

KIPI Maloy

Moving Towards Green Growth



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Global
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Institute



Foreword

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Thanks to Allah SWT, the Almighty God, for it is with His approval that this book could be completed.

We, the Government of East Kalimantan, have recently launched our new Medium Term Regional Development Plan (RPJMD 2014-2018), which is based on the vision of green growth. Transforming our economy from one that is based on an extractive - and resource - intensive structure to an economy organized around the principles of green growth and sustainable development lies at the heart of our 'Vision 2030' development strategy. Innovation and sustainable practices are key drivers in this transition.

In 2013, we entered into a partnership with the Global Green Growth Institute (GGGI) to collaborate in making this vision a reality in East Kalimantan through the "Government of Indonesia - GGGI Green Growth Program". A framework and a suite of tools and techniques have been developed collaboratively to better analyze and understand the costs and benefits of green growth.

This report, entitled "Green Growth Assessment of KIPI Maloy Development, East Kalimantan," presents the results of the first in a series of case studies designed to apply and test one of those techniques, called "extended Cost Benefit Analysis" (eCBA). Conventional financial appraisal of projects only considers commercial returns to investors. With the eCBA, which includes environmental and social costs and benefits, wider impacts on society are captured. These wider impacts are assessed in monetary terms, based on the valuation of environmental externalities, public goods, and social returns of investments. The report on the eCBA of the KIPI Maloy project brings forth some key innovations and interventions that can be used to re-design the project and improve its green growth performance through alternative investment specifications and supportive policies and incentives.

The government of East Kalimantan appreciates the role of the Coordinating Ministry of Economic Affairs, specifically KP3EI, in supporting KIPI Maloy as one of the projects under MP3EI Kalimantan Corridor and as a case study to show the applicability of the eCBA methodology. We hope that the results of this study can be used as inputs for KP3EI and our efforts to "greening" the MP3EI.

The results are a useful guide for us to start to think methodologically and in an evidenced-based way about alternative green growth policy interventions that can help us achieve our 'Vision 2030' development strategy.

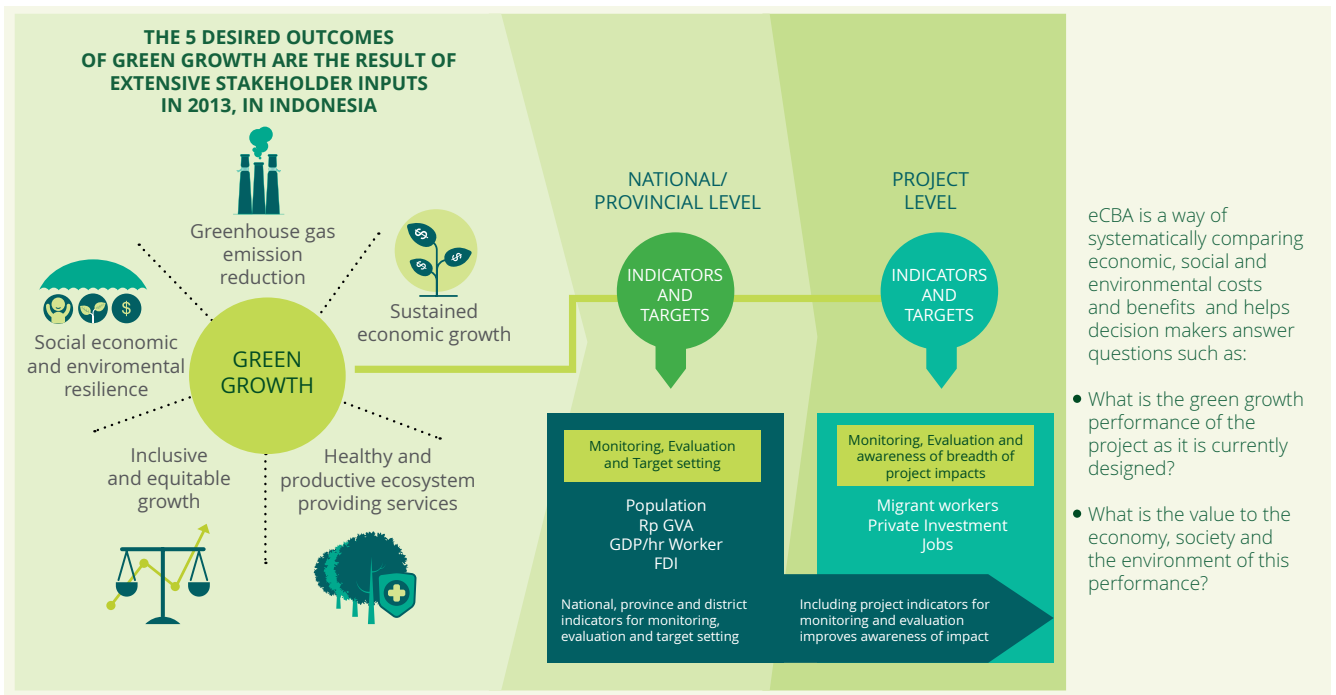
- ◆ An experimental extended Cost Benefit Analysis (eCBA) was applied in KIPI Maloy Development, the oleochemical-based industrial zone and international harbor in East Kalimantan, to systematically assess the costs and benefits of re-designing the project to include green growth interventions.
- ◆ In implementing the eCBA study, we have widely consulted with and received support from key stakeholders.
- ◆ The results of the study show green growth opportunities worth IDR 45.16 trillion or USD 3.8 billion (Net Present Value).
- ◆ Green growth policy interventions will result in economic, social and environmental benefits to society.
- ◆ Strong co-operation between government and the private sector will be required to achieve this potential. Innovative financing mechanisms as well as conducive green growth policy, legal and regulatory support and cross-sectoral partnerships are key building blocks to moving towards green growth.

