



Global
Green Growth
Institute

Ecosystem Restoration

Green Growth Opportunities
in the Katingan Peatlands



“The forests are broken. Carbon revenue is the 'crutch' needed to get them walking again after a period of rest and recovery. The more crutches investors can access, the faster the forest will recover. And as the forests recover, eventually investment in wider sustainable economic activities such as non-timber forest products and ecotourism will be viable and self-sustaining. But only then can the forests walk again on their own two feet and no longer need the crutch.”

Rezal Kusumaatmadja

PT RMU COO

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1 November 2014 (USD 1= IDR 11,976)



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foreword



A handwritten signature in black ink, appearing to be 'Herson B. Aden'.

Ir. Herson B. Aden, M.Si.
Head of Planning Agency (BAPPEDA)
Central Kalimantan Province

The Government of Central Kalimantan welcomes the publication of the report titled " Ecosystem Restoration: Green Growth Opportunities in the Katingan Peatlands." This report is an important product of our partnership with the Global Green Growth Institute (GGGI). Under this partnership, the Government of Indonesia and GGGI have agreed to develop a framework and a set of analytical tools to better analyze and understand the costs and benefits of green growth.

Green growth is increasingly understood, and seen as desirable, by government and private actors. For example, BAPPEDA Central Kalimantan and GGGI have produced the report "Central Kalimantan: Moving Towards Green Growth" that uses a green growth lens to examine a range of government-led initiatives that support sustainable development. Moreover, two district-level Green Growth Strategies for Murung Raya and Pulang Pisau have been developed, which identify context-specific interventions that simultaneously deliver sustained economic growth and social and environmental goals.

In this regard, the sustainable use of forest and peatland is a primary green growth issue in Central Kalimantan. This report presents the results of a case study which applies extended Cost Benefit Analysis (eCBA) to present monetary values of costs and benefits associated with green growth policy interventions in a peatland project. The eCBA looks beyond purely commercial returns of a project and attempts to capture the wider impacts on society, particularly in terms of valuing environmental externalities, public goods, and social returns of investments.

The study presents interesting options to improve the green growth outcomes of the project and identify the benefits of mitigating carbon emissions and preserving vital ecosystem services.

The results of this eCBA study also highlight the importance for the government and the private sector – in this case PT RMU as a holder of the ecosystem restoration license (IUPHHK-RE) – to work together to ensure the economically productive and sustainable use of forest and peatland.

I hope that this report will stimulate public discussion and trigger further research to find innovative policy solutions for achieving green growth in Central Kalimantan.

