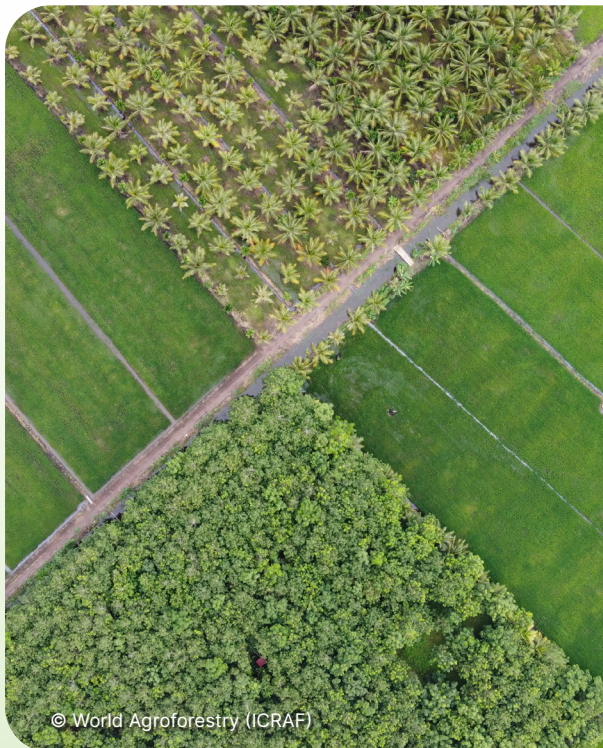


Local Action to Global Impact:

Supporting of The Development Tropical Peatland Protection and Management Planning (RPPEG)

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Key Messages

- The development of the peatland protection and management plan (RPPEG) has demonstrated the importance of aligning local conservation efforts with global environmental goals, such as those outlined in the Paris Agreement, to enhance the impact of local actions on global climate change mitigation.
- Integrating the RPPEG with national policies, including Indonesia's National Peatland Restoration Plan, has ensured coherent and robust support from the national government, providing a strong framework for regional and local implementation.
- Tailoring the RPPEG to the specific ecological, social, and economic contexts of West Kalimantan and South Sumatera has been crucial, as localized strategies have proven to be more effective and sustainable in addressing the unique challenges of each region.
- Active involvement and empowerment of local communities in the RPPEG process have been vital, as community participation has led to greater ownership, acceptance, and long-term commitment to peatland conservation efforts.
- The adoption of adaptive management practices within the RPPEG has allowed for continuous monitoring, evaluation, and adjustment of strategies, ensuring that the plans remain flexible and responsive to dynamic environmental conditions and emerging challenges.

A. Background

Peatland ecosystems play a strategic role and have crucial functions for environmental sustainability and human well-being. Therefore, it is essential to manage peatland ecosystems sustainably to prevent significant adverse impacts on life. As a commitment to sustainable peatland management, the Indonesian Government, through the Minister of Environment and Forestry Decree No. 246/MENLHK/SETJEN/KUM.1/6/2020, has developed the National Peatland Ecosystem Protection and Management Plan (RPPEG) for 2020–2049.

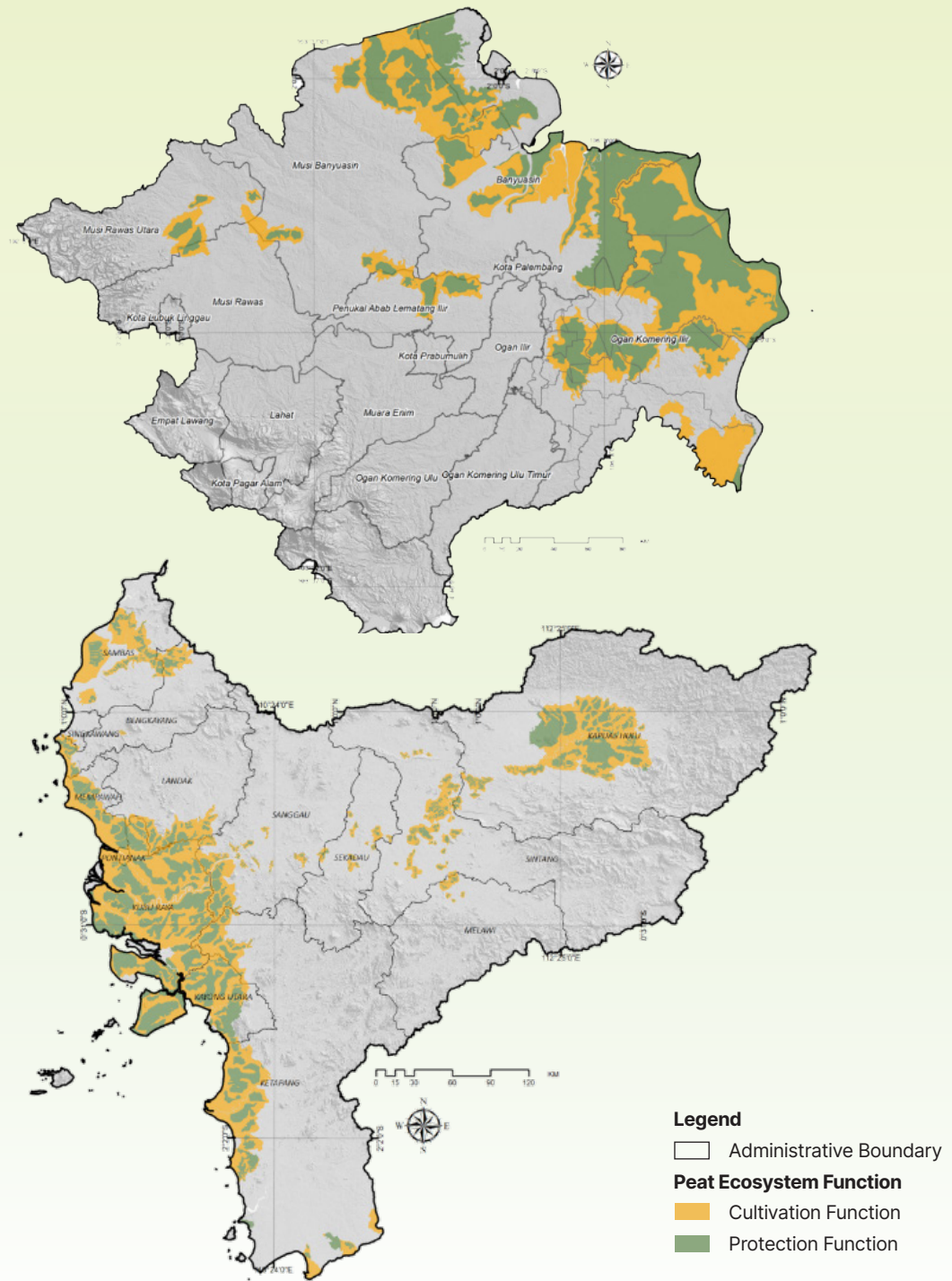


Figure 1. Peatland Ecosystem Function In South Sumatra (top) and West Kalimantan (bottom)

Source: MENLHK decree No. 130/2017



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South Sumatra has a peat ecosystem covering an area of 2.09 million hectares, making it the province with the second-largest peat ecosystem on the island of Sumatra. Most of these peat ecosystems are inseparable from human activities which cause high rates of land conversion, especially for plantations. Fires and drying of peatlands are the main issues that threaten the ecosystem's sustainability and local communities' livelihoods.

