



Received: 01-06-2023  
Accepted: 11-07-2023

ISSN: 2583-049X

## The Urgency of Ecology-Based Fiscal Transfer Policy Ideas in Lampung Province

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### Abstract

Currently, there are instruments developed by the central government, namely fiscal transfers to regions and village funds which actually provide opportunities for regions to be able to solve environmental problems more optimally. However, this concept has not yet provided an optimal contribution to environmental conservation. At the same time, the preservation of biodiversity and the environment is an effort to achieve the SDGs targets in Indonesia, especially in Lampung Province. The purpose of this study is to describe the urgency of the ecological aspect as a consideration for strengthening fiscal transfers to the regions. The research method used is descriptive qualitative

by searching for information related to ecological-based fiscal transfer policies. The results of the study indicate the urgency of an ecologically based fiscal transfer policy. First, strengthening the capacity of local governments in preserving ecological functions in an effort to realize sustainable development. Second, supporting the government's strategic program in low- carbon development. Third, improving the welfare of the people living around and within forest areas, who have been marginalized by economic growth-oriented development. Fourth, strengthen the function of fiscal policy and governance that is oriented towards environmental preservation.

**Keywords:** Fiscal Transfer Policy, Environment, Sustainable Development

### 1. Introduction

The decline in environmental quality is expected to be experienced by Indonesia in the coming years. This is supported by the fact that the shrinking primary forest cover will remain around 18.4% of the total national land area (189.6 Million Ha) in 2045 (Putra *et al.*, 2019) <sup>[12]</sup>. The shrinking forest cover is projected to lead to raw water scarcity, especially on islands with very low forest cover such as Java, Bali and Nusa Tenggara. If the trend does not change, it is predicted that the area of water critical areas will increase from 6 percent in 2000 to 9.6 percent in 2045 (Putra *et al.*, 2019) <sup>[12]</sup>.

In addition, the destruction of forest cover contributes greatly to the increase in greenhouse gas (GHG) emissions. In 2000, the contribution of forestry sector emissions (AFOLU, including peat fires) was 600,570 MTon CO<sub>2</sub>e increasing to 752,135 MTon CO<sub>2</sub>e in 2016 or about 52% of total national emissions in 2016 (Putra *et al.*, 2019) <sup>[12]</sup>. Until 2016, the government has tried to reduce the rate of increase in GHG emissions with the main efforts through the prevention of land and forest fires, reforestation and acceleration of social forestry. These efforts have played an optimal role in reducing emissions by around 132.256 MTon CO<sub>2</sub>e in 2016 (Putra *et al.*, 2019) <sup>[12]</sup>.

The government also continues to act optimally in efforts to improve the quality of the environment through sustainable forest and land protection and management policies, including a moratorium on oil palm plantation licenses (Presidential Instruction 8/2018), continuing efforts to prevent and control forest and land fires, restoring peatlands, and developing various sustainable land-based business standards (Putra *et al.*, 2019) <sup>[12]</sup>.

The Indonesian government is determined to address the impacts of climate change. This determination is realized through commitments that have been outlined in the document of emission reduction targets and adaptation measures in the *Nationally Determined Contribution* (NDC), which is a follow-up to the *Paris Agreement* (Ministry of Environment and Forestry, 2017). This document was submitted by the Government of Indonesia to the *United Nations Framework Convention on Climate Change* (UNFCCC) in 2016. In the document, the Government of Indonesia set a target of reducing greenhouse gas (GHG) emissions below 29% on a *business as usual* (BAU) basis without international support and 41% with international assistance by 2030 (Ministry of Environment and Forestry, 2017).