Introduction

A fundamental objective of the joint Program is mainstreaming green growth within Indonesia's economic planning and development processes. To this end, the Green Growth Program is developing a framework and toolkit that can be used by a variety of government agencies especially those involved in planning and economic activities, including investment appraisals. This framework, developed with stakeholders in 2013 and 2014, aims to make green growth measurable in terms of **five desired outcomes**, 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 done to support measurement.

The toolkit can be used at a high level to prioritise projects with high green growth potential, or those that would benefit from a green growth re-design. At a more detailed level, the toolkit can be used for Green Growth Assessment at the site level using economically rigorous tools such as eCBA. This Green Growth Assessment is an eCBA drawing on project-level indicators.



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

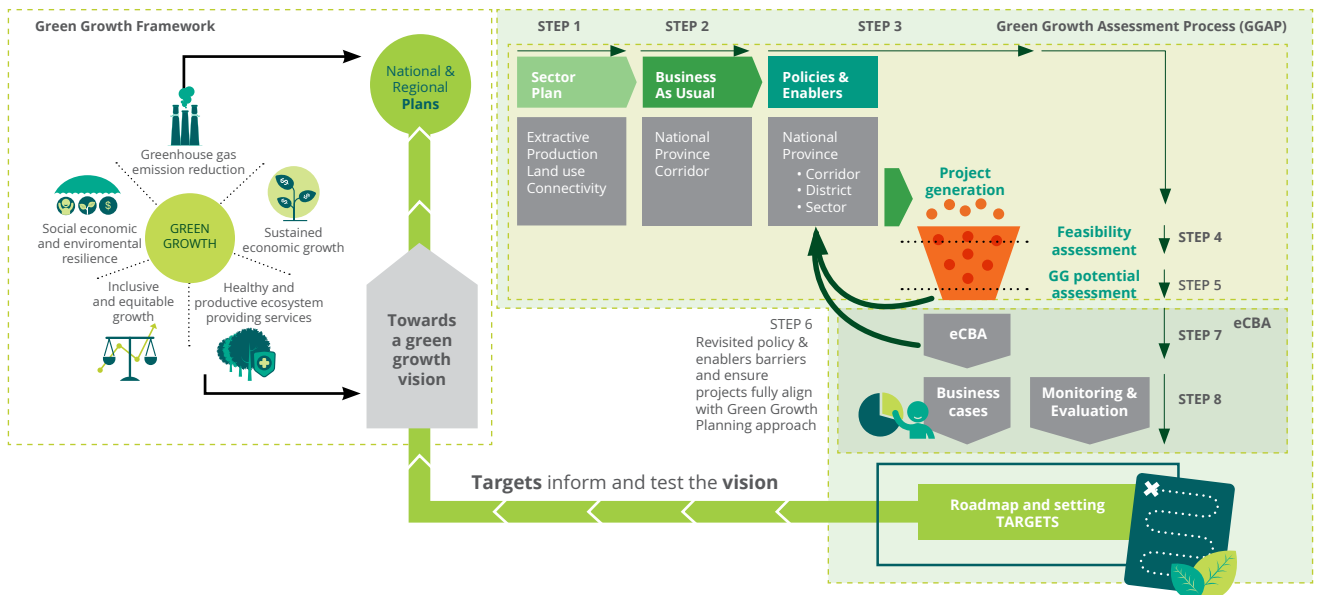
What are the synergies and trade-offs in re-designing a project?