West Kalimantan has an indicative cultivation area of 1.67 million hectares (60%). The indicative area of West Kalimantan's protected function is 1.11 million hectares (40%) with 939 thousand hectares of deep peat (>3m). Most of these peat ecosystems are inseparable from human activities which cause high rates of land conversion, especially for plantations. Fires and drying of peatlands are the main issues that threaten the ecosystem's sustainability and local communities' livelihoods.

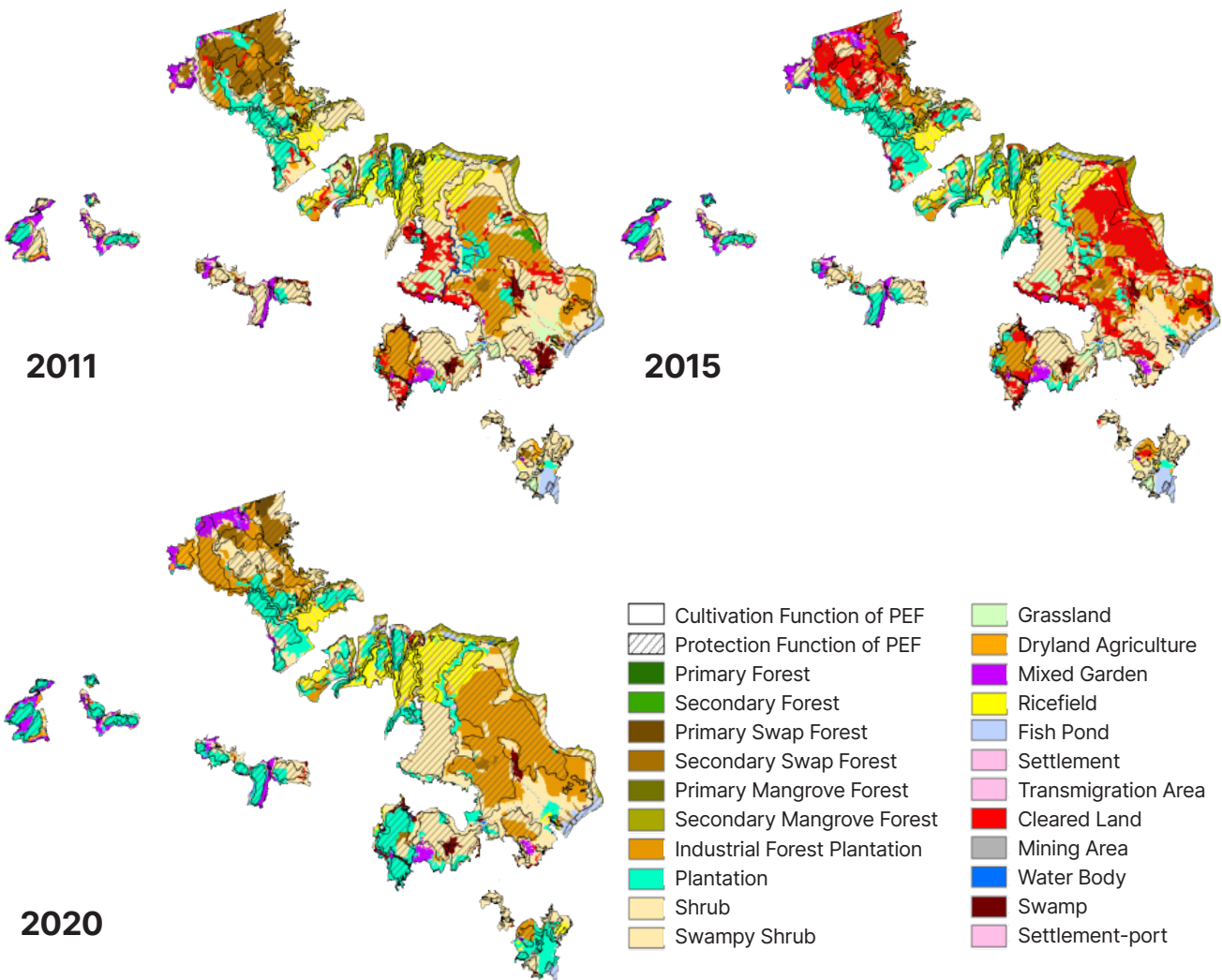


Figure 2. Land Use Land Cover in South Sumatera Province with Peatland Ecosystem Function