In addition, the Government of Indonesia has also approved the implementation of the *Sustainable Development Goal* (SDGs), which are laid out in the National Action Plan on Sustainable Development Goals (RAN-SDGs) in 2018. One of the goals of

the RAN- SDGs is action to mitigate climate change by reducing GHG emissions (Bappenas, 2018). Other support was also actualized by the government by drafting a *low carbon development* plan (Bappenas, 2019), which is now included in the framework of the National Medium- Term Development Plan (RPJMN) 2020-2024. The above goals and targets require program support and financing. Therefore, the government has prepared a regulatory framework related to financing support in Government Regulation No. 46/2017 on Environmental Economic Instruments. The regulation opens up opportunities for environmental funding, trading of waste and/or emission permits, taxes, levies, and environmental subsidies (Haryanto & Martha, 2017)<sup>[5]</sup>.

The decline in the quality of the biological environment is expected to be experienced by Lampung Province in the next few years. Data from the Lampung Province Environmental Service [DLH] shows that each person on average creates 0.45 kilograms of waste per day. Meanwhile, still according to DLH 2020 data, the waste pile in Lampung reached 1,630,317.05 tons / year. This is also supported by several news articles related to environmental conflicts in Lampung Province, one of which is in the City of Bandar Lampung.

The ecological condition of Bandar Lampung City is increasingly concerning. Green Open Space in Bandar Lampung City is only 11.08% left, the rivers in Bandar Lampung City have been polluted & experiencing narrowing & siltation, the condition of the coastal area of Bandar Lampung City which has been damaged & as a waste pile location and the lack of maximum waste management in Bandar Lampung City.

Waste in Bandar Lampung City continues to grow every day. This can be seen according to January 2019 the waste in Bandar Lampung City reached 800 tons per day, then as of September 20, 2019 the waste in Bandar Lampung City reached 1,000 tons per day.

During the last five years Green Open Space (RTH) in Bandar Lampung City there is no addition and even tends to decrease. RTH in Bandar Lampung City has only fulfilled 11.08% which is still far according to the ideal figure which should be a minimum of 20% public green open space. This is caused by the conversion of functions and even the loss of workshops that were originally as green spaces and then changed functions as business and office buildings, tourist workshops and even some as stone and soil mining locations.

The city of Bandar Lampung is the capital of Lampung Province and is one of the most populous cities in Lampung Province, which certainly has air that is not as fresh and clean as other districts in Lampung Province. We understand together, that every city will be identical using its air pollution. The Air Quality Index in Bandar Lampung City itself, the air quality is currently at a level below good, this is likely caused by the density of transportation in Bandar Lampung City. Because the density of transportation is the cause of air pollution in an area, another factor that contributes to air pollution is industrial smoke.

In Bandar Lampung there are at least 23 rivers whose water quality is not good. This is because the river in Bandar Lampung has silted up and narrowed. In addition, the management of river management is also still poor, as seen from the case of garbage in the river as well as the city coast.

Based on Walhi Lampung data, Bandar Lampung has 33 hills, where the appearance of hills in Bandar Lampung City has been damaged and even severely damaged, this is caused by the conversion of functions as mining, settlements & tourist sites. Walhi noted that there are 20 hills whose conditions are moderately & severely damaged, so it can be said that 70% of the hills in this city have been moderately to severely damaged. On November 1, 2019 Bukit Perahu / Bukit Onta experienced an avalanche.

The condition of coastal pollution in Bandar Lampung City is increasingly as concrete evidence of many piles of garbage on the coast of Bandar Lampung City. Industrial waste pollution is also suspected of polluting the coastal area in Bandar Lampung City. In early June, the people of Bandar Lampung City were shocked by the presence of dead fish and other marine life, which was allegedly the result of the disposal of waste from ships docked at Panjang Harbor.

Based on the news of biological environmental conflicts that occurred in Lampung Province, especially in Bandar Lampung City, it implies that the government's efforts have not been adequate in preserving the biological environment. This was conveyed by Achmad Jon Viktor, Head of Waste Management of the Lampung Provincial Environment Office that the Lampung Government's obstacle in managing single-use plastic waste is the lack of infrastructure. In general, the waste transportation fleet is inadequate & the reverse utilization of plastic waste is limited to expecting waste banks & scrap stalls.