Key Messages

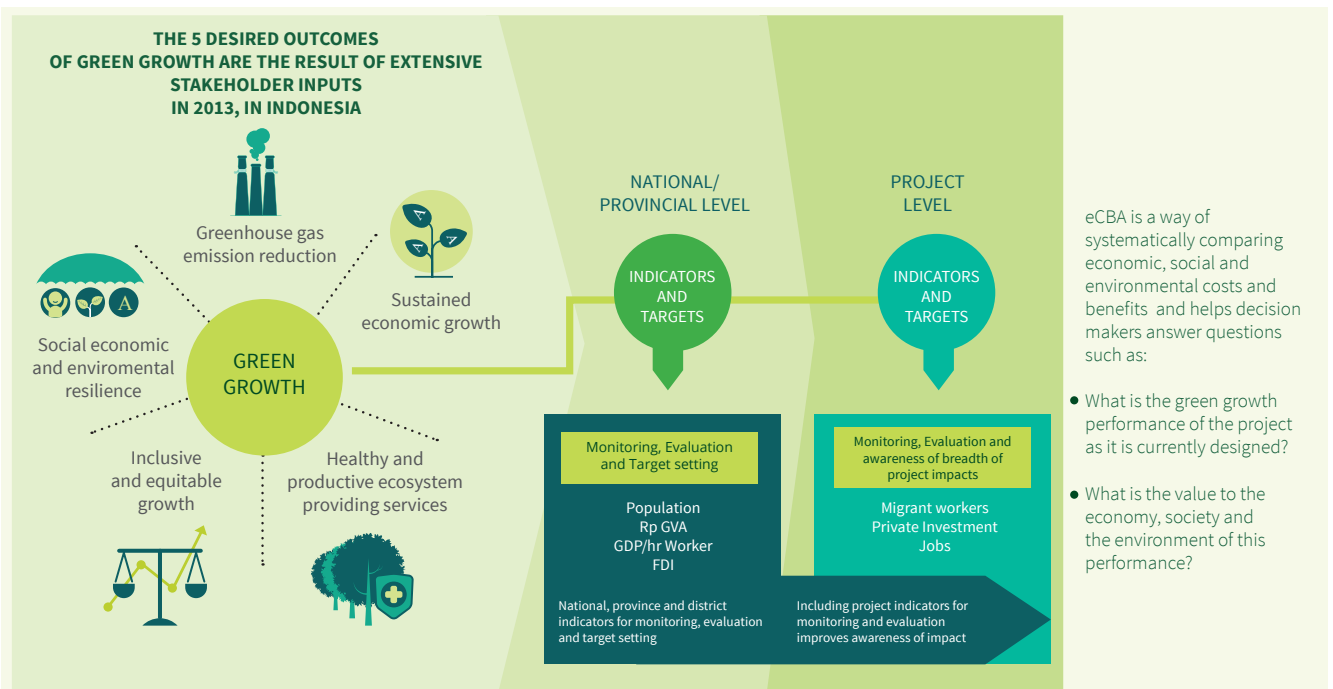
- ◆ We have conducted an extended Cost Benefit Analysis (eCBA) of the Katingan Peatland Restoration and Conservation Project, developed by PT Rimba Makmur Utama (PT RMU), to systematically value the costs and benefits of green growth policy interventions.
- ◆ This eCBA study has been supported by extensive stakeholder consultation.
- ◆ We estimate that the extended net benefits under a Green Growth Scenario are far higher at USD 9.9bn compared to the Business As Usual Scenario valued at USD 480m. The latter is based on selective logging and palm oil and HTI plantations, based on a central estimate of the global carbon value of USD 80/tCO₂.
- ◆ The incentive to invest in Ecosystem Restoration Concessions (ERC) of this type, at the current market price of CO₂, is very limited compared to Business as Usual (BAU).
- ◆ Key policies are needed to drive green investment including the provision of stronger financial incentives, carbon price support mechanisms, clear benefit - sharing mechanisms and guidelines for designing community livelihood projects.

Introduction

A fundamental objective of the Government of Indonesia – Global Green Growth Institute (GoI-GGGI) Program is to mainstream green growth within Indonesia’s economic planning process. To this end, the Green Growth Program is developing a framework that can be used by government agencies to assess planning and investment appraisal activities. This framework was developed with stakeholders in 2013 and 2014 and aims to make green growth measurable in terms of the five desired outcomes (see illustration below), using a series of national, regional and project-level indicators.

Green Growth Assessments, including extended Cost Benefit Analysis (eCBA), are tools developed to measure and compare the Green Growth Performance of investments. Extensive stakeholder consultation has been carried out to support the valuation of impacts.

The toolkit can be used at a high level to prioritize projects with high green growth potential, or those that would benefit from a green growth re-design. The toolkit can also be used for Green Growth Assessments at the project level (such as this one on the Ecosystem Restoration Concession (ERC) Project in Katingan), using rigorous tools such as eCBA.



How can we re-design a project to improve its green growth performance?