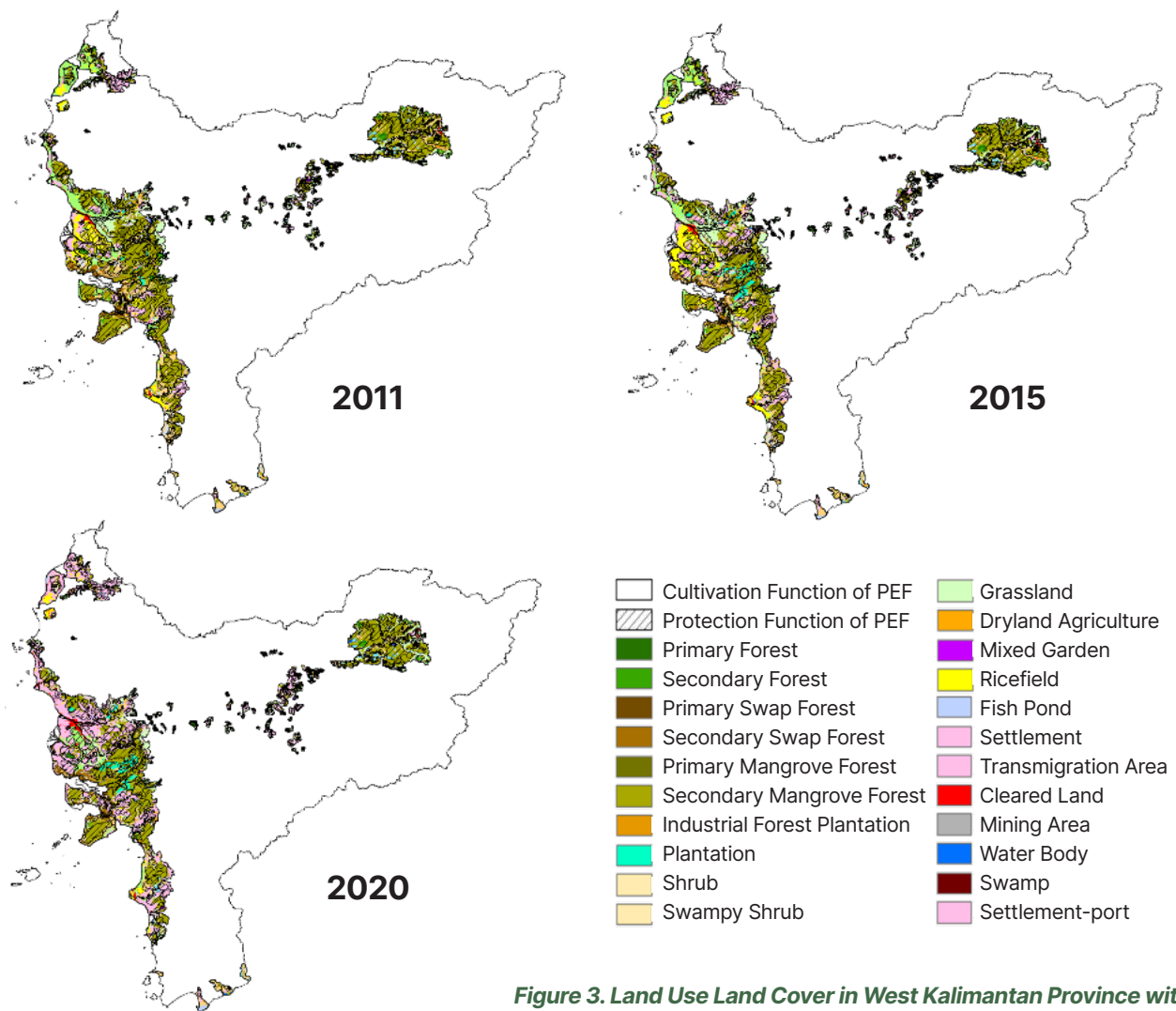


Figure 3. Land Use Land Cover in West Kalimantan Province with Peatland Ecosystem Function

B. Translating Global, National, into Local Action

Several initiatives by the Indonesian government to sustainably manage peatlands have been underway for quite some time, resulting in the development of several key policies.

The plan is one of crucial initiative to build commitment and clear direction peatland protection and management. It is providing a

reference for various peat ecosystem protection and management initiatives undertaken by the government, non-governmental organizations, and communities. It aims to preserve the functions of peat ecosystems and prevent their degradation. For Local stakeholders, the plan not only shows commitment to efforts to sustainably manage peat ecosystems in their administrative areas but is also a form of implementing the mandate of central government policy.



Figure 3. Indonesia Policy Milestones in Peatland Management

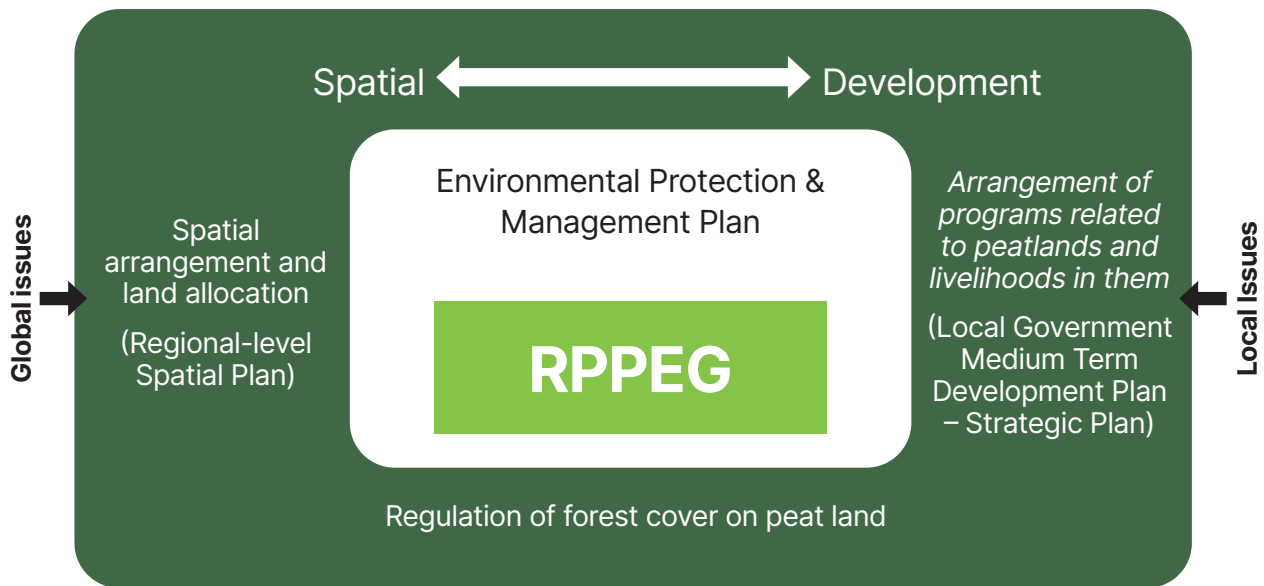


Figure 4. Framework Integration of RPPEG into Range of Regional Planning

As the embedded planning process at the local level, RPPEG should not stand separately but is linked and serves as a reference source in formulating development and other strategic planning documents.

C. Process Based and Multi Stakeholders Participatory

Framework and methodology are developed to underpin data analysis process and create evidence-based recommendations for

peatland protection and management. The series of process-based activities strengthens development of this peatland protection and management plan.

The presence of peat ecosystems in a region involves diverse interests and actors. Therefore, the preparation of the plan should be conducted in a participatory and inclusive manner. This approach aims to accommodate various interests, garner support from different stakeholders, and ensure commitment to achieving shared goals.

