



Implications of Indonesia's Participation in the Initiation of the Tfff Program on Sustainable Tropical Forest Management and Financing Policies in Indonesia

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ABSTRACT

The Tropical Forest Forever Facility (TFFF) is an innovative conservation financing scheme designed to support tropical forest conservation through a blended finance approach that integrates public funds and private investment. This study aims to analyze the implications of Indonesia's participation in the TFFF program for policies on the management and financing of sustainable tropical forests in Indonesia. The analyses conducted in this study include an analysis of the suitability and implications of Indonesia's participation in the TFFF, an analysis of the challenges and opportunities of integrating the TFFF into the national context, and an analysis of the feasibility of implementing the TFFF in the Indonesian context. The implications of Indonesia's participation in the TFFF program initiative lie in three main areas: strengthening national data sovereignty, enhancing bargaining power in global governance, and optimizing the economic benefits derived from forest resources. Based on the assessment, Indonesia falls into the "eligible" category for accessing TFFF funds according to the 10 eligibility criteria outlined in the TFFF 3.0 Concept Note. The TFFF program is viable and important to implement in Indonesia, with Indonesia's potential revenue ranging from USD 87 to 281 million. Implementing the TFFF not only has the potential to enhance Indonesia's role in global tropical forest conservation efforts but also to generate economic, social, and ecological benefits for Indonesia.

INTRODUCTION

Climate change is one of the biggest challenges facing humanity around the world. An increase in the concentration of greenhouse gases (GHGs) in the atmosphere leads to an increase in global average temperatures, changes in rainfall patterns, and an increase in the frequency of extreme weather changes. There are many factors that affect the increase in GHG concentrations and including the agriculture, forestry, and other land use (AFOLU) sectors. Bumyut et al. (2026) reports that the AFOLU sector contributes around 23% of the total global anthropogenic emission sources derived from activities that cause deforestation, forest degradation, and land conversion.

The existence of deforestation has an impact on the increase in GHGs, this occurs due to the loss of carbon sequestration functions. With deforestation or land conversion, carbon stored in vegetation and soil biomass is released into the atmosphere in the form of carbon dioxide (Wang, 2024). In addition to increasing GHG emissions, deforestation also causes biodiversity loss, degradation of ecosystem functions, and a decline in environmental services that are important for the sustainability of human life. Therefore, reducing deforestation and sustainably managing forests is one of the key strategies in climate change mitigation efforts at the global level (Pendrill et al., 2019).

Tropical forests are one of the forest areas that also experience deforestation problems that cause a domino effect on climate change. Tropical forests are one of the ecosystems that have the largest carbon sequestration and storage function globally. The restoration of an ecosystem is considered feasible if it provides economic and sustainable benefits as research in Komodo National Park conducted by Firmansyah et al (2023). According to Pan et al. (2011), tropical forests store about 228-247 Gigatons of carbon in above ground biomass which is equivalent to more than 50% of total terrestrial carbon. With this extraordinary absorption function, it is unfortunate that tropical forests are included in areas with a high threat of deforestation.

Indonesia has 92.5 million hectares of tropical forests as of 2023 (MoEF, 2024). With the third largest tropical forest area in the world, Indonesia plays a strategic role in the global dynamics of the use of tropical forest functions to deal with various climate problems. Indonesia accounts for about 10% of the total area of tropical forests worldwide (FAO, 2023). This tropical forest spread across Indonesia's major islands is a habitat for various endemic species such as orangutans and Sumatran tigers and is a source of livelihood for many local people.