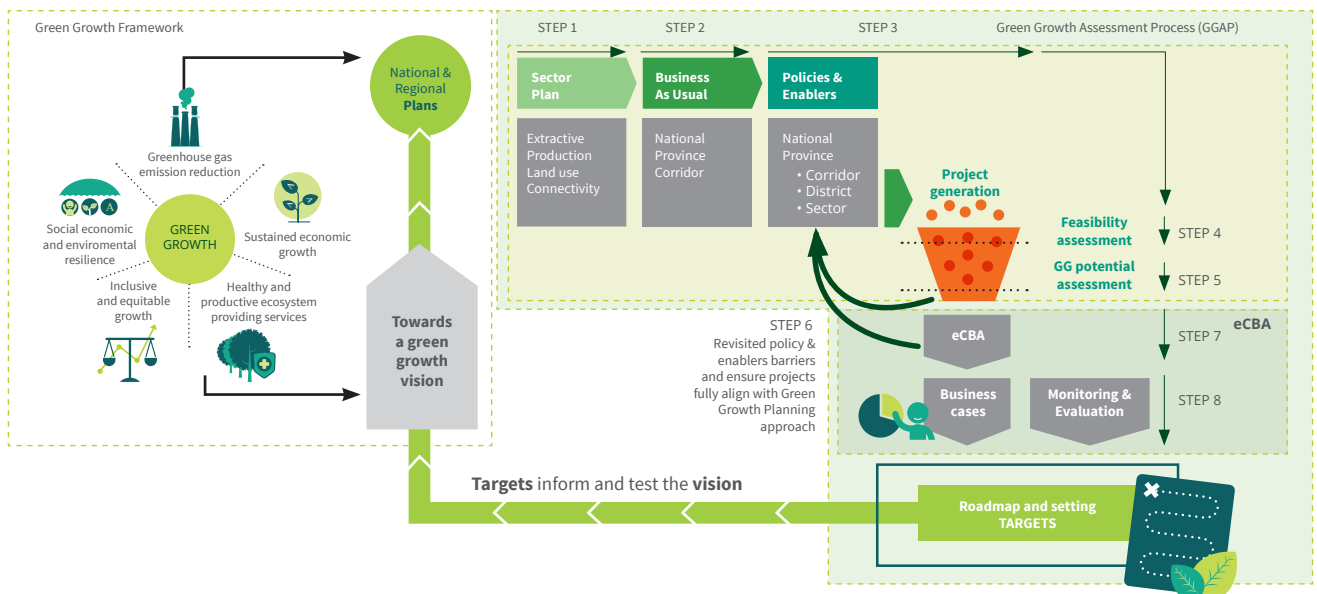
What are the synergies and trade-offs in re-designing a project ?

How much capital investment is required to achieve this improved performance?

What policy instruments are needed to drive investment and behavioral change?

We have performed a project-level eCBA on an ERC of the Katingan Peatland Restoration and Conservation Project in Central Kalimantan to understand the social, economic and environmental benefits relative to Business As Usual (BAU). A summary of our findings is presented overleaf.

A full technical report outlining the context, methodology and findings in detail is available upon request to the Joint Secretariat of the Green Growth Program.



The practical implementation of this extended Cost Benefit Analysis involved 7 steps

Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Identify project baseline	Identify small green growth options	Map impact pathways	Collect data	Extended Cost Benefit Analysis	Validate findings	Consider implications
Consult project stakeholders Review project documentation	Consult project stakeholders Literature review	Identify outputs, outcomes and impacts Assess materiality, identify scope for eCBA	Collect data from project documentation, local market, and international technology	Quantify costs and benefits of green growth interventions Value cost and benefits to society	Validate findings with stakeholders	Consider implications of results for policy Consider implications for project re-design and investment

The Ecosystem Restoration Concession Project in Katingan

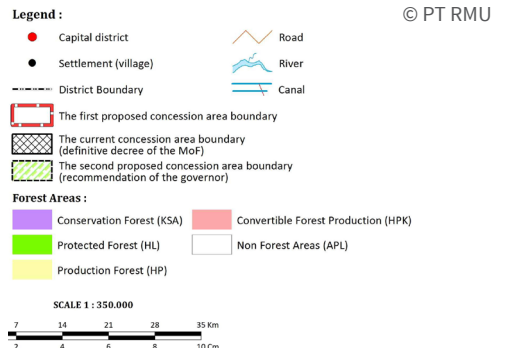
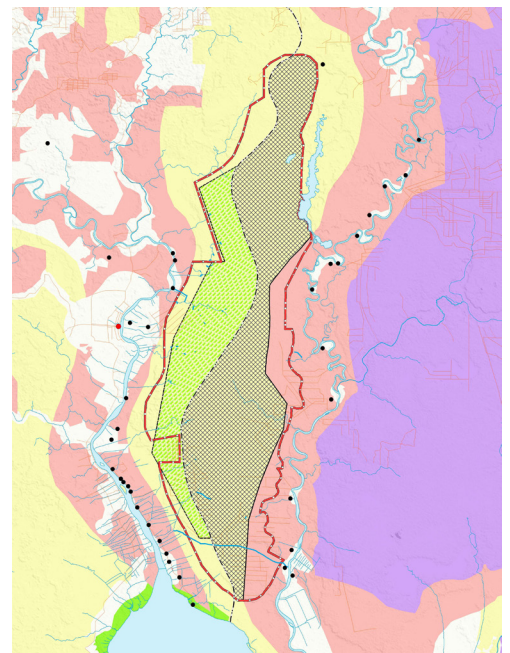


