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METHOD OF IMPLEMENTING SDGS IN DAU ALLOCATION IN INDONESIA (CASE STUDY IN THE EASTERN PART OF INDONESIA)

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Abstract

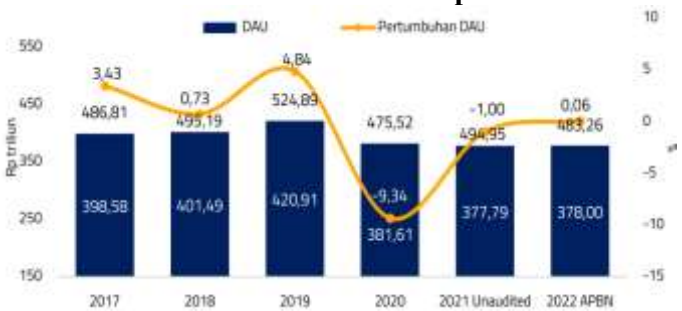
Based on the results of the analysis, it was found that of the three targets, namely the target of increasing water quality, increasing air quality, increasing the quality of land cover, there were three indicators that achieved the target, namely the indicators for the target of increasing water quality, increasing the quality of land cover, with the percentage of performance achieved respectively. by 110.4%; 115.97%; and 100%. In the target indicator of improving air quality, performance achievements were obtained that did not reach the target, with a performance achievement percentage value of 98.85%. This is influenced by the high level of vehicle activity on roads in Denpasar City, the cutting down of trees due to land conversion, and the lack of public awareness in carrying out vehicle maintenance, causing the emissions produced to exceed quality standards. Apart from that, the long dry season in Denpasar City in 2019 also caused the air quality in Denpasar City to decline. During the 2019-2021 period, which remains the largest capital expenditure realization area, the highest average capital expenditure realization was in the cities of Mataram, Kendari and Ambon.

Keywords: ***SDGS, DAU***

1. INTRODUCTION

The application of SDGn aims to suggest several mathematical methods that will be used to solve several real-life problems related to SDGs in particular. The application of SDGn is able to demonstrate several methods for both initial solutions and optimal solutions as proposed. In future research, the focus will be on simulation experiments of this suggested method compared with existing methods for solving the problem). The General Allocation Fund (DAU) functions as an equalization grant which aims to equalize fiscal capacity between regions (horizontally). The minimum DAU allocation is 26 percent of Net Domestic Income (PDN). As one of the largest sources of regional income in the APBD, until 2016 it was finalized in the APBN (not changing following the dynamics of Net PDN in the current year) to provide certainty of regional revenues. However, from 2017 to 2022 (except 2019) the DAU allocation is determined dynamically in the APBN according to the state's financial capacity to ensure budget availability in the APBN.

General Allocation Fund Development Chart



Source: Ministry of Finance

DAU realization in 2017-2021 fluctuated, increasing from 2017 - 2019 then decreasing sharply in 2020. From 2017 to 2019, DAU realization increased from IDR 398.58 trillion in 2017 to IDR 420.91 trillion in 2019 with an average annual growth of 3 percent. During the Covid-19 pandemic, DAU realization decreased in 2020 and 2021 by 9.34 percent and 1 percent respectively. The decrease in DAU realization in 2020 and 2021 was caused by the policy of reallocating and refocusing DAU for PC-PEN. In 2022, DAU will be allocated IDR 378 trillion, an increase of 0.06 percent from the realization in 2021

LITERATURE REVIEW

Carbon Theory

Carbon is a substance that has existed since the formation of the earth. Carbon is found in all inanimate objects and living things. Carbon is found in the air in the form of carbon dioxide gas. In plants, carbon is found in stems, leaves, roots, fruit, and also in dry fallen leaves. Some of the carbon in plants forms a substance called carbon hydrate or carbohydrate. Charcoal hydrate is a substance that is needed by humans and animals as a source of energy and growth. Carbon from plants moves to the bodies of humans and animals when they eat them. So the carbon spreads throughout the body into parts of the bones, nails, flesh and skin. Carbon is also stored in the earth as limestone, graphite, diamonds, petroleum, natural gas, coal and peat soil (Suprianto, et al ., 2015).