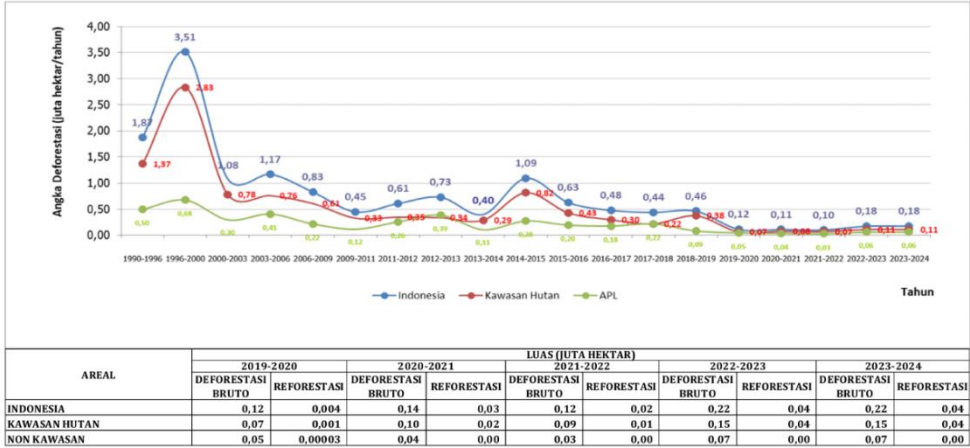
In addition to its ecological potential, Indonesia's forests also have high economic potential. Overall, the forestry and plantation sectors contribute more than 3% of the National Gross Domestic Product (GDP) with the export value of timber and its derivative products reaching 12 billion US Dollars in 2023 (BPS, 2024). With this kind of ecological and economic potential, Indonesia's tropical forests unfortunately face the challenge of high deforestation caused by land conversion factors into oil palm plantations, mining, and infrastructure development.

Global Forest Watch in 2023 reported that Indonesia's deforestation rate reached 1.07 million hectares, up about 5% from the previous year. This deforestation is equivalent to the loss of 1.5 football fields per minute (Hansen et al., 2024). This phenomenon contributes to cumulative GHG emissions generated by 1.45 Gigatons of CO₂ equivalent since 2001, making Indonesia one of the largest contributors to emissions from deforestation in Southeast Asia (WRI, 2024). This has an impact on biodiversity loss until more than 200 species are endangered due to habitat fragmentation. In addition, there is an increase in vulnerability to natural disasters.

The socio-economic impact is also caused by deforestation. In 2019-2023, the existence of forest fires in Indonesia affected the health of millions of people not only locally but almost in various regions of ASEAN countries. Economically, the problem is estimated to reach a loss of 5 billion US dollars (ADB, 2024). In addition, deforestation displaces indigenous peoples who are completely dependent on forest areas. With this deforestation, indigenous peoples lose access to their customary lands, triggering social conflict and structural poverty. Deforestation due to land conversion to oil palm plantations is often expected to be much better economically. However, this will lead to dependency that exacerbates global market instability due to fluctuations in commodity prices and the pressure of international sanctions on deforestation (EUDR, 2023).

Deforestation in Indonesia since 1990 has shown a fluctuating pattern due to human factors and natural conditions. The peak of deforestation occurred in the period 1996–2000, mainly triggered by large fires in East Kalimantan that coincided with El Niño. After this period, the rate of deforestation generally decreased, with the lowest achievement in 2019–2020 falling to 75.03%. The most significant decline occurred in plantation forests, from 275.8 thousand hectares in 2018–2019 to minus 1.2 thousand hectares in 2019–2020. In 2020–2021, net deforestation fell by 1.7% while gross deforestation increased by 16.8%. For 2021–2022, net deforestation fell again by 8.4% and gross deforestation decreased by 14.1%. However, in 2023, the trend is changing with an increase in net deforestation of 16.4% and an increase in gross deforestation of 21.8% (Ministry of Forestry, 2024).

Image 1. Diagram of Indonesia's Deforestation Development (Million Ha) in 1990-2024



In times of crisis like the current one, international commitments are key to the transition to sustainable forest management. Indonesia ratified the Paris Agreement in 2016 and is committed to reducing GHG emissions by 29% independently or 41% with international assistance until 2030, with the forestry sector as a top priority (MoEF, 2024). The Reducing Emissions from Deforestation and Forest Degradation (REDD+) program has become a key instrument. Through REDD+ Green Climate Fund Output 2 and FOLU Norway's Contribution Indonesia, Indonesia received financing of ±300 million US dollars. However, challenges to implementing REDD+ in Indonesia are still significant, including a lack of inter-agency coordination, corruption at the regional level, and unclear rights to customary lands, which led to only 40% of deforestation reduction targets being achieved by 2022 (UNFCCC, 2023). Therefore, new multilateral initiatives such as the TFFF are emerging as innovative solutions to overcome the limitations of domestic financing.