An eCBA assessment was carried out for the Ecosystem Restoration Concession Project in Katingan, which is implemented by PT Rimba Makmur Utama (RMU) in the Katingan and Kotawaringin Timur districts of Central Kalimantan. The assessment covers 203,570 ha of peatland forest area, including 150,650 ha of high density swamp forest which is home to large populations of endangered species such as the Bornean orangutan and proboscis monkeys. The entire project area is classified as convertible and non-convertible Production Forest (HP).

Given the previous land-use classifications (HP, HPK) and licenses issued (HTI, HPH), it is likely that the land would otherwise be logged, used for pulpwood plantations and/or converted to palm oil plantations (these land uses are the BAU scenario).

Conversion and logging would require the construction of canals to transport logs and drain the peat for oil palm and acacia planting. Over time, this would lead to subsidence, increased flooding, reduced agricultural productivity and high carbon emissions from biomass clearance and the oxidation of carbonic matter.

The concession is managed and implemented as an ERC. In law, it prevents the conversion of the project area to non-forest use (BAU scenario activities). We have summarized five key activities of the ERC Project in Katingan and its impact on the five desired outcomes is shown in the table overleaf.



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directly related to					
PROJECT ACTIVITIES	GHG	Social Development	Biodiversity and Ecosystems	Economic Growth	Resilience
 I. ECOSYSTEM RESTORATION					
1. Management of irrigation systems	●	●	●	●	●
2. Supervision and measurement sampling plots	●	●	●	●	
3. Greening in non-forest area	●	●	●	●	●
4. Multiply planting in disturbed areas	●	●	●	●	●
 II. FOREST CONSERVATION					
5. Protection and enforcement	●	●	●	●	
6. Prevention and control of forest fires	●	●	●	●	●
7. Conservation and habitat management	●	●	●	●	●
 III. RESEARCH AND DEVELOPMENT					
8. Knowledge management	●	●	●	●	●
 IV. LIVELIHOOD DEVELOPMENT					
9. Non-timber forest products		●		●	
10. Agroforestry		●	●	●	
11. Ecotourism		●	●	●	
12. Rescue timber production	●	●	●	●	●
13. Aquaculture and sustainable fisheries		●	●	●	
 V. COMMUNITY RESILIENCE					
14. Microfinance institutions and companies		●		●	●
15. Production and use of energy efficient	●	●	●		●
16. Maternal and child health care		●			●
17. Clean water and sanitation		●			●
18. Support for basic education		●			●

It should be noted that the ERC Project in Katingan has been re-designed during its inception phase. The facts and figures used in this report relate to the original project design covering an area of 203,570 ha, as set out in the CCBA (Climate Community and Biodiversity Alliance) Project Design Document, and consistent with the financial model provided by PT RMU.

Green Growth Assessment: Results

The Green Growth Assessment compares the costs and benefits of economic activities in two scenarios. BAU describes a conversion of the ERC Project in Katingan into palm oil plantations, logging concessions and industrial timber plantations (or HTI). Green Growth describes the set of project activities under the ERC license, as shown in the previous table.

Financial analysis

A purely financial cost benefit analysis would yield higher benefits, in net present value terms, for the BAU scenario (USD 182m) compared to Green Growth (USD 139m). This assumes a 10% discount rate and a carbon price of around USD 6.9/tCO₂. Note that the BAU benefits come entirely from commodity revenues, which are subject to volatile world market prices.

eCBA

However, taking into account the wider social, economic, and environmental benefits from the activities of the ERC Project in Katingan, the Green Growth scenario generates far higher social benefits (USD 9.9bn) than BAU (USD 485m). Cash flows are discounted at 5%. These benefits can be broken down as follows (see table below):