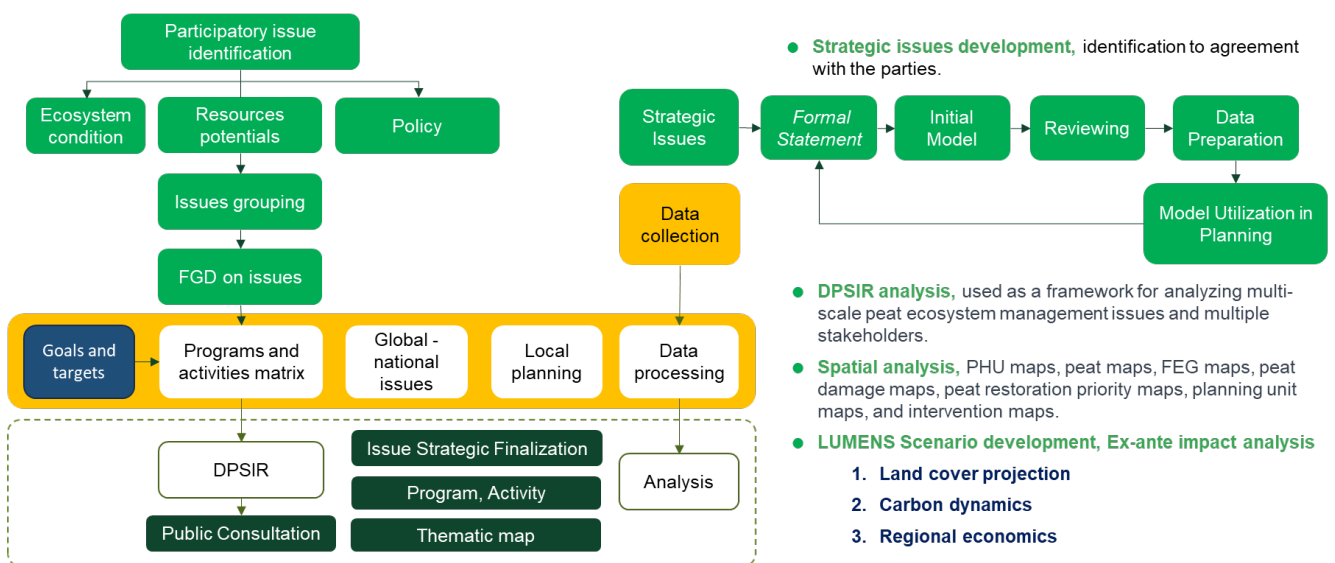


Figure 5. Process-based in the Development of RPPEG

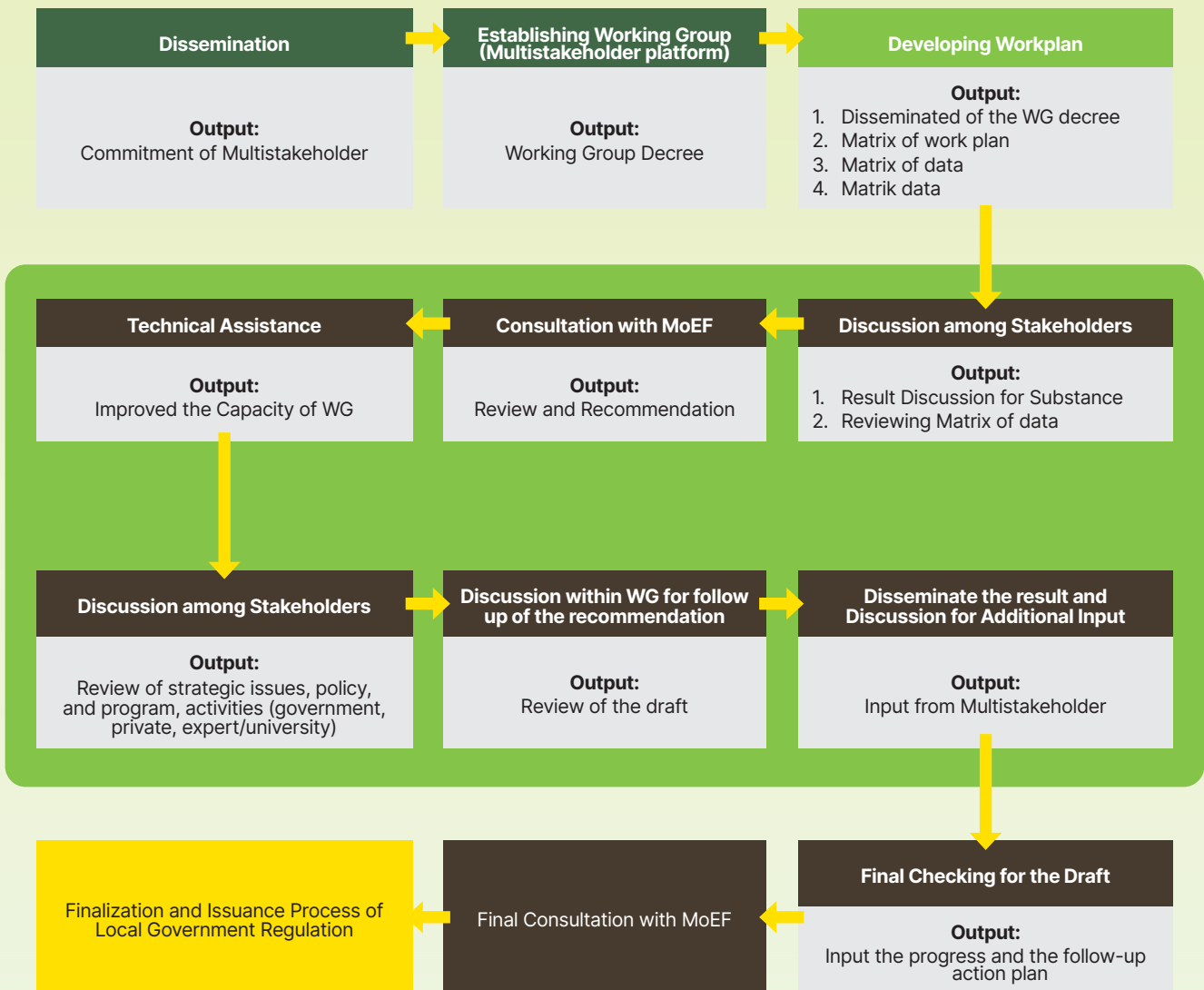


Figure 6. Embedding Participatory Process

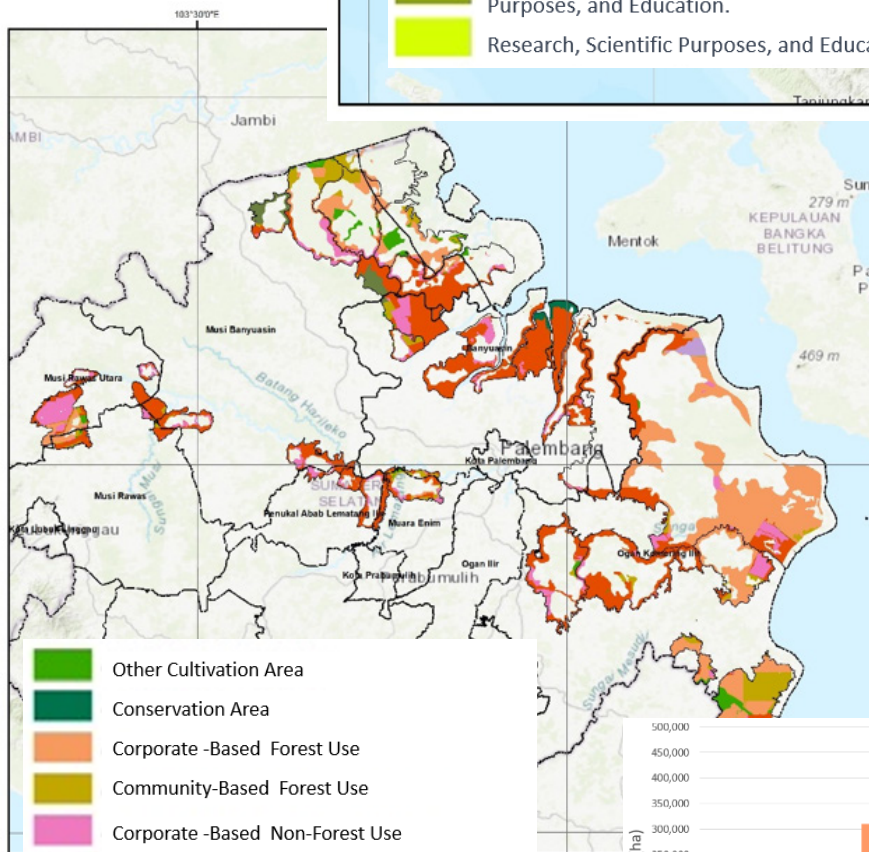
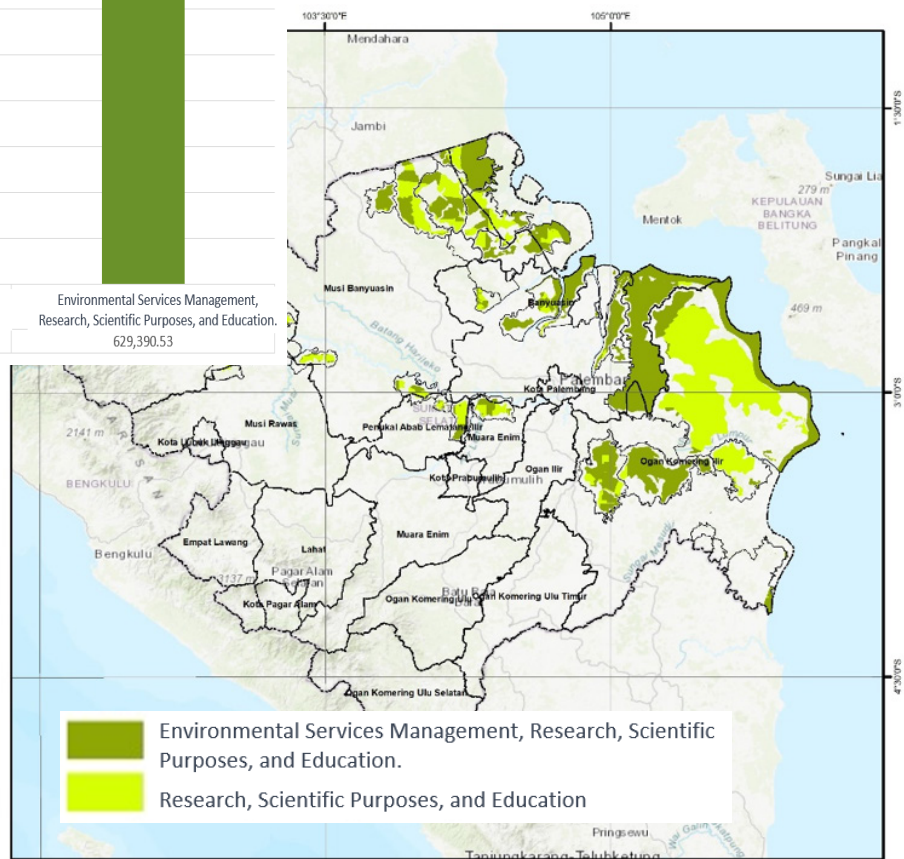
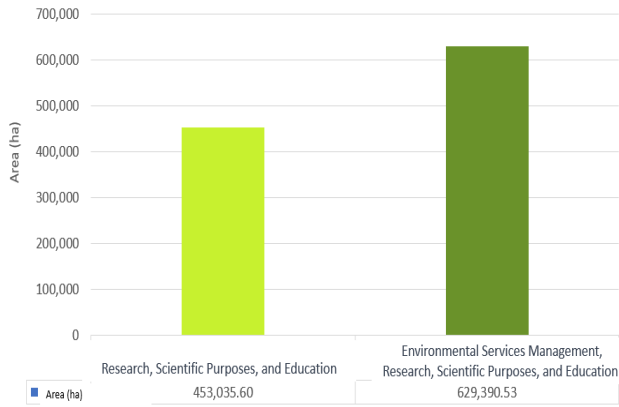
D. What are the recommendations?