The TFFF, initiated by Brazil at the COP28 Conference in Dubai in December 2023, is a multilateral financing facility specifically designed to support tropical forest conservation in the countries of the Amazon, Southeast Asia, and Africa. The TFFF aims to raise funds from government donors, international financial institutions, and the private sector, to fund REDD+ projects, forest restoration, and local capacity building (World Bank, 2024).

Therefore, this study aims to analyze the suitability and implications of Indonesia's participation in TFFF, identify challenges and opportunities for the integration of TFFF into national policies in sustainable forest management, and prepare an analysis of the feasibility of TFFF implementation in the Indonesian context which has a function as an instrument for deforestation mitigation while strengthening Indonesia's forest governance.

METHODOLOGY

This study employed a qualitative research approach using descriptive analysis, supported by primary data obtained through interviews with five expert respondents from the Ministry of Finance, Ministry of Forestry, WWF Indonesia, and Madani Berkelanjutan Foundation. The collected data were analyzed using several approaches, including Comparative Framework Analysis (CFA) to assess the compatibility of the TFFF policy with Indonesia's forestry policies and institutional conditions, and External Factors Analysis Summary (EFAS) to identify the opportunities and challenges associated with integrating TFFF into the national context. The feasibility of TFFF implementation was further assessed based on the eligibility criteria outlined in the TFFF 3.0 Concept Note. Respondents' assessments were measured using an ordinal scale of 1–5 and analyzed descriptively using average scores to determine the level of policy compatibility and Indonesia's capacity to fulfill the TFFF requirements.

LITERATURE REVIEW

Policy translation

The concept of policy translation in this study is used as an analytical framework to understand how the Tropical Forest Forever Facility (TFFF) mechanism initiated by Brazil is interpreted and implemented into Indonesia's forestry policy. Through this approach, the policy translation process is understood not just as direct adoption, but as a series of interpretations, adjustments, and modifications influenced by political, social, and institutional factors. Analysis with a policy translation perspective allows the identification of the dynamics of actors and institutions that play a role in interpreting TFFF, as well as assessing policy suitability with forest governance in Indonesia. Thus, TFFF policies originating in Brazil can be transformed to align with national interests and socio-ecological conditions at the site level.

Institutional fit

The institutional fit theory in this study is used as an analytical framework to assess the extent to which the Tropical Forest Forever Facility (TFFF) policy initiated by Brazil is in line with the institutional structure and ecological, social, and economic dimensions in Indonesia. This approach is operationalized through four main aspects, namely ecological fit, social fit, scale fit, and functional fit. By outlining these four dimensions, this study seeks to provide a systematic analytical framework to evaluate the level of conformity of global policies with the characteristics and conditions of recipient countries, especially Indonesia.

Polycentric climate governance

The polycentric climate governance (PCG) theory in this study is used as an analytical framework to examine climate governance from the site, national, regional, to global levels in the implementation of the Tropical Forest Forever Facility (TFFF) initiative initiated by Brazil. This approach also allows for the mapping of potentially involved actors at each level, providing a comprehensive picture of the distribution of roles and interactions between decision-making centers. PCG departs from the understanding that at each level of governance there are many decision centers that interact and coordinate with each other to achieve policy effectiveness. Thus, the use of PCG as an analytical framework provides a more realistic perspective on climate policy in tropical countries. This approach helps explain how the dynamics of cross-level and stakeholder interactions affect policy effectiveness.

Climate justice

Climate Justice theory emphasizes the importance of a fair distribution of the burden of mitigation and adaptation, as well as the recognition of the rights of communities affected by climate change (Schlosberg & Collins, 2014). In this study, the Climate Justice approach was used to assess the extent to which climate policies are able to bridge the gap between global ambition through the Tropical Forest Forever Facility (TFFF) initiative and the reality of implementation in Indonesia. This analysis highlights potential risks, as well as emphasizing the urgency of transparency and accountability in funding mechanisms, in addition to integrating social justice principles into policy. As an analytical framework, Climate Justice provides a critical perspective to evaluate the distribution of benefits, stakeholder engagement, as well as procedural fairness in the decision-making process. This approach is relevant because it is

able to explain the dynamics of the distribution of responsibilities and benefits in climate governance. TFFF is a case study to show how the principle of justice is applied in tropical forest conservation policies, as well as how cross-actor interaction and governance levels affect policy effectiveness.