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 Green Growth Assessment on the KIP1 Maloy Development in East Kalimantan to understand the scale of opportunity to re-design the project, improving social, economic and environmental outcomes.

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 |

Maloy Development



6 KIPi (Industrial and International Port Area) Maloy is geographically located in Kutai Timur District, around 200 km toward North East from the capital of East Kalimantan, Samarinda. KIPi Maloy is part of Maloy Batuta Trans Kalimantan (MBTK) Special Economy Area (KEK) and a primary Economic Cluster in realizing East Kalimantan development as the center of oleo chemical agroindustry and energy.

KIPi Maloy will be supported by port with international standards, which worth for IDR 6.32 billion (USD 506 million). It has been decreed as the Center for Production and Processing of Mining and the State's Energy in the Presidential Regulation 32/2011 and as part of the Masterplan for the Acceleration and Expansion of Indonesia's Economic Development (MP3EI).

Key activities within the baseline development scenario for KIPi Maloy include:

1. Industrial area to process export crude palm oil (CPO) and CPO processed products
2. The construction of new port as a terminal to export CPO, CPO processed products, Cargo, Container and Coals

KIPi Maloy is part of MTKEZ (Maloy Trans Kalimantan Economic Zone), with total area of 32,800 ha as the Main Economic Cluster, supported by infrastructures as follows:

1. Power plant (coal-based)
2. Construction of tollroad between Maloy, Sangatta and Samarinda
3. Construction of freight railroad to distribute coals between mining areas in District of East Kutai and Port of Maloy

Green Growth Interventions: Results

From a green growth perspective, the baseline plan for KIPi Maloy Development does not represent the optimal development path for Indonesia. Even with strong environmental regulations, there can be a range of externalities and governance, policy and institutional factors that prevent the KIPi Maloy Development from attaining the best green growth performance.

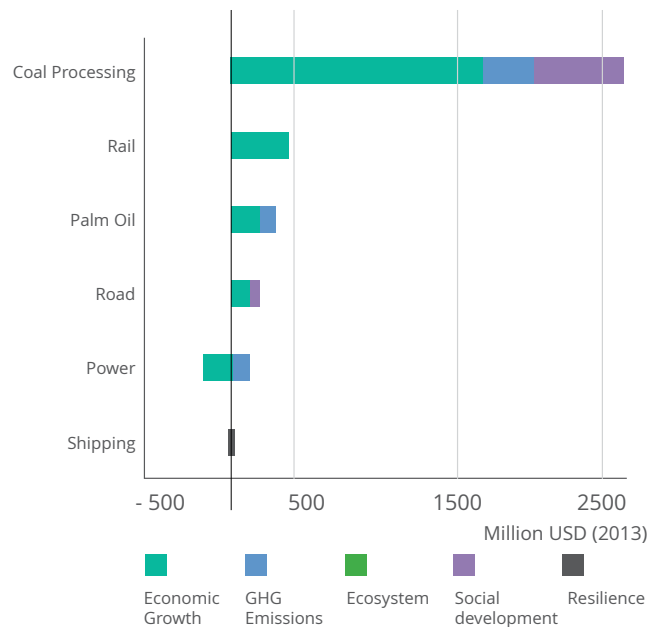
The assessment identifies nine “green growth interventions” across six activities. A short description of each is provided below, along with the costs and benefits of each intervention relative to Business As Usual.