Peatland management in Indonesia is divided into two main functions: protection and cultivation. Management recommendations are developed based on planning units accommodating both functions. The development of RPPEG should be supported by the best available data and information. This involves simulating management scenarios developed by multiple stakeholders and discussing various ex-ante impacts of RPPEG scenarios. Through this process, stakeholders can negotiate various proposed interventions and project future socio-economic and environmental impacts.

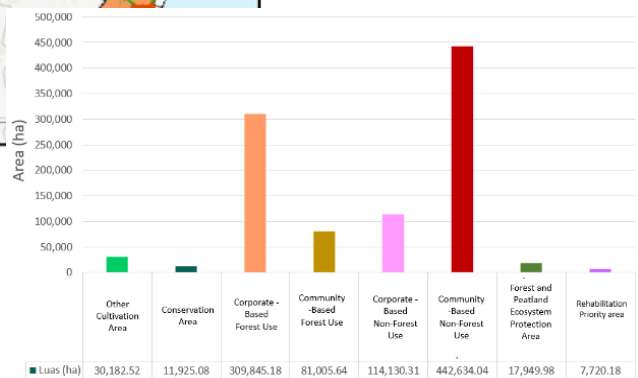
For example, in South Sumatra, the total indicative area of peat ecosystem protection functions is divided into two categories: areas

with and without management permit. Peatland management recommendations are implemented as follows: 1) protection functions within concession areas are designated for research, scientific purposes, and education; and 2) areas outside concession for protection functions are designated for environmental services management, research, scientific purposes, and education.

In peatland cultivation function area, land use is directed toward activities that promote land-use for distinct functions. Land allocation for both forest-based and non-forest-based activities managed by private entities and communities, with some allocation remaining for conservation, protection, and rehabilitation. In South Sumatra, there are significant focus on community-based non-forest use and corporate-based forest use.



- Other Cultivation Area
- Conservation Area
- Corporate -Based Forest Use
- Community-Based Forest Use
- Corporate -Based Non-Forest Use
- Community -Based Non-Forest Use
- Forest and Peatland Ecosystem Protection Area
- Rehabilitation Priority area



Scoping of Peatland Planning (RPPEG)

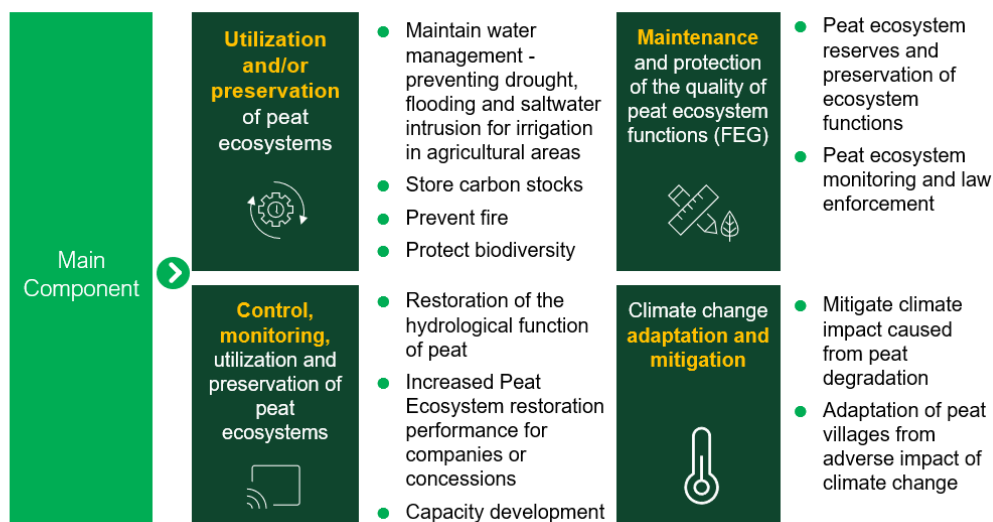


Figure 7. Intervention Map of Peatland Management and The Component of Recommendation

Sustainable Peatland Management scenario modelling is introduced to compare peatland management performance indicators to current BAU scenarios. Future land use projection is a key indicator for predicting future land covers/uses. Modeling scenarios for sustainable peatland management play a crucial role in achieving optimal management planning for peatlands, measured by a healthy environment, improved economy, and prosperous communities. The initial stage of modeling begins with establishing planning units, which are the smallest representative analysis units. These planning

units are constructed by overlaying spatial maps relevant to planning, policies, social, and biophysical aspects. South Sumatra has 56 classes of planning units, while West Kalimantan has 47 classes of planning units.