Carbon that comes from living things such as coal and petroleum is called organic carbon. What does not come from living things such as limestone is called inorganic carbon (Suprianto , et al ., 2015). Various activities on earth cause the release of carbon into the air. Carbon which was originally solid when released turns into a gas, for example carbon dioxide. Carbon dioxide is produced by all living things. Humans and animals on land and in the sea, including small animals called microorganisms, as well as various plants and fungi produce carbon dioxide (Suprianto , et al ., 2015). Carbon is the 15th most abundant element in the Earth's crust and 4th in the universe after Nitrogen, Oxygen and Argon. Carbon is found in all types of living things, and in humans. This abundance of carbon, along with the diversity of organic compounds and its ability to form polymers, makes carbon the basic chemical element of life. This element is the most stable element among the other elements, so it is used as a benchmark for measuring atomic mass units. All carbon allotropes are very stable and require very high temperatures to react, even with oxygen. The most commonly found oxidation state of carbon is +4, while +2 is found in carbon monoxide and other transition metal complex compounds.

Sustainable Development (*Sustainable Development Goals* / SDGs)

The SDGs help mobilize the international community, leaders, politicians, civil society and sectoral ministries, and departments to focus on achieving these time-bound and measurable goals. We may not have achieved all of these goals but have made great progress in saving lives and improving the quality of life for millions of people domestically and globally. India has not made progress commensurate with its economic and technological strength and needs to do more. The MDGs are easy to relate to, understand, communicate, implement and monitor, while the SDGs, although to some extent a continuation, have the weakness of being too numerous and heavy to implement and monitor. This may be the result of a large consultative process where everyone wants to see their areas of interest included (Kumar S., 2016).

The Sustainable Development Goals (SDGs) provide bold aspirations for a sustainable, prosperous and just future. There is universal agreement that the goals cannot be achieved by 2030 on a business-as-usual trajectory, and that we need new agents of change, such as business, government and civil society. A series of tools and frameworks have recently been developed to support organizations in engaging with the SDGs. However, it is not understood whether these tools/frameworks can enable transformative action. This study uses a scoping methodology to review the tools available to organizations for SDG action. These tools are then analyzed against a generic model of the 'strategic management' process, to determine their usefulness in influencing organizational strategy. It was found that most tools only apply to 'mapping' and 'reporting' activities, which occur after the strategy has been developed and even implemented. A small number of tools were found to align with the initial stages of strategic management, namely, 'problem definition' and 'goal setting'. None of the tools identified are substantially involved with actual strategy

development, a stage that can constitute transformative change. This gap shows how future research can address organizational strategy, to drive action on unexplored SDG s (Jarrod Grainger-Brown and Shirin Malekpour, 2019).

General Allocation Fund (DAU)

The General Allocation Fund (DAU) plays a role in horizontal equalization, namely by closing the fiscal gap *that* exists between fiscal needs and the economic potential of the region. DAU is often called unconditional grants because it is a type of transfer between government levels that is not tied to a specific expenditure program (Raffaele Sisto et.al, 2020). General Allocation Funds (DAU) are the amount of funds allocated each year for each autonomous region (province/district/city) in Indonesia for development funds. In this case, the General Allocation Fund aims to balance regional financial capacity by ensuring continued regional government control in all regions in the provision of basic community services (Qwanthala, 2022). The role economic policy uncertainty plays in international asset allocation and international capital flows. DAU, measured by several different methods, has a negative impact on international asset allocation. The mechanism can be explained from the real economic activity channel and the expectations channel: DAU influences the future profitability of assets in a particular country, thereby depressing asset prices and investors' positions on them; From the expectations channel, the size of DAU represents the news that international investors obtain and update their expectations, thus expectations alone can drive investors' lower positioning of assets subject to DAU and explore the various country-level heterogeneity of DAU on asset allocation (Jingya Hou1 and Daoguo Wang, 2022).

2. Research Methods

Population and Sample

According to Sugiyono (2017) " Population is a generalized area consisting of objects/subjects that have certain qualities and characteristics determined by researchers to be studied and then conclusions drawn. The population in this research is all provinces/cities in eastern Indonesia, totaling 12 cities. According to Sugiyono (2017), the sample is part of the population that is used as the actual data source. The total sample used and processed was 12 cities in all provinces in eastern Indonesia.