RESEARCH RESULTS

Analysis of the suitability and implications of Indonesia's participation in the TFFF

The analysis of the suitability and implications of Indonesia's participation in the TFFF aims to compare how the TFFF scheme is with the national policies that have been in place and understand how the impact if Indonesia participates in the initiation of the TFFF program by looking at the institutional aspects, economic aspects and socio-ecological aspects that are potentially affected. Based on primary data obtained from interviews conducted with several expert respondents, the scoring data was obtained as follows:

Table 1. Respondents' assessment of Indonesia's policy statement of conformity with TFFF

Yes	Statement	A	B	C	D	E	Average Score
1	The definition of forest in Indonesian policy is broader than the definition of forest used in the TFFF, but in SIMONTANA it is known that plantation forests have not been separated within forest land cover.	4	4	4	3	4	3,8
2	The definition of deforestation and degradation in Indonesia is the reduction of forest cover and its quality through local approaches such as permanent forest fires.	5	4	4	3	3	3,8
3	Indonesia's MRV system through SIMONTANA has principles and is based on TACCC that has been used in FREL>	4	5	5	4	4	4,4
4	The reference to data on forest area and cover in Indonesia refers to SIMONTANA.	4	5	4	3	3	3,8
5	Forest institutions and governance in Indonesia are quite complete, starting from the national structure to the site level.	4	5	4	4	4	4,2
6	Indonesia has experience in managing funds from result-based payments.	5	5	5	4	4	4,6

Yes	Statement	A	B	C	D	E	Average Score
7	Indonesia has given recognition to forest village communities at the site level through the Social Forestry scheme.	4	4	5	3	3	3,8
8	SIMONTANA as an NFMS has been verified by the UNFCCC and an independent assessment.	4	5	5	4	4	4,4
9	The technical aspects in terms of meeting the minimum mapping unit, satellite resolution, biome boundaries and deforestation thresholds have been able to be displayed and presented through SIMONTANA.	4	5	4	4	3	4

Description :

A = Respondent 1 (Head of the Public Relations and Foreign Cooperation Bureau, Ministry of Finance)

B = Respondent 2 (Director of Forest Resources Inventory and Monitoring, Ministry of Finance)

C = Respondent 3 (Expert Staff of the Minister of Forestry)

D = Respondent 4 (Chief Conservation Officer, WWF Indonesia)

E = Respondent 5 (Executive Director, Yayasan Madani Berkelanjutan)

Based on the data displayed above, it can be seen that the average scoring for the statement was obtained with a value of 3.8-4.6. Then based on the average score above to be able to see the suitability and implications, then an analysis tool in the form of Comparative Framework Analysis (CFA) is used, while the justification for the level of suitability is divided into 5 categories referring to a qualitative data analysis approach that allows the use of ordinal scales to simplify the complexity of comparative findings (Matthew B. et al, 2014). The data obtained were analyzed descriptively using average values to determine the level of suitability for each dimension of the analysis. The categorization and justification used are as follows:

The average value of 4.21-5.00 has a very high meaning, illustrating that the conformity is almost perfect so that the process of interpreting the TFFF policy into the Indonesian context is easier;

The average value of 3.41-4.20 has a high meaning, illustrating that the suitability is strong but there are still gaps that must be translated into prerequisite conditions that must be met in the Indonesian context;

The average value of 2.61-3.40 has a medium meaning, illustrating that the suitability is sufficient but requires reinterpretation in the institutional/regulatory context into the Indonesian context;

The average value of 1.81-2.60 has a low meaning, illustrating that the conformity is weak, the standards and indicators are not suitable so that the risk of failure of TFFF implementation in Indonesia is high;

The average value of 1.00-1.80 has a very low meaning, illustrating that there is almost no conformity that can be interpreted or retranslated into the Indonesian context.

For further use of the CFA analysis tool, please refer to the table as follows: Through the policy translation approach, it can be seen that Indonesia in general has interpreted the definition of forest and degradation more strictly, so the necessary process is to update the information in SIMONTANA by separating the area of plantation forests/HTI (monocultures) from existing forest cover. Another alternative step is to propose a change in the nomenclature criteria in the TFFF program initiation document, with Indonesia's standing position as one of the largest tropical forest owners in the world.

