing income distribution inequality, and alleviating poverty [1]. One of the indicators of development progress is economic growth. This indicator measures a country's ability to develop.

Human development is defined as expanding more choices to the population through empowerment efforts that prioritize improving basic human capabilities to participate in all areas of development two fully. In principle, the primary purpose of this development is to increase the choice of the population where these options are not limited and can change at any time so that the population can get greater access to knowledge and education, better nutrition and health services, safe livelihoods, etcetera. The elements of human development expressly underline the goals to be achieved, namely healthy and long-

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lived, educated and able to enjoy life decently [2]. This means that human development aims to improve the welfare of society related to the quality of people and society. Therefore, humans are central to the development process [3].

One of the benchmarks for increasing public welfare is the *Human Development Index* (HDI) increase. HDI is an important indicator to measure success in efforts to build the quality of life of humans (society/population). HDI can determine the ranking or level of development of a region/country. For Indonesia, HDI is a strategic data because apart from being a measure of government performance, HDI is also used as one of the allocators for determining the General Allocation Fund (DAU) [4]. A high HDI indicates high public welfare as well and can be interpreted as his government's success in developing and improving community welfare. HDI explains how residents can access development outcomes in income, health, education, etcetera. The United Nations Development Programme (UNDP) introduced the HDI in 1990, and it is published regularly in the annual Human Development Report (HDR). HDI is formed by three primary dimensions: longevity and healthy life, knowledge, and a decent standard of living. HDI is an important indicator to measure success in efforts to build the quality of life of humans (society/population). Therefore, HDI can determine a region or country's ranking or level of development.

The current development paradigm is economic growth as measured by human development, seen by the level of quality of human life in each country. One of the benchmarks used in looking at the quality of human life is the Human Development Index (HDI) which is measured through the quality of education, health, and economic levels (purchasing power). Through the improvement of these three indicators, it is hoped that there will be an improvement in the quality of human life. This is because the heterogeneity of individuals, geographical disparities, and diverse social conditions of society cause the income level to no longer be the leading benchmark in calculating the success rate of development [5].

Placing human development as the ultimate goal of the development process is expected to create opportunities that directly contribute to efforts to expand and improve human capabilities and their quality of life, among others, through the improvement of health services, primary education, and social security [6]. As the development implementer, the government needs qualified human beings as the primary capital for development [7].

Humans, in their role, are subjects and objects of development, which means that humans, in addition to being development actors, are also development targets [8]. In this case, various facilities and infrastructure are needed to encourage the role of humans in development. Therefore, investment is needed to create productive human resources [9]. Government spending can be used as a reflection of policies taken by the government in an area. Government spending is used to finance critical public sectors, including investment in the education and health sectors, which are expected to improve human resources quality [4].

One form of successful development can be seen in an area's level of human development. Therefore, the government's seriousness is needed in dealing with the problem of improving human development [10]. One of the proofs of the seriousness of the government is through government spending, which is a reflection of concrete evidence of the government's role in regulating the economy. The government spending sector that is quite important and affects human development is expenditure on education and health [11].

Previously study showed that education factors, especially the average indicator of school length, were the dominant factor for determining strategies for increasing HDI in an area [12] and in the province of South Kalimantan, which is the location and focus of research, it showed that this indicator is an indicator that is still not of concern to local governments and so it should be sought that prioritizes increasing education sector [13]. HDI has a strong correlation with the environmental conditions of an area, where the higher the HDI indicator will show, the more advanced the area and the macro-environmental conditions will be better, and the higher the HDI, the average greenhouse emissions per capita will be more significant [14].

SWOT analysis is a straightforward tool that can help build and develop a strategy to achieve much better results[15,16]. SWOT is a term and abbreviation for Strength, Weakness, Opportunities, and Threats. SWOT is used as a benchmark for business people to look at the plan carefully, whether the plan can have a good impact in the short or long term. In simple terms, SWOT analysis means approaching several factors related to Strengths, Weaknesses, Opportunities, and Threats. If interpreted in more detail, SWOT analysis is a technique carried out for planning a strategy that can be used to evaluate [17,18]. In

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order to determine strategies that can improve the Human Development Index in Banjar Regency, the SWOT matrix is used as a strategy determination analysis tool.