"I hope that one day Lampung will be able to make an investment in waste management. So, there is a factory system here. Including for the manufacture of plastic seeds, and the procurement of shredding machines for organic waste and plastic waste." Viktor said.

According to Viktor, the efforts made by the Lampung Provincial Government to reduce waste are coordinated in terms of management using agencies at the district & city level. In addition, his party also conducts introductions, especially in areas that have not received waste transportation services.

Environmental problems that occur in Lampung Province require attention from the government, both at the national, provincial and district / city levels. The limited capacity of local governments is one of the factors for the unsuccessful handling of these environmental problems. Government capacity requires the support of adequate budget availability through government efforts to issue fiscal policies. Therefore, it is necessary to conduct further studies related to efforts to include ecological considerations in fiscal policy in Lampung Province.

## 2. Literature Review

There have not been many studies on efforts to incorporate ecology-based fiscal policy ideas in a region at the provincial or district / city level. Studies on fiscal policy are mostly carried out by considering an economic approach, as conducted (Hertinawati, 2021)<sup>[6]</sup> shows that in an effort to anticipate the economic impact caused by the Covid-19 pandemic on a greater influence on the Indonesian national economy, various efforts of the Indonesian government have been made, namely monetary policy which is needed in order to stabilize the economic system by supporting the fiscal policy of the national monetary forum, namely Bank Indonesia & also actively supported by the work of the Financial Services Authority body in Indonesia. In this case

the Indonesian government is already trying to carry out a combination of these policies in order to alleviate the Indonesian nation based on a larger economic crisis.

The study has not discussed the importance of including the idea of ecology-based fiscal policy, so it is necessary to examine more deeply the urgency of the idea of ecology-based fiscal policy in an effort to minimize the impact of environmental problems which are also as dangerous as the danger of the covid-19 pandemic outbreak if it is not immediately taken into consideration by the government, especially in Lampung Province. The fiscal policy study conducted (Silalahi & Ginting, 2020) <sup>[17]</sup> has not paid attention to ecological studies which are also the impact of the covid-19 outbreak.

It is explained in the study that the government's fiscal policy to achieve the state revenue target during the pandemic is to revise the tax revenue target, rearrange the allocation of state revenue in the 2020 State Budget and implement taxes.

Digital for activities through electronic media. On the expenditure side, the government will carry out refocusing and budget revisions to reduce the APBN deficit figure to help finance the government which has carried out 3 times the Budget stimulus, namely February amounting to IDR 8.5 trillion to strengthen the domestic economy through the tourism sector, March amounting to IDR 22.5 trillion. in the form of fiscal & non-fiscal policies to support the industrial sector & facilitate export-import & the end of March amounting to IDR 405.1 trillion for health policies. (Silalahi & Ginting, 2020) <sup>[17]</sup>.

Research conducted (Nurfatriani *et al.*, 2015) <sup>[10]</sup> suggests that there is a need for a shift towards a green fiscal policy that positions the benefits of forests as a whole. To prepare a green fiscal policy framework, it is necessary to analyze the stakeholders involved in the formulation of green fiscal policy. Based on the categories of stakeholders involved in the formulation of green fiscal policy, namely being key players, context setters, subjects & crowds, it is necessary to optimize stakeholder arrangements in the realization of green fiscal policy, namely through increased cooperation & collaboration between subjects & key players who have a high level of interest in green fiscal policy. This can be realized through increased collaboration & effective cooperation between central & regional governments on green fiscal policy realization & current forestry fiscal policy regulatory practices.

The preparation of a green fiscal policy framework requires a series of analytical stages as in the research (Nurfatriani *et al.*, 2018) <sup>[11]</sup>, namely policy instruments, stakeholder analysis and analysis of the role of scientists in the formulation of green fiscal policies. The role of scientists in the policy-making process is analyzed using a structured division matrix regarding scientists who influence the policy-making process from the level of independence & influence. The results show that the role and position of scientists in green fiscal policy making are divided into honest brokers of policy alternatives and issue advocates. The influence of scientists is limited to the academic journey only, namely when drafting academic papers.