In the perspective of polycentric climate governance, TFFF is a multi-level governance system that involves various actors ranging from the global level to the footprint level who interact with each other through vertical, horizontal, and cross-sectoral relationships. Through multi-level governance, it will create a co-governance pattern between the state, market, and society. However, in some perspectives, TFFF is still dominated by global actors, especially in the aspects of financing and standard-setting. The success of implementation remains highly dependent on the capacity and legitimacy of actors at the site level. Therefore, the effectiveness of implementation depends on Indonesia's ability to balance coordination between actors at the global level, fairness in the distribution of benefits and governance conditions at the site level.

Through the politics of knowledge approach, it can be concluded that TFFF is not only a mechanism for financing conservation but also an arena and global knowledge contest. The three aspects that have been described above are considered as instruments that can illustrate that the knowledge used in TFFF is constructive, non-neutral, and multi-interested. This process produces important implications for Indonesia in terms of data sovereignty, fairness in the distribution of incentives, and recognition of local contexts. Thus, this analysis confirms that success or failure in TFFF is determined not only by ecological conditions, but also by how knowledge is defined, produced, and used.

In general, Indonesia is in a relatively ready position to participate in the initiation of the TFFF program, especially institutionally and governance, but there are some things that still need adjustment so that they can be translated and implemented in the national context. Indonesia's participation is feasible with the note that there is a need for a process of policy adaptation and further negotiation of standards at the global governance level.

Indonesia needs to ensure that SIMONTANA is not discredited by global standards. Indonesia can harmonize definitions (especially the separation of plantation forests in the context of crown cover, which is the standard for assessment), negotiation methodologies and proposed validation standards. This

effort is important to avoid measurement bias that has the potential to lower performance-based payment incentives.

Analysis of the challenges and opportunities of the integration of TFFF into the national context

The analysis of the challenges and opportunities of the integration of TFFF into national policies aims to identify the potential, barriers and benefits to keep the resulting policies aligned with national priorities and ensure a fair distribution of benefits for each actor involved, especially in the local context.

Based on primary data obtained from interviews conducted with several expert respondents, challenges and opportunities were obtained in this study based on scoring results using the External Factors Analysis Summary (EFAS) analysis as follows.

The results of the analysis show that the opportunities that refer to the highest scoring on the EFAS matrix of TFFF integration efforts into the national context lie in open access to sustainable funding for tropical forest conservation, the potential for massive deforestation and forest degradation reduction, and increased transparency and accountability of national data integration with global systems. Then, challenges that refer to the highest scoring on the EFAS matrix of TFFF integration efforts into the national context that need to be anticipated include the dominance of global standards in determining the performance indicators of tropical forest-owning countries, the potential for the large influence of global actors on national policy sovereignty, and the risk of penalties that can affect the receipt of performance-based incentives.

From an institutional fit perspective, the integration of TFFF into the Indonesian context shows that conditions can be integrated but in some technical aspects need to be translated. Institutional and financing suitability is relatively high, but there are still discrepancies in ecological, social, and scale aspects influenced by differences in definitions, methodologies, and global standards. The dimension of technical deepening is a determining factor that bridges this gap which makes Indonesia not only adapt but also negotiate in proposing more contextual standards. Therefore, the success of TFFF integration is highly dependent on Indonesia's ability to harmonize national systems, strengthen governance, and ensure equitable distribution of benefits for actors at the site level.

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From a climate justice perspective, the requirement for a minimum allocation of 20% for IPLC in the TFFF scheme is a progressive step that opens up opportunities for improving procedural justice, benefit distribution, and recognition of the role of IPLC. However, without strengthening participation mechanisms and a transparent distribution system, the concept of 20% allocation conditions risks becoming only a symbolic instrument.

The integration of TFFF into Indonesia's national policies offers significant opportunities in terms of financing the conservation and sustainability of tropical forests, strengthening governance in terms of transparency and accountability, and increasing Indonesia's bargaining power at the global level while adhering to national data sovereignty and social justice. However, at the same time, it presents serious challenges related to the harmonization of definitions, the risk of payment penalties and the potential for dominance of global standards against the national system. Therefore, the TFFF integration strategy in Indonesia needs to be directed not only at the use of financing opportunities, but also at several things, including strengthening the bargaining position in global governance, accelerating national policy reforms, and mitigating the risks of challenges arising from inequality of standards and power. Thus, Indonesia can transform from just a beneficiary to a strategic actor that helps shape the direction of global tropical forest governance.