- Economic growth benefits of USD 35m: Consisting of the value of 224 MtCO₂ of avoided emissions credit sales at an average of USD 6.9/tCO₂; USD 49m of sustainable timber revenues once PT RMU has finished the ecosystem restoration; and USD 24m of agriculturally productive land bequeathed to the next generation. These benefits are net of capital and operational costs.
- Social benefits of USD 4m: Socio-cultural value of the standing forest to local communities.
- Ecosystem benefits of USD 232m: Value of standing forest to local communities including fuel wood, agricultural use, fisheries, and local and global biodiversity value.
- GHG emission benefits of USD 9.7bn: Avoided climate change damages of rising sea levels, agricultural productivity loss, more frequent extreme weather events etc. These benefits are calculated at USD 80/tCO₂, minus credit monetized value above. This is the largest benefit category, although it depends on assumptions around carbon volumes and value.

In addition there are hidden costs included in the net value of the BAU scenario, including:

- Peat soil drainage issues causing significant yield deteriorations over time (a net present cost of around USD 297m).
- Negative knock-on impacts to surrounding agricultural landscapes within the same watershed (a net present cost of around USD 295m).

It should be noted that these hidden costs could be counted either as costs in BAU or as avoided costs in the Green Growth Scenario.

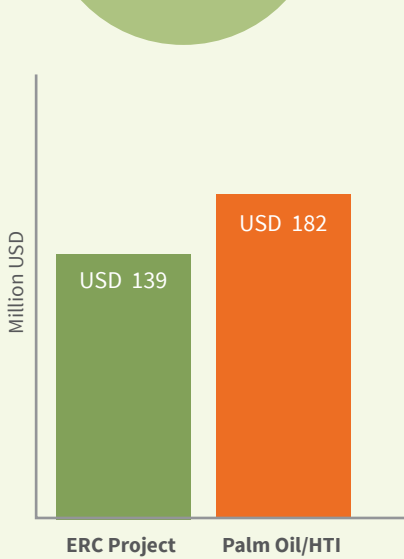
In short, a full analysis reveals that BAU generates only uncertain, short-term cash and a number of hidden costs for investors and the wider economy. Green growth, conversely, generates sustainable, stable long-term benefits.

	Business As Usual	Green Growth	Difference
Financial Net Present Value	USD 182m	USD 139m	-USD 43m
Extended Net Present Value	USD 485m	USD 9,974m	+USD 9,489m
<i>of which</i>			
Economic Growth	USD 485m	USD 35m	-USD 450m
Social Development	USD 0m	USD 4m	+USD 4m
Ecosystems	USD 0m	USD 232m	+USD 232m
GHG emissions	USD 0m	USD 9,702m	+USD 9,702m

FINANCIAL ANALYSIS

CONCLUSION

Immediate, short-term cash returns from palm oil / HTI project are USD 43m higher than for the ERC Project



BENEFITS OF PEATLAND RESTORATION AT KATINGAN ERC



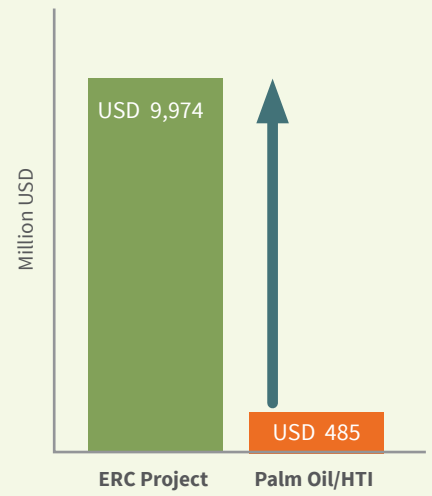
HIDDEN COST OF PALM OIL AND TIMBER AT KATINGAN ERC*



SOCIAL, ECONOMIC AND ENVIRONMENTAL ANALYSIS

CONCLUSION

Long-term and wider returns for the ERC project are USD 9.4bn higher than for the palm oil / HTI Project



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 Improving Financial Performance
- 
 Tools for Decision Making
- 
 Addressing Regulatory Issue
- 
 Benefit Sharing
- 
 Land Use Governance
- 
 Fiscal Transfer
- 
 Reducing Business Risk

POLICY TO INTERNALIZE COSTS AND DRIVE PRIVATE INVESTMENT IN GREEN GROWTH

* This refers to an alternative scenario whereby the area that currently comprises the ERC has been developed as an industrial plantation.