Ecology-based fiscal policy is related to sustainable development efforts. This is in line with the statement in (Haryanto, 2015) <sup>[4]</sup> that the current development agenda has shifted from problems that are only limited to eradicating poverty to sustainable development goals (Sustainable

Development Goal's or SDG's). To support this, the role of the budget becomes very significant, including the Transfer to Regions mechanism. Based on an analysis conducted (Haryanto, 2015) <sup>[4]</sup>, the General Allocation Fund (DAU) mechanism has the potential to become a source of environmental and forestry funding through the ecological scal transfer mechanism. The ecological scal transfer mechanism is realized through increasing the DAU allocation ceiling for the benefit of environmental and forestry conservation and adding environmental and forestry indicators in the existing DAU formulation.

Based on several literature reviews that have been presented, the author has an interest in conducting research related to the urgency of ecology-based fiscal policy ideas in Lampung Province.

### 3. Methods

This research uses qualitative methods qualitative research is research that intends to understand the phenomenon of what is experienced by the research subject holistically and by means of descriptions in the form of words and language (Lexy J. Moleong, 2019) <sup>[9]</sup>.

The stage of searching for information about the urgency of implementing ecology- based fiscal policy in Lampung Province uses documentation techniques. Documentation is a method used to obtain data and information in the form of books, archives, documents, written figures and images in the form of reports and information that can support research. Documentation was used to collect data and then reviewed. The documents collected are Policy Papers and Policy Drafts related to ecology-based fiscal studies in Indonesia, and several research journals that make scientific contributions to the discussion of this research.

### 4. Results

#### 4.1 Regulatory Framework for Ecological Fiscal Policy Development

There are two regulatory frameworks that form the basis for the development of EFT in Indonesia, namely regulations regarding intergovernmental fiscal transfers and regulations regarding ecological-based incentives which form the basis for the development of ecological criteria and indicators (Putra *et al.*, 2019) <sup>[12]</sup>, as follows:

##### 1. Intergovernmental Fiscal Transfer Regulation

In the context of TAPE & TAKE development, the primary regulatory framework is Government Regulation No. 12 of 2019 on Regional Financial Management which replaces Government Regulation No. 58 of 2005 utilizing the same. Article 45 of this regulation mentions the types of financial donations consisting of Financial Assistance by Provincial Regions & Financial Assistance by Regency Regions. In article 67, the provisions on financial donations are explained in more detail including the purpose & basis of financial donation gifts, types of financial donations, & the nature of financial donation appropriations. Based on this provision, TAPE was developed into a form of financial donation with a special designation (Special Financial Aid, BKK) by the Provincial Government to the District Government & TAKE is a financial donation by the District Government to the Village Government using the exclusive purpose of an ecology- based performance bonus gift. Specifically, for TAKE because it is designed to be part of the Village Fund Allocation (ADD), in addition to the

provisions above, it also uses the provisions on ADD stipulated in Article 96 of Government Regulation No. 47 of 2015 concerning Amendments to Government Regulation No. 43 of 2014 concerning Implementation Regulations of Law No. 6 of 2014 concerning Villages.

## 2. Ecological Incentive Regulation

As part of its commitment to the Paris Agreement, Indonesia has enacted Law No. 16/2016 on the Ratification of the Paris Agreement to the United Nations Framework Convention on Climate Change. Article 5 of the Paris Agreement states the need for policy approaches and positive incentives in the framework of activities to reduce emissions from deforestation and forest degradation and sustainable forest management, conservation and enhancement of forest carbon stocks, including through results-based payments. In addition, the government has also shared environmental economic instruments as stipulated in Law No. 32 of 2009 concerning Environmental Protection & Management & Regulations.

Government No. 46/2017 on Environmental Economic Instruments (IELH). But unfortunately, the provisions on IELH have not specifically regulated the intergovernmental ecological bonus procedure. The incentives that are regulated are more directed at companies & business entities.