The RPPEG document in South Sumatra and West Kalimantan includes a detailed review of the use of projection data for ex-ante analysis. Projections are built using three types of scenarios: BAU, Target, and RPPEG. The business as usual (BAU) scenario is a model that assumes future projections based solely on historical data. The Target Program (TAR) scenario is a

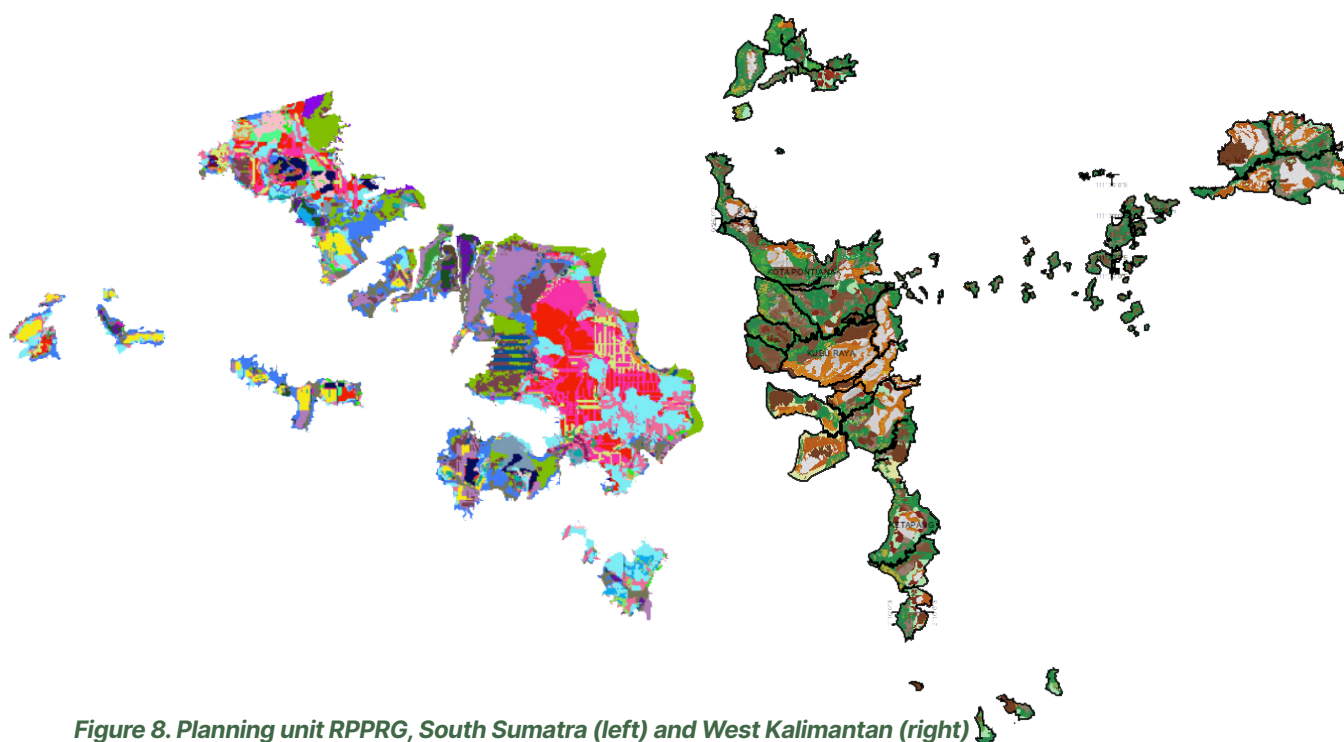


Figure 8. Planning unit RPPRG, South Sumatra (left) and West Kalimantan (right)

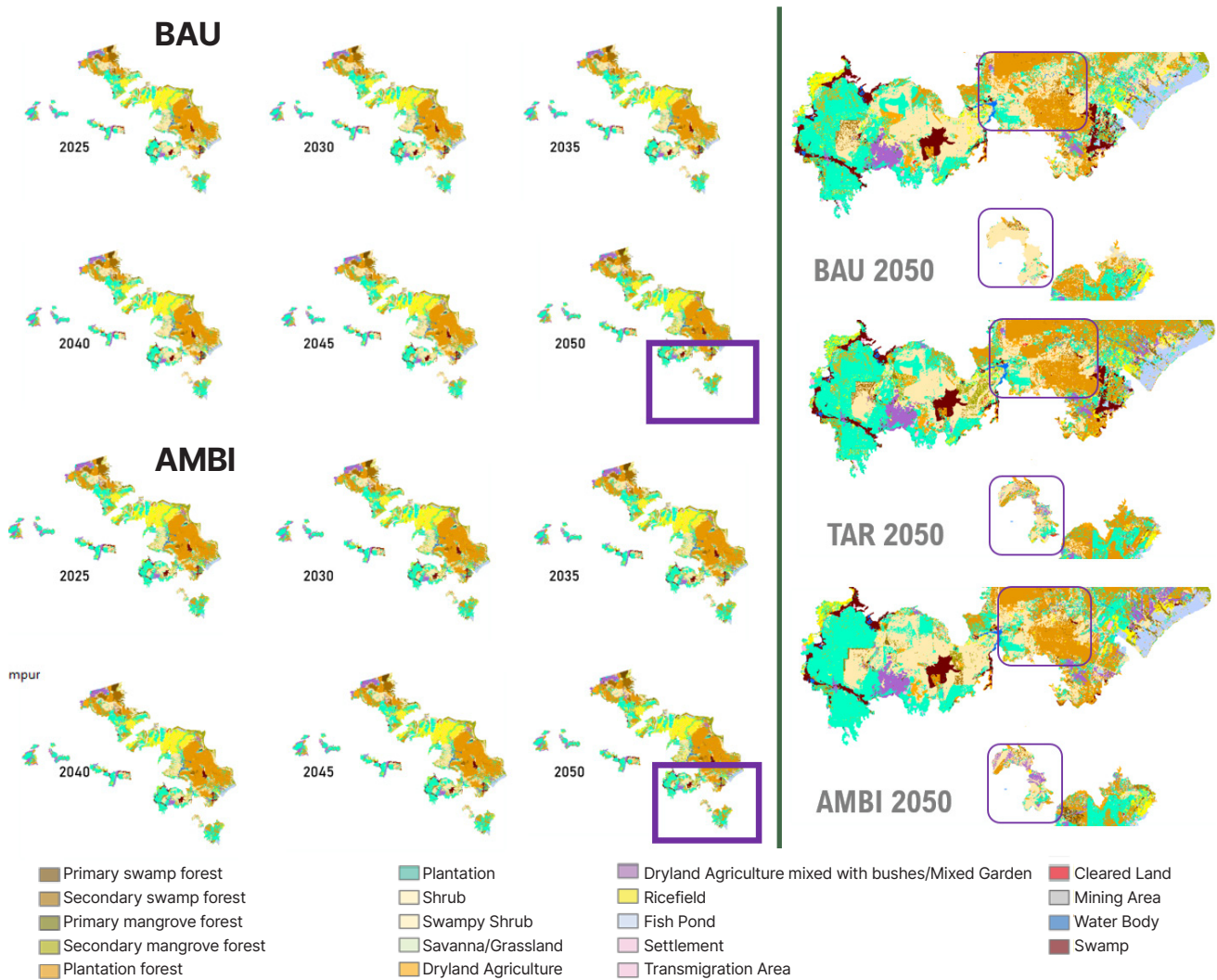


Figure 9. Land Use Projection Under Three Scenarios – South Sumatra

model based on targets from regional planning documents. The RPPEG (AMBI) scenario, on the other hand, is a model featuring programs and activities from the RPPEG document, known as the ambitious scenario. It strives to enhance the regional economy through peat-friendly land management and protection, thereby providing impacts that benefit the community.