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Data collection technique

The data collected and used in this research is environmental quality data, the General Allocation Fund (DAU. The data used is secondary data consisting of the dependent variable, the Environmental Quality Index (IKLH) and the independent variable consists of the General Allocation Fund (DAU). in districts/cities throughout the eastern provinces of Indonesia.

Data analysis method

In analyzing the data in the research, the environmental quality index was used. Used to analyze relationship patterns between variables. This model is used to determine the implementation of SDGS and DAU (Rizal et al, 2020) **.**

3. RESULTS AND DISCUSSION

Data for the last 3 years shows a trend in changes in IKLH values. Then 2 provinces in Nusa Tenggara also have an upward trend with a strong level of correlation, namely West Nusa Tenggara, East Nusa Tenggara. Eastern Indonesia also has an upward trend with a strong correlation, namely Central Sulawesi, Gorontalo and Maluku.

Table 1. Changes in IKLH values per year from 2016 to 2020 and changes in IKLH 2019-2020

City name	Year	Environmental Quality Index (IKLH)			Linear Trend		Change
		IKU	IKA	IKH	Trends	R2	
Mataram	2019	87.51	40.23	64.56	Go on	0.03369	-17.28
	2020	88.63	50.98	70.82	Go on	0.02455	-33.17
	2021	89.3	45.1	42.77	Down	0.0463	1.43
Kupang	2019	88.18	59.48	69.67	Go on	0.02128	-40.97
	2020	89.8	59.19	73.28	Go on	0.0207	-42.67
	2021	91.52	58.28	47.42	Down	0.03312	-14.18
Tanjung Selor	2019	93.79	52.22	78.98	Go on	0.02274	-37.41
	2020	94.23	51.82	78.49	Go on	0.02317	-36.08
	2021	87.59	57.34	79.83	Go on	0.01914	-49.58
Manado	2019	92.41	45.58	65.15	Down	0.03112	-18.32
	2020	90.53	50.53	70.69	Go on	0.02534	-30.69
	2021	91.46	49.69	55.1	Down	0.0334	-13.33
Hammer	2019	92.98	62.59	80.23	Go on	0.01852	-49.84
	2020	91.8	61.67	77.53	Go on	0.0192	-47.4
	2021	90.35	55.84	59.56	Down	0.02717	-25.05
Makassar	2019	89.6	58.4	67.61	Down	0.02269	-36.41
	2020	88.73	52.38	70.7	Go on	0.02396	-34.35
	2021	92.05	56.82	55.1	Down	0.0294	-19.87
Kendari	2019	90.01	50.55	72.03	Go on	0.02472	-32.57
	2020	91.21	51.6	72.82	Go on	0.02427	-33.21
	2021	91.86	53.26	74.31	Go on	0.02321	-35.71
Gorontalo	2019	86.88	57.2	74.97	Go on	0.02026	-45.29
	2020	93.89	53	75.31	Go on	0.02352	-34.42
	2021	92.41	53.46	74.31	Go on	0.02326	-35.36
Mamuju	2019	89.97	56.15	72.03	Go on	0.02225	-38.21
	2020	89.72	52.44	73.61	Go on	0.02324	-36.33
	2021	91.88	56.04	79.11	Go on	0.02072	-43.27
Ambon	2019	88.72	57.56	79.55	Go on	0.01938	-48.39
	2020	90.41	55.67	75.98	Go on	0.02137	-41.24
	2021	92.74	55.56	70.52	Go on	0.02367	-33.34
Tidore Islands	2019	92.38	53.61	78.44	Go on	0.02197	-39.67
	2020	92.1	50	78.65	Go on	0.02342	-36.55
	2021	95.79	53.08	88.4	Go on	0.02041	-45.69
Jayapura	2019	92.56	47.29	81.79	Go on	0.02393	-36.52
	2020	94.57	56.01	79.75	Go on	0.02117	-41.19
	2021	95.32	57.83	72.87	Go on	0.02262	-35.38

The new IKLH value increased by 5.2-6% from the old IKLH value. Furthermore, when viewed from the straight line trend, the new IKLH trend has the same trend as the old IKLH. In general, the increase in new IKLH is more due to changes in the weight values for each IKLH component. There are only a few provinces that have experienced a change in the upward trend, either larger (increasing) or smaller (decreasing) compared to the old IKLH.