These findings suggest that the success of TFFF integration into the national context is determined not only by technical readiness and funding, but also by the ability to orchestrate between the fulfillment of international standards and national interests in the context of sustainable tropical forest management.

Feasibility analysis of TFFF implementation in the Indonesian context

The feasibility analysis of TFFF implementation in the Indonesian context aims to identify 2 things, the first is the feasibility of Indonesia as a Tropical Forest Countries (TFC) in accessing TFFF funds, and the second is looking at the feasibility of TFFF if applied in the Indonesian context. The benefits received by Indonesia are comparable to the efforts that Indonesia has made in accessing TFFF funds.

The function of Indonesia's participation in the initiation of the TFFF program is as an instrument to mitigate deforestation while strengthening forest governance in Indonesia. In the context of the analysis, three approaches will be

carried out through the state capacity approach, the political economy approach of blended finance and the benefit sharing governance approach to read the findings on the feasibility or not of the implementation of TFFF in the Indonesian context.

Based on the TFFF 3.0 Concept Note, it is explained that to be able to access TFFF funding, tropical forest owning countries, one of which is Indonesia, must meet 10 (ten) eligibility criteria, including:

- Has a deforestation rate below 0.5% and shows a downward trend;
- Have a forest monitoring system that has been approved as a National Forest Monitoring System (NFMS);
- Convey the boundaries of the proposed tropical forest area as an eligible area;
- Submitting data on forest area outside areas that do not meet certain criteria (non-TSMBF Forest Extent);
- Demonstrate adequate public financial management ;
- Have or design an appropriate grievance redress mechanism (GRM);
- Commit to allocating at least 20% of payments to Indigenous Peoples and Local Communities (IPLC);
- Committed to building IPLC governance structures;

Ensure that TFFF payments do not replace pre-existing funding allocations; and Disclose the Forest Payment Allocation Plan.

In connection with the feasibility analysis of Indonesia as a Tropical Forest Countries (TFC) in accessing TFFF funds, an assessment was carried out by expert respondents using an ordinal scale regarding the eligibility criteria that must be met by Indonesia in an effort to access TFFF funds with the following provisions:

Answer Qualification	Score	Remarks
Severely Disabled (STM)	1	Respondents assessed that Indonesia does not have any instruments/policies at all to meet the TFFF eligibility criteria
Incapable (TM)	2	Respondents assessed that Indonesia already had an initial initiative but was not effective in meeting the TFFF eligibility criteria
Quite capable (CM)	3	Respondents assessed that Indonesia could meet the requirements but there were still significant shortcomings to meet the TFFF eligibility criteria
Capable (M)	4	Respondents assessed that Indonesia had met the requirements and was effective in meeting the TFFF eligibility criteria
Highly capable (SM)	5	Respondents consider that Indonesia has comprehensively met the requirements to meet the TFFF eligibility criteria

The results of the assessment using the scoring can be seen below as follows:

Table 4. Respondents' assessment of the eligibility criteria for access to TFFF funds

Yes	Eligibility criteria for access to TFFF funds	A	B	C	D	E	Average	Average classification
1	Has a deforestation rate below 0.5% and shows a downward trend	4	4	4	3	4	3,8	Able
2	Have a forest monitoring system that has been approved as a National Forest Monitoring System (NFMS)	5	5	5	4	5	4,8	Highly capable
3	Convey the boundaries of the proposed tropical forest area as eligible areas	4	4	4	4	3	3,8	Able
4	Submit data on forest area outside areas that do not meet certain criteria (non-TSMBF Forest Extent)	4	4	4	3	4	3,8	Able
5	Demonstrate adequate public financial management	4	4	4	3	3	3,6	Able
6	Have or design a suitable grievance redress mechanism (GRM)	4	4	4	3	3	3,6	Able
7	Committed to allocating at least 20% of payments to Indigenous Peoples and Local Communities (IPLC)	3	3	4	2	2	2,8	Quite capable
8	Committed to building an IPLC governance structure	3	4	3	2	2	2,8	Quite capable
9	Ensure that TFFF payments do not replace pre-existing funding allocations (non-substitution principle)	3	3	4	2	2	2,8	Quite capable
10	Reveal the Forest Payment Allocation Plan	3	4	3	2	2	2,8	Quite capable
TOTAL							3,46	Able