### 4.2 Case Study of Ecological Fiscal Transfer Policy Implementation in North Kalimantan Province and Jayapura District

North Kalimantan Province is the first in Indonesia to implement EFT in the form of ecology-based provincial financial aid transfers (TAPE). The implementation of EFT in North Kalimantan is regulated in Governor Regulation No. 6 of 2019 concerning Amendments to North Kalimantan Governor Regulation No. 49 of 2018 concerning Procedures for Granting, Distributing & Accountability for Financial Assistance Expenditures. The Governor Regulation regulates a new allocation for ecology-based financial donations. Previously, specific financial donations were only allocated for 5 activities, namely: additional income for teaching energy; additional income for educational energy; additional income for field agricultural extension workers; additional income for fisheries extension workers whose funding originated from the APBD; & regional school operational donation funds. The new regulation regulates the use of ecology-based financial donations directed to five activities, namely:

1. Prevention of forest fires in other use areas (APL).
2. Protection and management of green open spaces (RTH).
3. Waste management
4. Protection of water sources, and
5. Prevention of air pollution.

Jayapura is the first district in Indonesia to implement EFT (TAKE) in the Village Fund Allocation formula (ADK/ADD). This policy is stipulated in the Regent Regulation No. 11/2019 on Jayapura Regency Village Fund Allocation. Unlike conventional ADD/ADK, Jayapura's ADK adds a proportion of bonus allocation & affirmation

allocation, in addition to basic allocation & proportional allocation. Ecological indicators are included in the bonus allocation proportion, which is obtained based on the Village Development Index (IDM). TAKE funds can be used by the village government to support village government capacity building, basic service delivery, village poverty reduction, community group economic development and environmental protection. In 2019, Jayapura allocated a total of 76 billion ADD funds consisting of a basic allocation of Rp 66 billion (86%), a proportional allocation of Rp 7 billion (10%), an affirmation allocation of Rp 2.5 billion (3%) for 34 villages, & a bonus allocation. IDR 775 million (1%) performance was given to 37 out of 144 villages.

### 4.3 Opportunities for Ecology-Based Fiscal Transfer Policy Implementation and its Link to Sustainable Development

The decentralization system makes the role of regions in development very strategic, because some authority in development governance has been handed over to local governments, one of which is governance of ecological functions, such as the environment, forestry, natural resources, and other sources of biodiversity.

However, at present, this authority has not been effectively exercised by local governments, because the design of fiscal instruments has not provided space for regions to manage these ecological functions properly. Fiscal capacity and the quality of its use have not favored the management of ecological functions. Instead, fiscal instruments have become a stimulus to damage ecological functions, such as the Revenue Sharing Fund (DBH) for natural resources, which tends to incentivize environmental damage. This limitation has led to an increase in the impact of ecological damage in the regions, such as the rise of forest and land fires, environmental pollution, deforestation and various natural disasters.

Therefore, the fiscal transfer system must be improved and ecologically based. This is important, so that the authority given to the regions is balanced with fiscal capacity. Especially with the high dependence of regions on transfers of funds from the central government, the role of ecology-based fiscal transfer policies can strengthen the role of regions in managing ecological functions. Not only that, fiscal transfer instruments between local governments also need to be encouraged using an ecological approach, such as financial assistance instruments from provincial governments to district / city governments or from district / city governments to village governments.

Ecology-based fiscal transfer policies have an influence on sustainable development efforts. The most important effort in carrying out development must pay attention to the sustainability of the environment and the development process does not interfere with the sustainability of nature, one of which is protected areas in Lampung Province, protected areas are very limited areas that are not even allowed for development. Based on this, before analyzing further studies, pay attention to the overlap between KRP and spatial patterns (protected areas). The extent of the distribution of protected areas in Lampung Province is as follows:

**Table 1:** Area of Protected Areas in Lampung Province

Protected Area		
	Area (Ha)	Percentage of Lampung Province Area (%)
Nature Reserve	2.882,88	0,09
Marine Nature Reserve	29.020,90	0,86
Coastal and Island Conservation Areas	121.278,32	3,61
Small (KKP3K)		
Marine Protected Areas (MPAs)	136.611,54	4,07
Protected Forest	319.651,18	9,52
Production Forest	170.032,54	5,07
Limited Production Forest	28.922,36	0,86
Nature Sanctuary/Nature Conservation	1.373,55	0,04
Wildlife Sanctuary	4.155,82	0,12
Community Forest Park	21.699,32	0,65
National Park	380.248,74	11,43
Total	1.219.256,93	36,32

Source: KLHS RTRW Lampung Province

Sustainable development efforts require some information considerations information available in a region, especially Lampung Province. The information consideration is in the form of information about Lampung Province Ecoregion. Based on Law No. 32 of 2009, ecoregions are geographical areas that have similarities characteristics of climate, soil, water, native flora and fauna, and patterns of human interaction with nature that illustrate the integrity of natural systems and the environment. In Law No. 32 of 2009 Article 7 paragraph 2, stipulates that there are 8 (eight) considerations for determining ecoregion boundaries, namely by considering similarities: landscape; watershed; climate; flora and fauna; socio-cultural; economic; institutional; and environmental inventory results.

Based on the analysis and agreement of experts, the 8 factors/parameters have been determined that the parameters used as delineators for determining the ecoregion of Lampung Province are static parameters, in this case the landscape parameters, namely morphology (shape of the earth's face) and morphogenesis (origin of earth formation). While other parameters, especially dynamic ones (land use)

are used as attributes to describe the ecoregion's character. On a national scale, Lampung Province is included in the Sumatra Island ecoregion. The more detailed ecoregion division for Lampung Province aims, among others, to be used as:

1. Unit of analysis in the establishment of environmental DD and DT;
2. The basis for providing direction for the establishment of the RPPLH;
3. Reference in strengthening cooperation;
4. Control of preservation of environmental ecosystem services.

The division of Lampung Province ecoregion delineation is classified based on its geomorphological characteristics, resulting in 14 (fourteen) ecoregion classes which are then displayed in the form of a map. The ecoregion classification of Lampung Province can be seen in Table 2. The resulting Lampung Province ecoregion is an island (land) ecoregion and has an administrative area scope of 2 cities and 13 regencies.

**Table 2:** Ecoregions of Lampung Province

Ecoregions		Area (Ha)
Fault Hills		101.714,90
Water Body		126,71
Volcanic Fluvio Plain		424.056,36
Alluvial Plain		13.609,57
Fluviomarine Plain		60.249,07
Peat Land		97.270,57
Coast		73.335,26
Volcano Foothill Plain		1.570.966,24
Valley between hills/mountains(Terban)	Faults	90.581,59
Foothills of Volcano		156.453,91
Mountain Folds		22.906,78
Fault Mountains		297.987,80
Volcano Cone & Slope		236.432,46
Valley between hills / Mountains (Intermountain Basin)	Folds	61.761,76
Folded Hills		136939,28

Source: KLHS RTRW Lampung Province



**Fig 1:** Ecoregion Map of Lampung Province; The resulting provincial ecoregion map has a scale of 1:250.000.

Along with improving the welfare of humanity in various parts of the world, including Indonesia, the development agenda has shifted from previously focusing on eradicating poverty and its associated impacts, as stated in the 2015 Millennium Development Goal's (MDG's) to Sustainable Development Goal's (SDG's). Sustainable development offers an inclusive, long-term concept of economic management by harmonizing the achievement of high economic growth, environmental conservation, and inclusive social empowerment.

The role of the Government, especially in fiscal policy management, is crucial in encouraging the optimal implementation of the green economy. Through fiscal incentives, the government can support environmentally sound investments such as renewable energy that aims to overcome the energy and electricity crisis. On the opposite side, with fiscal disincentives, the government can impose additional taxes on industries that pollute the environment and health. The same can be done for budget expenditure policies through more appropriate budget allocations for expenditures that prioritize sustainability.