The following is the number of Old and New DAUs for districts/cities in all provinces in Indonesia in the 2019-2021 period

City/Province	Year	Population	Old DAU	Year	New DAU
	2011	433,635	367,095,372,000	2019	632,753,729
	2012	486,715	445,894,174,000	2020	582,765,685
Mataram	2013	432,024	500,043,553,000	2021	588,593,342
	2011	463,351	377,792,563,000	2019	684.280.120
	2012	442,758	453,986,555,000	2020	623,856,772
Kupang	2013	455,850	527,785,630,000	2021	630,095,340
	2011	52,432	269,780,833,000	2019	528,242,829
	2012	56,569	350,959,919,000	2020	525,055,889
Tanjung Selor	2013	57,770	392,494,592,000	2021	806.464.007
	2011	433,635	482,454,131,000	2019	777,792,468
	2012	451,916	576,989,312,000	2020	718.105.042
Manado	2013	453,182	647,565,931,000	2021	725,286,092
	2011	371,365	422,397,157,000	2019	706,850,885
	2012	373,218	512,824,174,000	2020	650,829,309
Hammer	2013	377,030	575,235,328,000	2021	657,337,602
	2011	1,480,480	718,799,534,000	2019	1,389,864,807
	2012	1,423,877	911,122,797,000	2020	1,286,419,315
Makassar	2013	1,427,619	1,033,583,903,000	2021	1,299,283,508
	2011	392,830	399,702,724,000	2019	705,042,479
	2012	343.202	478,763,604,000	2020	643,432,736
Kendari	2013	350,267	555,693,881,000	2021	649,867,063
	2011	200,558	296,633,489,000	2019	540,071,248
	2012	198,539	366,463,719,000	2020	492,892,141
Gorontalo	2013	199,788	419,154,808,000	2021	497,821,062
	2011	74,866	422,652,587,000	2019	651,748,764
	2012	64,696	512,824,174,000	2020	600,303,844
Mamuju	2013	65,445	587,833,771,000	2021	612.150.062
	2011	384.132	411,355,104,000	2019	697,567,328
	2012	347,288	497,388,862,000	2020	635,403,609
Ambon	2013	347,644	551,507,941,000	2021	641,757,645
Tidore Islands	2011	101.414	313,516,331,000	2019	570,283,273

	2012	114,480	399,531,966,000	2020	515,610,810
	2013	116,149	443,177,446,000	2021	608.090.902
	2011	422,083	392,664,839,000	2019	659,707,334
	2012	303,760	496,265,717,000	2020	593,754,625
Jayapura	2013	404,004	586,198,486,000	2021	599,692,171

The large budget for transfer funds from the center in the form of DAU is not accompanied by the large expenditure for capital expenditure that can provide services in the form of facilities and infrastructure to the community. The increase in DAU should have implications for the use of DAU in the regions, because regional governments expect DAU from the center to increase every year. An increase in the amount of DAU which increases every year and for productive spending will be able to improve public services, community welfare and advance the regional economy. In terms of regional revenues, strengthening the quality of DAU utilization in the regions needs to be improved, and the dominant use of DAU is only for employee spending needs to be re-evaluated. Considering the strategic role of DAU in the APBD, it is necessary to follow this with good DAU governance so that the DAU's goal of equalizing financial capacity between regions can be realized while being able to encourage convergence in the level of public services and welfare between regions. DAU needs to be refined in the DAU formula so that it really must be prioritized considering that DAU is the largest financing component of the Balancing Fund as well as the largest source of revenue for the Bima City Government, so that its allocation is not only for routine expenditure (employee salaries) but is able to improve public services and economic growth in area. Apart from that, it is necessary to increase the effectiveness of the implementation of monitoring and evaluation of the Balancing Fund which aims to improve the performance of regional governments, related to the performance and achievements of programs that have been implemented.