Description :

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Based on the average assessment conducted by expert respondents on the eligibility criteria for Indonesia to access TFFF funds is included in the able classification, which means that Indonesia is able to meet the 10 criteria referred to in the TFFF 3.0 Concept Note. In supporting the fulfillment of these requirements, TFFF provides a Country Access Platform that functions to assist tropical countries in preparing the documents, data, and governance needed to obtain access to funding. The platform works through 4 (four) main stages, namely diagnostic, solutions package, implementation and access check.

From a state capacity perspective, the TFFF program can be declared feasible to be implemented in Indonesia because it has a relatively mature administrative and institutional capacity and adequate fiscal capacity to manage performance-based financing based on the fulfillment of eligibility criteria for access to TFFF funds.

From this explanation, through the perspective of the political economy of blended finance, it was found that the existence of the TFFF program does not necessarily reduce Indonesia's commitment to tropical forest conservation efforts. This means that TFFF is feasible to be applied in the Indonesian context. Because with the existence of an alternative funding scheme through TFFF, with Indonesia's potential income averaging USD 161 million, Indonesia's role in the context of tropical forest management becomes greater and truly becomes a benchmark for the conservation of the world's tropical forest management with Brazil. If you look at the potential for Indonesia's revenue from the TFFF program is only 23% of the total funds managed by the State Budget plus REDD+ GCF O2 plus FOLU NC as seen in the table above.

Through the perspective of benefit sharing governance, it can be stated that the implementation of TFFF in Indonesia is feasible and important. Because after seeing the benefits that Indonesia gets from both economic, social and ecological aspects, it is very relevant and has a great influence on the success of sustainable tropical forest management and conservation efforts.

Based on the results of spread simulation in various scenarios of changes in debt costs or equity costs, it is found that this TFFF is able to generate a surplus as a source of financing. However, the amount will not always be ideal and will be influenced by debt and equity costs. Thus, TFFF remains worthy of being used as a source of funding for the conservation and sustainability of tropical forests for Indonesia.

Based on the existing deforestation conditions as of 2024, the range of potential payments is found at USD 87 million to USD 281 million with an average of USD 161 million in all scenarios. The potential payments obtained by Indonesia have not taken into account macroeconomic assumptions in the form of inflation and exchange rates. So that the payments received by Indonesia have the potential to increase if referring to the TFFF concept note 3.0. The calculation results show that Indonesia's revenue in the TFFF scheme is strongly influenced by the value of excess returns, so that a scenario with higher spreads consistently results in greater revenue. However, there are significant fluctuations between years, especially the decline in 2023 that occurred in all scenarios. This indicates that in addition to financial factors, there are other variables such as forest

management performance or distribution mechanisms that also affect the amount of payments received. This figure shows that TFFF financing is only a source of additional income with a not so large amount that is in accordance with the principle of non-substitution which is the eligibility criterion for TFFF implementation.

CONCLUSION

This study shows that Indonesia has the potential to be feasible and strategic to participate in the Tropical Forest Forever Facility (TFFF), with a high level of conformity to program requirements based on the Comparative Framework Analysis (CFA) and has met the 10 eligibility criteria in the TFFF 3.0 Concept Note. The implementation of TFFF has the potential to strengthen national data sovereignty, enhance Indonesia's bargaining position in global forest governance, and optimize economic, social, and ecological benefits through sustainable tropical forest conservation funding. Despite the challenges of dominating global standards, the potential impact on policy sovereignty, and the risk of performance-based penalties, the opportunities and benefits offered are valued as greater than the risks.

Significant opportunities include open access to sustainable funding for tropical forest conservation, the potential for massive reductions in deforestation and forest degradation, and increased transparency and accountability in the integration of national data with global systems. With an average revenue potential of USD 161 million, TFFF can be a strategic instrument to strengthen financing for sustainable tropical forest conservation while increasing Indonesia's contribution to achieving the global climate agenda.

ADVICE

This research is expected to be one of the reference for decision-making by the Government of Indonesia, which is represented, especially by the Ministry of Forestry, in considering Indonesia's participation in the initiation of the TFFF program.

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