Development patterns must change. A balance of development is needed, which places ecological factors as the main instrument in development, in addition to economic and social instruments. The utilization of added value of natural resources and the environment must meet the principles of sustainability. Not all the value of these benefits are exploited for the short term, but must think about the benefits between generations. Therefore, a change in the development paradigm must be made. Economic resources must be utilized as much as possible for sustainable development, which increases the value of benefits from ecological functions.

One of them is through a sustainable financing scheme for the protection and utilization of ecological functions. Many

ecological financing instruments can be done, such as green bonds, green sukuk, carbon taxes, environmental service payments and so on. However, a sustainable financing scheme is needed in a fiscal system by governments in all countries. These fiscal instruments can be in the form of ecological fiscal transfers.

Ecology-based fiscal transfers are a development of intergovernmental fiscal transfer schemes, namely the central government and local governments, by adding ecological indicators to the agreed formulation. The aim is to provide incentives for local governments to carry out biodiversity conservation activities, including forest conservation and improving the welfare of communities around forest areas (Irawan *et al.*, 2014; Ring, 2008b, 2008a) [8, 14, 13].

**4.4 The Urgency of Implementing Ecology-Based Fiscal Policy in Lampung Province** First, strengthening the capacity of local governments in preserving ecological functions in an effort to realize sustainable development. Current policies do not provide much space for local governments to manage biodiversity and the environment properly. This is the implication of the lack of budget owned by local governments that are rich in ecological functions. In fact, to manage ecological functions well, appropriate sources of financing and incentives for ecological conservation activities are needed. Therefore, ecology-based fiscal transfers are important in an effort to increase the fiscal capacity of local governments rich in biodiversity and a good environment, which if managed accountably and transparently will be able to increase the capacity of local governments in managing biodiversity and environmental conservation (Saputra *et al.*, 2020) [15].

Second, it supports the government's strategic programs, namely low-carbon development, climate change impacts

and sustainable development. Currently, the government has developed a low-carbon development concept. This is part of the government's commitment to addressing the impacts of climate change. Currently, the implementation is still constrained, especially the matter of financing. Ecology-based fiscal transfers can be an effective financing instrument to support low-carbon development and control the impacts of climate change, especially at the regional level. (Saputra *et al.*, 2020)<sup>[15]</sup>

Third, improving the welfare of people living around and within forest areas, who have been marginalized by growth-oriented development and exploitation of forests and land. In fact, there are around 10 million poor people living in and around forest areas. They lack access to economic resources, because most of their land has been occupied by extractive companies, such as oil palm plantations, forestry and mining. In addition, it is prohibited by regulation to carry out economic activities within the forest area. Their livelihood space is increasingly limited, causing some of them to lose their permanent livelihoods. Land degradation due to exploitation also causes some of their livelihood sources to decrease. The only way to survive is to encroach on forest areas. Overcoming such poverty requires a community development program. Ecology-based fiscal transfers can be one of the alternatives in developing these programs, especially in supporting program financing (Saputra *et al.*, 2020)<sup>[15]</sup>.

Fourth, strengthen the function of fiscal policy and governance oriented towards biodiversity and environmental conservation. Decentralization, which reforms the fiscal policy governance system in Indonesia, has opened up a large space for the transfer of funds from the central government to local governments. In fact, since 2018, the allocation of transfers to the regions is greater than central government spending. However, this large fiscal capacity has not been oriented towards the preservation of ecological functions. The balancing fund consisting of the General Allocation Fund (DAU), Special Allocation Fund (DAK), and Revenue Sharing Fund (DBH) is counterproductive to the preservation of ecological functions. In fact, the greater the DBH allocation received by local governments correlates with the increasing rate of deforestation. Therefore, ecology-based fiscal transfer policies can be an alternative in strengthening the functions of fiscal policy and governance of biodiversity and the environment (Saputra *et al.*, 2020)<sup>[15]</sup>.