The assessment of the environmental index, which is a benchmark for harmonization of environmental performance with national development performance, is important to study in more depth. Currently the Environmental Quality Index (IKLH) is used to measure environmental performance at the Regency/City, Provincial and National levels. The KPI assessment strategy in the future can be seen from two aspects, namely the aspect of developing meaning and substance associated with the SDGs, and the aspect of improving data quality. In the context of the SDGs, the IKU assessment is directly related to (i) SDG 3, namely regarding health, which aims to ensure healthy lives and support prosperity for all at all ages, (ii) SDG 7 regarding clean energy; (iii) SDG 13, namely handling climate change, which aims to take immediate action to combat climate change and its impacts; and (iv) for urban areas it also represents SDG 11, namely sustainable cities and communities which aims to build cities and settlements that are inclusive, safe, resilient and sustainable. In order for the IKU to represent the achievement of the SDGs, it is necessary to add additional types of air pollution gases and materials, increase the frequency and quality of measurements, and inventory the pressure factors that can influence the decline in the IKU value.

The future IKA assessment strategy can be seen from two aspects, namely the aspect of developing meaning and substance associated with the SDGs, and the aspect of improving data quality. In the context of the SDGs, the IKA assessment is directly related to (i) SDG 6, namely regarding clean water and adequate sanitation, aimed at ensuring the availability and sustainable management of clean water and sanitation for all and (ii) SDG 12 regarding responsible consumption and production. responsibility aims to ensure sustainable production and consumption patterns. Meanwhile, the aspect of improving data quality is related to the water quality monitoring information system. The indicators used in SDGs 6 and 12 can be integrated into the IKA assessment so that the assessment can be carried out effectively and efficiently. Regarding the data quality aspect, the water quality monitoring information system will encourage openness of data and information that is accurate, fast and accountable. The Water Quality Index (IKA) which is currently being developed still has weaknesses in the magnitude of the IKA value. Future IKL assessment strategies will be

carried out based on aspects of developing the meaning/substance of IKL values and improving data quality. The meaning and substance of IKL in the future is expected to represent the achievement of SDGs at the district/city, provincial and national levels. Currently, the IKL value can represent part of the 15th SDG goal, namely protecting terrestrial ecosystems which aims to protect, restore and support sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and inhibit and reverse soil degradation and inhibiting the loss of biodiversity.

In order to realize IKL that can represent the SDGs mentioned above, the strategic step that needs to be taken is to include elements of climate change and environmental services based on the presence of forest cover (including green open space) and peat. Forest and peat ecosystems have an important function in mitigating climate change. Forest and shrub vegetated land functions to absorb CO2 from the atmosphere through the process of photosynthesis, which is then accumulated as biomass carbon reserves. Peat ecosystems have large carbon reserves that must be maintained and maintained. The conversion of the area of forest and peat ecosystems into carbon stock values can be used to assess IKL, in addition to the value of the CO2 absorption rate of forest vegetation. Management of Balancing Funds in districts/cities in all provinces in Indonesia Both DAU is less effective as can be seen from the large transfer fund budget from the center in the form of DAU which is not followed by the large capital expenditure expenditure because local governments are still concentrating on administrative issues, so they are not yet effective in improving services public. The allocation of DAU spending is less effective and has not been oriented towards performance-based budgeting because the direction of DAU use only focuses on input, not on outcomes from programs that can improve public services, community welfare and advance the regional economy. The reporting system also cannot show the number of beneficiaries from the facilities built so that the performance of DAU implementation in the previous year cannot yet measure its contribution to increasing access to facilities and monitoring and evaluation of program implementation and its impact on services to the community have not been carried out. Therefore, efforts are needed to increase the effectiveness of the use of DAU balance funds so that they can be allocated to expenditures that support improved public services and economic growth in the regions.

4. CONCLUSION

In the target indicators of increasing IKU, IKA and IKH, performance achievements were obtained that fell short of the target. This is influenced by the high level of vehicle activity on roads in districts/provincial cities in Indonesia, the cutting down of trees due to land conversion, and the lack of public awareness in carrying out vehicle maintenance, causing the emissions produced to exceed quality standards. The role of the central government cannot be ignored in achieving *the Sustainable Development Goals* (SDGs). DAU allocation is government expenditure to assist in the allocation of special needs by regional heads.

Suggestions

If the government reduces the DAU allocation, then the achievement of SDGs in the education sector will increase. It is possible that when educational support facilities increase, this can make students lazy and the quality of education will decrease or be ineffective.

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