2. Methods

This research was conducted in the province of South Kalimantan, starting from June 2021 – July 20, for one year. This research is descriptive quality research described in the form of S-O (Strength-Opportunity), W-O (weakness – Opportunity), S-T (Strength-Threats), and W-T (Weakness-Threats) strategies. The data used are primary data derived from the respondents' interviews that can represent concluding.

2.1 Qualitative Design

The design in this study is qualitative research with a descriptive approach because the data obtained qualitatively by the researcher is intended as secondary data that strengthens the findings of the quantitative data results so that what is obtained from quantitative research is strengthened and deepened by qualification analysis.

2.2 Validity of Qualitative Data

The secondary data assessment on a descriptive qualitative approach still pays attention to the technique of data validity through data triangulation, with source triangulation, namely multiplying data from various parties, which are considered able to explain the influence of education indicators as leverage for increasing the human development index (HDI) of Banjar Regency.

The qualitative analysis used in this study using the opinions of [10] suggests that analysis data (*data analysis*) consists of three interrelated sub-processes. Data reduction, data presentation, and conclusion/verification. Our Qualitative Instrumental Grid is shown in table 1.

Indicators	Sub Indicators
Factors Affecting HDI	a. Old School Expectations
	b. Expenditure Figures
HDI Improvement Strategy	a. Equitable Distribution of Education
-	b. Quality and Competitiveness Improvement
	c Strengthening Governance

Table 1. Research indicators and sub-indicators

The results of the qualitative analysis will then be plotted in the SWOT Analysis Matrix, which aims to formulate the results of the study by considering the Strengths, Weaknesses, Opportunities, and Threats presented in the form of a matrix (S-O, S-T, W-O, W-T *strategy*) which will then be used as a policy recommendation. The overview of the SWOT matrix is illustrated in table 2.

Table 2. SWOT Matrix Components

Strength – S

	Strength – S Strength	Weakness – W Debilitation
Opportunity – O Chance	S-O Strategy Using power to seize opportunities	W-O Strategy Overcoming weaknesses by seizing opportunities
Threat – T Threat	S-T Strategy Use force to avoid threats	W-T Strategy Minimize weaknesses and avoid threats

3. Results and Discussion

The average length of schooling (RLS) in Banjar Regency is still increasing; it is suspected that the most influential on RLS are Islamic Boarding Schools, while many Islamic boarding schools have been open to policies on education equity from 38 numbers. There are 26 Islamic boarding schools in Banjar

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Regency that provide equal education, the rest are still in the process of being submitted, and others still need socialization.

From 2012 to 2022, the number of participants for equality education recorded by the Ministry of Religion of Banjar Regency was 18,210. There are around 7,438 students at the Ula, Wustha, and Ulya levels. Divided into 915 educational activities at the Ula level, 4,549 students at the Wustha level, and 1974 students and students at the Ulya level.

The percentage of students who take equivalence education is still not optimal when compared to the number of students, as many as 18,210 students compared to the number of equivalence students of 7,438 students, which is about 41% of students who have attended equality education. School Operational Fund Assistance (BOS) is often delayed, so it is feared that it will disrupt the fun of the learning process inequality education in Islamic boarding schools.

The School Operational Funds (BOS) received by Salafiyah Boarding Schools in remote areas, such as the Rantau Balai Kecamtan Aranio, have not been sufficient for the operational activities of the cottage, let alone coupled with the school's equity program activities. There has been continuous socialization and education from the Education Office through PKBM education and equality education conducted by the Ministry of Religion and socialization carried out by the "Pondok" so that people are aware of the importance of equality education. The SWOT analysis result was:

3.1 Strength

The resulting strength points are (a) appointment of P3K Teachers and contract workers following the needs of the district, (b) the Banjar School Santri Program gets two diplomas or known as (sajadah), and (c) incentives for equality of education teaching staff, (d) there are already 26 Islamic boarding schools that carry out equality education, (e) equality education is already included in the category of recipients of School Operational Assistance (BOS).

3.2 Weakness

The resulting weakness points are (a) the geographical condition of the Banjar district is extensive so that the distribution of schools is uneven in various sub-districts, *and* (b) there has not been an inclusion of students who go to school in the calculation of PBS, Banjar Regency, (c)There are still some sub-districts that do not have high schools (SMA), (d) Only 7 of the 26 cottages received financial assistance for the payment of teaching staff, (e) there is no regulation on the requirement that a public official must have formal education in Banjar district, (f) teachers who provide equality education are still paid far from what was expected, namely between IDR 200,000 to IDR 300,000 and paid within every six months, (g) teachers in some Salafiyah huts with an equalization system are still not following the field of only cottage graduates and with information that they have studied general lessons only and most of them are equivalent high school graduates.