| ACTIVITIES & BENEFITS | GREEN GROWTH INTERVENTION | DESCRIPTION |
|---|---|---|
|  <p>Shipping USD 40,000</p> | <p>Cold-ironing (on shore power) Replacement of Anti-Fouling Paint Ballast Water Treatment System</p> | <p>Ballast water from ships' hulls contains invasive species, and biocidal paint that protects ships from fouling is particularly harmful. Furthermore, ships operating in-port can generate significant air pollution externalities on local populations. We propose to implement clean shipping measures (listed on the left) to avoid these impacts.</p> |
|  <p>Coal Processing USD 2,829bn</p> | <p>Gasification of Coal for Power Generation</p> | <p>We propose to convert coal to gas and generate electricity in a combined process known as Integrated Gasification Combined Cycle (IGCC). This modern technology would displace around half of the capacity of the sub-critical coal-based generation expected in the baseline scenario. Key impacts result from the additional generation of ammonia for use in agriculture, from reduced GHG emissions and significantly reduced nitrous oxide, sulfur oxide and particulate matter emissions.</p> |
|  <p>Palm Oil Plantation USD 347m</p> | <p>Implementing Best Management Practices</p> | <p>We propose using Maloy as leverage to improve upstream Palm Oil performance across East Kalimantan, such as the implementation of Best Management Practices (BMP). This can generate increases in average crop yields and reduce pressure on land use expansion. Our target group is the 20% of plantations in East Kalimantan, run by smallholders, who tend to have the lowest yields and therefore the greatest room for improvement.</p> |
|  <p>Road USD 209m</p> | <p>Extension of the Road to Develop Tourist Resort</p> | <p>A new 254km Toll Road is also being constructed to connect Maloy to ports in Sangatta, Samarinda and other intermediary locations. Although some of the locations are industrial and port areas, others are attractive coastal locations with beaches and coral. We propose extending the new road system in order to facilitate the development of a tourism resort. Key impacts result from the tourism expenditure on accommodation, in local communities. Long-term this provides a key incentive to preserve rather than exploit natural capital.</p> |
|  <p>Rail USD 390m</p> | <p>Railway re-routed to follow existing road's route Railway converted to accommodate CPO freight</p> | <p>There is a 135km freight railway being developed to transport coal from coal mines in East Kutai and other districts to the Port of Maloy. However, the planned route runs through a series of forested areas. We propose to re-route a 90-100 km portion of the track at runs alongside an existing road network. Stakeholders have also suggested developing the railway in such a way that it was suitable for the transport of crude palm oil from inland plantations to the Port of Maloy.</p> |
|  <p>Power Generation USD 32m</p> | <p>Substitution of Coal for Biomass in Power Generation</p> | <p>We propose substituting 2% of the coal combusted at the planned 1.4GW coal plant in the TKEZ with cleaner Palm Kernel Shells (PKS) – an abundant by-product of the local palm oil industry. This will reduce GHG and other air emissions, mitigating climate change and improving local communities' health.</p> |

Total Net Benefit USD 3.8bn

We estimate that the aggregate net benefit generated across the nine identified green growth interventions is USD 3.8bn (Net Present Value at 10%). In context, this is equivalent to over 10% of East Kalimantan's GDP in 2012, and represents a benefit-cost ratio of over 1.9.