The land use and land cover projections were conducted using simulations of three scenarios for the next 25 years, covering the years 2025, 2030, 2035, 2040, 2045, and 2050. These scenarios demonstrate various differences in land cover classifications. In general, both South Sumatra and West Kalimantan exhibit trends indicating that the scenario based on planning document targets (TAR) results in more progressive economic development compared to the business-as-usual (BAU) scenario. However, this TAR scenario also reveals increased degradation of natural areas such as primary-secondary forests, swamp forests,

and peatlands. Conversely, the RPPEG (AMBI) scenario trends towards better preservation and conservation of natural areas allocated for protection, conservation, and high environmental services, such as forests and peatlands, while still optimizing production in designated cultivation zones. The strategy employed to balance economic growth with environmental health involves the implementation of good agricultural practices (GAP) that are suitable for peatland characteristics.

The Existing Plan Scenario in the coming years may increase forest cover area, but in the long term, the RPPEG provides a consistently increasing trend. Emission reduction also is one of the key objectives in peatland management globally, the preparation of the RPPEG. As shown in Figure 10, the RPPEG scenario can significantly reduce GHG emissions, compare to Existing Plan scenario is predominantly decreasing in the short term but shows an increasing trend.

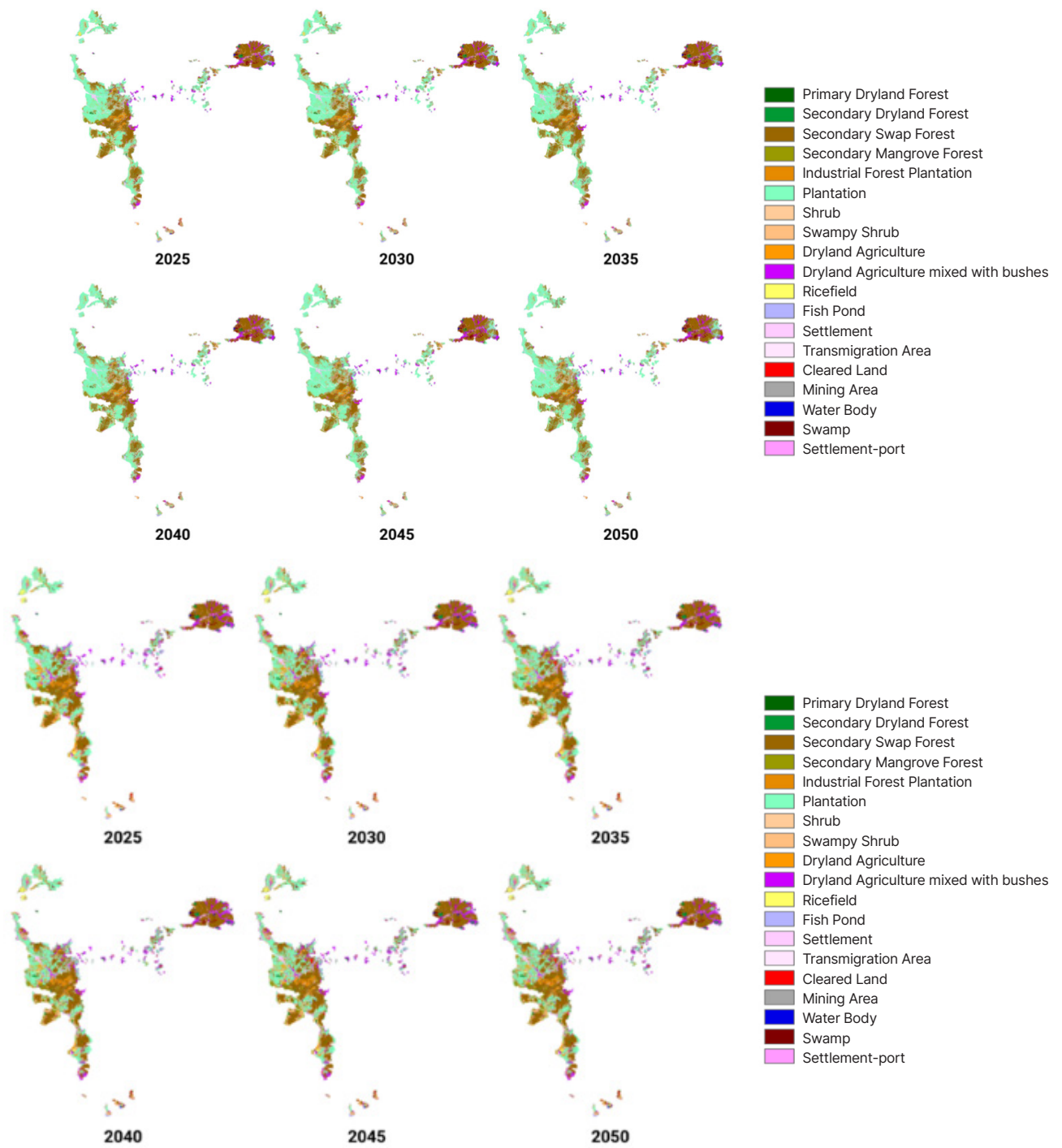


Figure 10. Land Use Projection Under BAU (top) and RPPEG (bottom) Scenarios – West Kalimantan

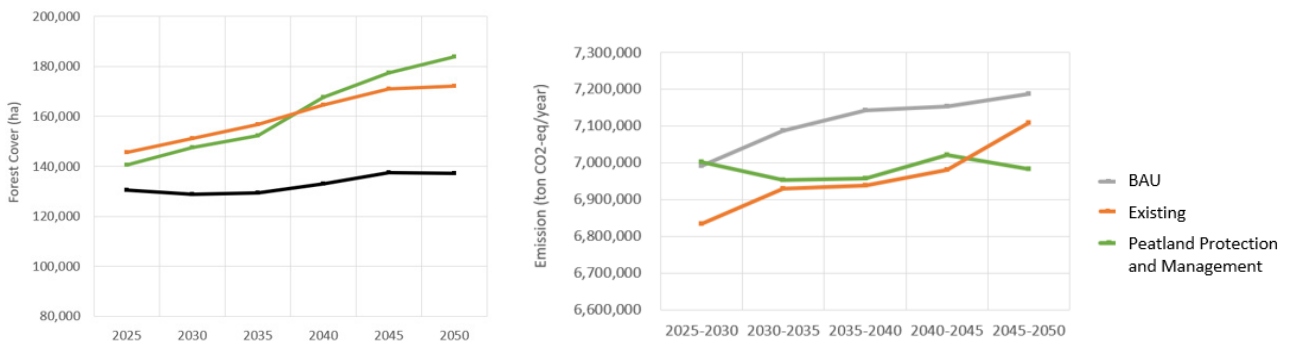


Figure 11. Future Projection of forest cover (left), CO₂ Emission (right) - South Sumatra