## 5. Conclusions

Including ecological considerations in fiscal transfer policies has several urgencies, namely; First, strengthening the capacity of local governments in preserving ecological functions in an effort to realize sustainable development; Second, supporting the government's strategic programs, namely low-carbon development, climate change impacts and sustainable development; Third, improving the welfare of communities around and within forest areas, which have been marginalized by growth-oriented development and exploitation of forests and land; Fourth, strengthening the function of fiscal policies and governance oriented towards the preservation of biodiversity and the environment.

## 6. References

1. Aryono S, Sardio BI, Hariqo R, Fernando O. Walhi: Ecological Condition of Bandar City Lampung Increasingly Concerning, 2020. Available at <https://kumparan.com/lampunggeh/walhi-kondisi-ekologis-kota-bandar-lampung-makin-memprinkan-1sf08KoUyAW>

2. National Development Planning Agency. Low Carbon Development: A Paradigm Shift Toward a Green Economy in Indonesia. Jakarta, 2019.
3. National Development Planning Agency. National Development Planning Agency. Roadmap of SDGs Indonesia: A Highlight, 2018. Available at: <https://www.unicef.org/indonesia/media/1626/file/Roadmap%20of%20SDGs.pdf>
4. Haryanto JT. As Potential Environmental Funding in the Region. 2015; 18:252-266.
5. Haryanto JT, Martha LF. Legal Framework for Environmental Economic Instruments in Efforts to Reduce Greenhouse Gas Emissions. Journal of Constitution. 2017; 14(2):262-294.
6. Hertinawati H. An Analysis of Indonesia's Fiscal and Monetary Policies in Indonesia, 2021.
7. Facing the Covid-19 Pandemic Outbreak. (Stocks, Economics, Finance and...).2021; 3(1):118-130. <http://openjournal.unpam.ac.id/index.php/SKT/article/view/8936>
8. Irawan S, Tacconi L, Ring I. Designing intergovernmental fiscal transfers for conservation: The case of REDD+ revenue distribution to local governments in Indonesia. Land Use Policy. 2014; 36:47-59.
9. Lexy J, Moleong DMA; Moleong, Lexi J. Qualitative Research Methodology Revised Edition. Bandung: Teen Rosdakarya. PT. Remaja Rosda Karya, 2019; 2014.
10. Nurfatriani F, Darusman D, Nurrochmat DR, Yustika AE, Research P, Climate P. (Stakeholder Analysis in Green Fiscal Policy Transformation), 2015, 105-124.
11. Nurfatriani F, Darusman D, Nurrochmat DR, Yustika AE, Salaka F. The Role of Scientists in Green Fiscal Policy Making: Case Study of Jambi Province. 2018; 15(1):39-54.
12. Putra RAS, Muluk S, Salam R, Untung B, Rahman E. Policy Paper Introducing Ecology-based Fiscal Incentive Schemes in Indonesia: TAKE, TAPE, and TANE, 2019, 1-17.
13. Ring I. Compensating municipalities for protected areas: Fiscal transfers for biodiversity conservation in Saxony, Germany. Gaia-Ecological Perspectives for Science and Society. 2008a; 17(1):143-151.
14. Ring I. Integrating local ecological services into intergovernmental fiscal transfers: The case of the ecological ICMS in Brazil. Land Use Policy. 2008b; 25(4):485-497.
15. Saputra W, Halimatussadiyah A, Haryanto JT, Nurfatriani F, Salminah M. Ecology-Based Fiscal Transfer Policy Design, 2020.
16. Partnership for Governance Reform Indonesia USAID Bangun Indonesia Untuk Jaga Alam Demi Keberlanjutan (BIJAK), Did.
17. Silalahi DE, Ginting RR. The Indonesian Government's Fiscal Policy Strategy to Manage State Revenues and Expenditures in the Face of the Covid Pandemic. Jesya (Journal of Economics & Economics Sharia). 2020; 3(2):156-167. Doi: <https://doi.org/10.36778/jesya.v3i2.193>