The largest return in absolute terms comes from coal gasification, which generates USD 1.7bn in economic benefits, nearly USD 500m in reduced GHG emissions and USD 675m in social benefits in terms of avoided health damage from air pollution.



The smaller interventions display larger returns in relative terms, and their benefits are more evenly distributed across the desired outcomes of green growth. Railway-based interventions have an incremental Economic Rate of Return of 22%, Road-based interventions 29% and the substitution of coal to biomass 54%. This compares to 31% for coal gasification.







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Aspirational Interventions

There are a number of further green growth interventions suggested by stakeholders and the wider project team, and from research. They were all considered to have potential to significantly improve the performance of the project towards meeting the five desired outcomes of green growth but were not included in the eCBA results due to very high economic/financial costs, lack of practicality, and/or data was lacking for a credible valuation. However, public and private decision makers would ideally consider these interventions in their investment decision making and continue to develop a conducive policies, incentives and an attractive investment climate to optimize green growth over the longer term.

| ACTIVITY | INTERVENTION |
|------------------|---|
| Power Generation | Full substitution of coal for biomass Other renewable energy sources (e.g. Solar PV) |
| Coal Processing | Responsible Mining Practices – Enforcement of existing legislation IGCC with Carbon Capture and Storage |
| Road | Protecting migration routes and Kutai National Park Offsetting hydrology disruption |
| Rail | Railway adapted for passenger transport Converting diesel to electric railway |
| Industry | Utilization of energy efficient and renewable technologies Reduction of solid waste and wastewater run-off Optimization of CPO production streams including Biodiesel |
| Other | Vocational training to support local uptake of job vacancies |

Policy Implications

| ACTIVITY | NET BENEFITS | POTENTIAL POLICY / ENABLER |
|--|--------------|---|
|  POWER | USD 32m | <ul style="list-style-type: none"> • Full implementation of Feed-in Tariff (MEMR Regulation 4/2012 FIT for Biomass) • Reform of energy pricing system (e.g. reform of fossil fuel subsidies/ carbon tax/trading scheme) • Bilateral Offset Crediting Mechanism (supporting RAN-GRK) |
|  COAL | USD 2,829bn | <ul style="list-style-type: none"> • Subsidized finance/guaranteed loans with concessional repayment terms, until case is proven. • Seek subsidized inputs under fertilizer subsidy program • Tax/carbon credit incentive • Use of innovative financing arrangements at national level for provincial deployment including PPP |
|  PALM OIL | USD 347m | <ul style="list-style-type: none"> • Government loans (potentially under MoF Regulation 79/2007) • Acceleration of ISPO certification including BMP guidelines and clarification of legal status • Inter-departmental co-operation on resolution of mining/forestry palm oil concession disputes • Awareness raising for BMP Implementation |
|  ROAD | USD 209m | <ul style="list-style-type: none"> • Government finances infrastructure, potentially financing from future tax revenues from resort • Inter-departmental co-operation on resolution of mining/forestry/ palm oil concession disputes • Access simplification |
|  RAIL | USD 390m | <ul style="list-style-type: none"> • Co-ordination between private investors, mining, palm oil and transport local departments • Simplifying access to infrastructure planning documents (AMDAL/SEA) |
|  SHIPPING | USD 40,000 | <ul style="list-style-type: none"> • Subsidy per unit pollution reduced from ships in-port • Subsidized electricity rates for ships in-port • Port-side infrastructure government funded • Compensation/Payment for Ecosystem Services charged on tourism industry and government representative local fishery interests • Resilience levy: KIPI Maloy charged for coastal protection value of mangrove/coral |

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



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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 KIPi Maloy Development or any other project, but rather highlights opportunities for improvements.

The results of this analysis are not suitable for investment decision making. While effort has been placed in using local information wherever possible, data has not been universally available, and international proxies feature in the analysis. Significant further due diligence would be required before undertaking any financial decision.



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