Figure 12 shows that the contribution from several sectors to the RPPEG scenario may not always be higher compared to BAU scenarios. However, for cumulative RPPEG scenario has the potential to increase the Gross Domestic Product (GDP) in West Kalimantan. Several positive factors that can influence the GDP increase in the RPPEG scenario include (1) Environmental Preservation and Conservation: By protecting and conserving natural areas such as forests and peatlands, the RPPEG scenario ensures the sustainability of natural resources essential for long-term economic growth. (2) Ecosystem Services: Environmental protection and conservation enhance ecosystem services, such as water regulation and carbon sequestration,

which can provide economic benefits through various green financing mechanisms. (3) Optimization of Production in Cultivation Zones: Despite focusing on environmental preservation, the RPPEG scenario also optimizes production in areas designated as cultivation zones, thereby supporting economic growth. (4) Good Agricultural Practices: Implementing environmentally friendly and efficient agricultural practices increases productivity, contributing positively to GDP. (5) Social and Economic Sustainability: By involving local communities in the management of natural resources and providing equitable economic benefits, the RPPEG scenario can create social and economic stability that supports GDP growth.

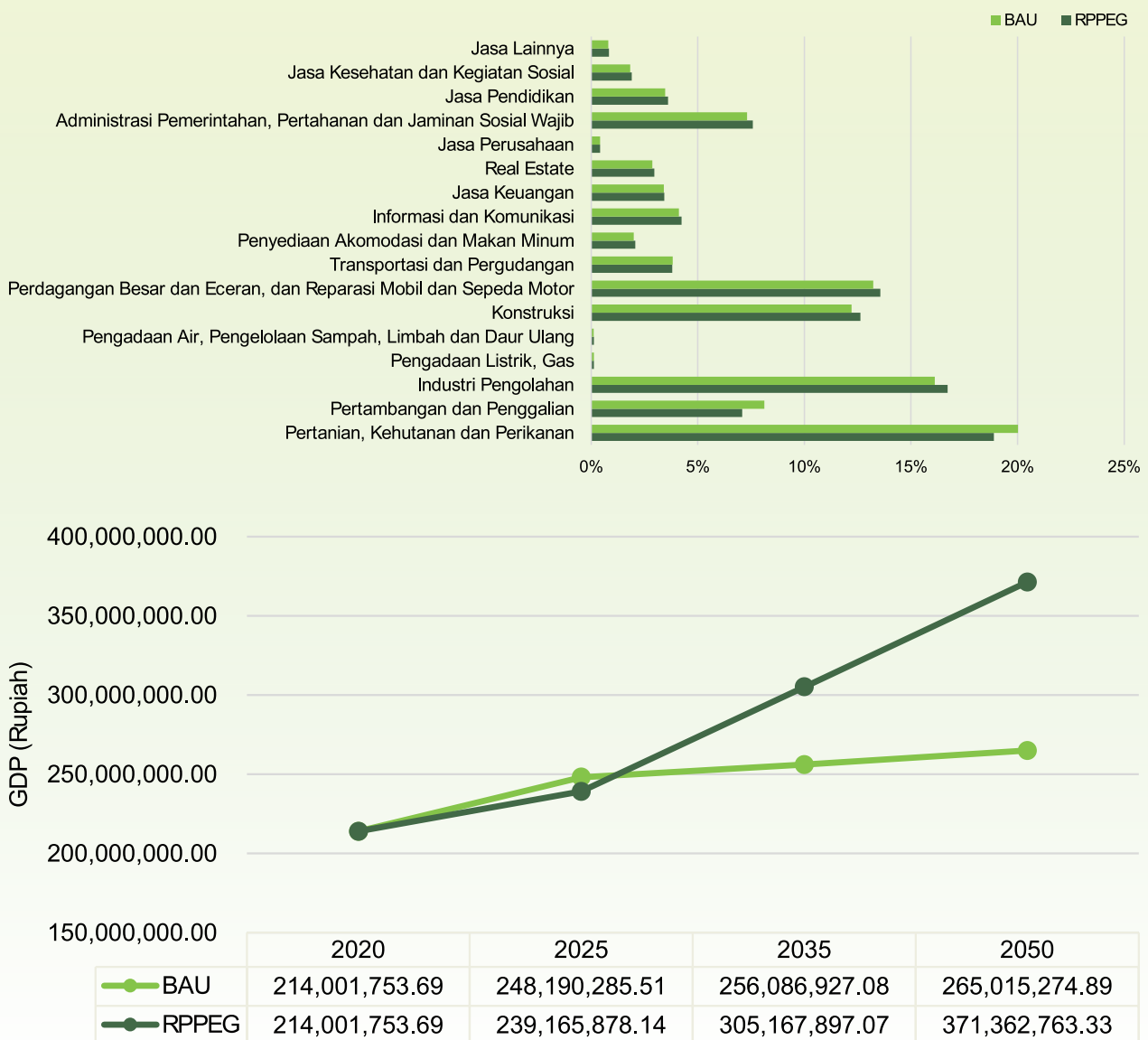


Figure 12. Sector contribution to GDP (left), GDP (right) - South Sumatra



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E. Towards implementation

The following components are important for effective local actions influencing global success in peatland protection and management.

- Integration of RPPEG into other planning documents at the local level. RPPEG as a specific plan for peatland areas overarching with other issues of social, economic, and environment.
- Organizational aspects and funding are integral components of RPPEG, serving as enabling factors for implementing the formulated strategies. Effective implementation of RPPEG requires robust organisational support founded on principles of collaboration, inclusion, and participation. This approach ensures that RPPEG is effectively implemented, sustainable, and benefits both communities and the environment. The organisational framework of RPPEG leverages existing formal organisations and should be relevant, facilitating a smoother integration process.
- Multistakeholder engagement is essential in peatland planning, with each stakeholder playing a crucial role.
- Funding for RPPEG programmes and activities can come from various sources, including national and international funding organisations, through diverse schemes or partnership grants, ensuring compliance with applicable laws and regulations.
- A comprehensive and participatory monitoring and evaluation framework is crucial to ensuring the effectiveness of the peat ecosystem protection and management plan. This framework should include relevant indicators, effective methods, and multi-stakeholder participation. A robust framework is expected to ensure the sustainable protection and management of peat ecosystems.

Potential Sources of Funding for Peatland Management	
National Funding	International Funding
<ul style="list-style-type: none"> ● State Budget (APBN): Restoration Assistance Task Fund (TP-Restorasi), Benefit-Sharing Fund of Reforestation Fund (DBH-DR), Indonesian Environment Fund (BPD LH) ● Domestic carbon market ● Others: Public-private partnerships, loans and bonds, and payment for ecosystem services (PES) 	<ul style="list-style-type: none"> ● Results-based payments under REDD+ schemes ● Green Climate Fund (GCF) under United Nations Framework Convention on Climate Change (UNFCCC)



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