Policy Implications

To drive ERC investment in degraded land sites across Indonesia, a number of key policy interventions will be needed to overcome barriers. We have outlined these barriers and interventions in the table below, according to whether they are for the benefit of (or incentivize) primarily investors, government or communities.

	Key Barriers	Proposed Policy Intervention
Policy for Investors	Addressing Regulatory Issues	
	Uncertainty regarding licensing (time and cost)	<ul style="list-style-type: none"> Streamlining and increasing the transparency of the ERC licensing process Greater government participation in the project: local government acquires the land and/or licenses
	Addressing Business/Financial Risks	
	Absence of proven business model	<ul style="list-style-type: none"> Additional one-off support for early stage projects such as tax holidays
	Financial risks (uncertainty regarding CER/VCS prices / volumes)	<ul style="list-style-type: none"> National carbon market and stabilization fund (minimum price at which Government of Indonesia would buy a guaranteed volume of credits) Other bilateral and multilateral guarantees
Policy for Government	Improving financial performance	
	Low returns on investment relative to commodities	<ul style="list-style-type: none"> Land swap: land suitable for palm oil expansion vs. High Conservation Value (HCV) land Application of Polluter Pays Principle through carbon pricing
	Low absolute returns on investment	<ul style="list-style-type: none"> Mandate a government agency to monitor leakages or absorb risk of monitoring costs spiraling Allow concession fee to be paid in installments Provide preferential long-term funding to ERC developers through a REDD+ Fund to catalyze green growth
Policy for Government	Incentivizing Government	
	Perceived attractiveness of commodity revenues and fiscal opportunity cost of ERC (national/provincial)	<ul style="list-style-type: none"> Clear spatial plan, including zoning of HCV areas under One Map Initiative which aims to produce an integrated map to address land tenure issues
	Fiscal opportunity cost of land swaps (especially regency level)	<ul style="list-style-type: none"> Redirect revenue flows from project developers from national to local government Intergovernmental fiscal transfers
Policy for Communities	Costs and benefits (including future fiscal liabilities) not included in decision making	<ul style="list-style-type: none"> Include Green Growth tools and methodologies in project and planning appraisal
	Addressing Social Risks	
Policy for Communities	Absence of socio-economic opportunity means land clearance activities are not avoided (or simply displaced; leakage)	<ul style="list-style-type: none"> Clarify benefit sharing mechanisms Benefits funneled into long-term trust funds used to support livelihood development Establish guidelines to assist developers include livelihood development project design

Gol – GGGI Green Growth Program

Government of Indonesia and Global Green Growth Institute (GGGI) have developed a program of activity that is aligned and wholly supportive of achieving Indonesia's existing vision for economic development planning.

The aim is to show, using real examples of Indonesia's development and investment plans at national, provincial and district levels, how economic growth can be maintained while reducing poverty and social inequality, maximizing the value of ecosystem services, reducing GHG emissions, and making communities, economies, and the environment resilient to economic and climate shocks.

The joint Gol and GGGI goal is:

“To promote green growth in Indonesia that recognizes the value of natural capital, improves resilience, builds local economies and is inclusive and equitable”.

The specific objectives to achieve this goal are:

- To ensure the green growth vision matches or exceeds existing development targets;
- To track the green growth priorities of Indonesia by providing relevant targets and indicators;
- To evaluate the implications of the country's current development path against green growth targets and indicators and assessing projects and potential policy and investment interventions against this baseline;
- To identify the key sectors and high green growth potential projects and investment interventions that will help deliver green growth development;
- To harness private sector engagement and investment in support of delivering green growth opportunities in Indonesia;
- To undertake economic modeling to analyze each project showing their financial returns and identifying any gaps in the incremental spend required to secure green projects

For more information contact:

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www.gggi.org/indonesia-green-growth-planning/

Important Notice:

The views and opinions of the authors expressed herein do not necessarily state or reflect those of the Global Green Growth Institute. The Green Growth Program does not endorse the overall green growth performance of Ecosystem Restoration Concession Project in Katingan or any other project, but rather highlights opportunities for improvements.

The specific results and findings of this analysis are not suitable for investment decision making. While efforts have been made to use local information wherever possible, data has not been universally available, and international proxies have been used in the analysis. Significant further due diligence would be required before undertaking any financial decision.



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