3.3 Opportunity

The resulting opportunity points are (a) Pondok is increasingly open to local government policies with the implementation of PBM education and Equality Education, and (b) the number of recipients of school operational assistance (BOS) in equalization schools in Islamic boarding schools is increasing, (c) the number of huts that provide equality education in Banjar Regency will continue to increase, because some cottages still complement the requirements in the Ministry of Religious Affairs of Banjar Regency, (d) the law on Islamic boarding schools paves the way for huts to increase independence as an effort to take part not only in the field of religion but also in other public fields, (e) the cooperation between the local government and the community through religious leaders has been well established, (f) adding and providing unique locations for equalization schools in every sub-district that is prone to dropping out of school, for example, sub-districts that have been isolated.

3.4 Threats

The resulting threats points are (a) delays in the distribution of school operational assistance and incentives in Islamic boarding schools are often felt by cottage managers in implementing equality education, and (b) perceptions of the school community of equality change the educational traditions of Islamic boarding school, (c) people still feel that general education and equality are less critical than religious education in the cottage, (d) there are already 26 cottages that carry out equalization education,

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but about only seven cottages have received the assistance of equalization teachers, (e) some Islamic boarding schools still rely on independent funding in implementing equality education, (f) there are still regions that until now have difficulty using the internet network, making it difficult to take the national equalization examination system online. Based on the results of the SWOT analysis above, a strategy can be formulated using a SWOT matrix, a combination of all components in the analysis shown in table 3.

Table 3. Strategy analysis results

		Strength – S		Weakness $-W$
Opportunity – O		S-O Strategy		W-O Strategy
	1.	Increased education budget for incentives for equality education	1.	Policy/rulemaking on the conversion of subjects from trainees to formal schools.
		teaching staff.	2.	Data collection of the latest
	2.	Increased School Operational Fund (BOS) Assistance		educational status of Islamic boarding school students
	3.	Determination of 12- Year Compulsory Education Program		
Threat – T		S-T Strategy		W-T Strategy
	4.	Integrated policymaking between the Education Office and the Ministry of Religious Affairs.	3.	Implementation of equalization activities that can be carried out with an online system.
			4.	Increased assistance for transitional scholarships between school levels, especially to underprivileged students

4. Conclusion

This research is a qualitative descriptive study that is described in the form of S-O (Strength-Opportunity), W-O (Weakness – Opportunity), S-T (Strength- Threatens), and W-T (Weakness-Threatens) strategies. Various obstacles and disturbances can be overcome by researchers with the help of various parties so that the implementation of the research cycle can run smoothly. The results of the study carried out resulted in several conclusions, including the following: (1) The opportunity to increase HDI through efforts to increase the average length of schooling in Banjar Regency is still huge, considering the synergy of programs carried out by the Education Office and the Ministry of Religion in the commission to improve education with various policies including the implementation of PKBM and Equality Education in Islamic Boarding Schools; (2) In order to increase the HDI of Banjar district through the education dimension, especially the average length of schooling indicator, the recommendations that can be given are (1) Increased education budget for incentives for equality education teaching staff and School Operational Fund (BOS) Assistance; (2) Determination of 12-Year Compulsory Education Regulation; (3) Policy/rulemaking on the conversion of subjects from boarding schools to formal schools by Designing a policy for converting subjects from entrepreneurs to formal schools; (4) Data collection of the latest educational status of Islamic boarding school students with digital data collection; (5) The integrated policy between the Education Office and the Ministry of Religious Affairs; (6) Implementation of equalization activities that can be carried out with an online system by Making guidelines for the implementation of online equalization activities; and (7) Increased assistance for transitional scholarships between school levels, especially to underprivileged students by Submission of a proposal to increase the education budget in the Regional Budget of Banjar Regency for transition between school levels and underprivileged students.

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This study's limitation was using qualitative data, which is sourced from the results of observations and interviews, so that further research can be carried out using a mixed method that combines quantitative data and qualitative data.

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