# Spatial Planning for Biodiversity Conservation in Papua:

## Laying the foundation for people-centered development that safeguards high biological and cultural diversity [1]

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*Abstract*

Papua Province has adopted an innovative self-reliant (*swakelola*) and participative approach for spatial planning by the regional planning agency or *Bappeda* as the framer of the provincial spatial plan with biodiversity conservation as a central feature. In support of the self-reliant approach, technical assistance from Environmental Services Program (ESP) funded by the United States Agency for International Development (USAID) and from the United Kingdom's Foreign and Commonwealth Office (FCO) has been embedded in the spatial planning unit of Bappeda. This self-reliant and inclusive provincial spatial planning process in Papua has rested on the following five development pillars, (a) Embedded support for self-reliant (*swakelola*) spatial planning, (b) strong and dynamic inter-institutional linkages, (c) building capacity and contributing to key outputs in the spatial planning process, (d) transparent, iterative and participative facts and analysis preparation and reporting that is consistent with Strategic Environmental Assessment (SEA) mandated for all spatial planning in Indonesia, (e) Building a legacy for sustainable spatial planning at the District and village levels. To date, among the major highlights of the spatial planning process have been maps for (1) rationalization and harmonization of forest functions, (2) geo-location of villages and language groups, (3) integrated transport system networks, and (4) proposed rationalization of inter-district boundaries. Bappeda's *swakelola* spatial planning approach, guided by principles of transparency, participation and accountability is true to the local saying about the importance of shared ownership, *ko punya, sa punya, tong sama sama punya* (you own it, i own it, therefore we both own it) promising a plan that while not perfect should be far better than before and far more likely to be respected by policy-makers, decision-makers, planners, investors, indeed the entire community of *masyarakat* Papua. Although well advanced, Papua's spatial planning process remains a work in progress with a number of challenges ahead to provide enduring safeguards and guidance for biodiversity conservation. These remaining challenges occur relate to tasks facing the various administrative levels involved in developing spatial plans not just for Papua province, its Districts and villages but also the whole of Indonesia.

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## 1. Introduction

**The Role of Spatial Planning in Effective Biodiversity Conservation.** Since 2007, beginning with new laws for terrestrial and coastal resource planning (Acts 26 and 27 of 2007), the Government of Indonesia (GoI) has been framing and developing new policies to reform the spatial planning processes and outcomes to achieve more effective and integrated urban and rural planning, specifically as a sound basis for infrastructure development, agriculture, natural resource extraction and environmental conservation, particularly protection of the nation's unique endowment of terrestrial and marine biological diversity (biodiversity). No small part of these policy efforts is aimed at ensuring that sectoral planners and other government decision-makers as well as the private sector and local communities show greater respect for the legally-approved spatial plan than has been the case in the past. Spatial plans should become both a binding and useful basis for promotion of growth which safeguards environmental and social values that in turn sustain national and local development. Subject to the new policy framework for spatial planning, Indonesia's 33 provinces are currently at various stages of preparing their provincial spatial plans.

**Governor's Commitments to Conserving Biodiversity and Cultural Diversity.** The role of spatial planning in Papua Province both supports and is supported by Governor Barnabas Suebu's commitments to conserving biodiversity and cultural diversity (Barnabas Suebu 2008a). These commitments have spanned the international, national and local arena for achieving sustainable development, from the Governor's declarations at the World Conservation Congress (Barnabas Suebu 2008b, particularly related to forestry management and opening up opportunities for Reduced Emissions from Degradation and Deforestation or REDD (Barnabas Suebu 2008b). These messages are likely to be reiterated when he represents Indonesia at the forthcoming COP 15 negotiations on climate change in Copenhagen in December 2009. At the provincial level, the Governor has reminded all parties that they must take into account environmental considerations (*berwawasan kingkungan*) even outside the forestry domain, e.g., the opening speech of a local workshop earlier this year on oil palm development on oil palm development that is based upon sound river basin management (Barnabas Suebu 2009).

**A Special Role for the People of Papua.** Papua Province, presently at an advanced stage of preparation of its spatial plan, has placed particular emphasis on conserving both its high biodiversity and cultural diversity. Towards this end, the spatial plan explicitly recognizes the special development role of the people of Papua, many of whom are poor, not just as objects of assistance such as through the province's Strategic Plan for Village Development (*Rencana Strategis Pembangunan Kampung, RESPEK*). Local communities are also important implementers and stewards of natural resources whose local efforts can help safeguard biodiversity provided their rights and responsibilities enshrined in the national law for special autonomy (Act 21 of 2001) and several regional regulations on natural resource management, customary communities, customary rights over land, forestry and mining are given geographical meaning through geo-location of village settlements in the spatial plan. Such geo-location should invite more transparency over land exploitation licensing processes, an important element in early conflict resolution over claims to natural resource resources (Bennett 200b). It should help to address the three major constraints for the poor, namely, lack of opportunity, lack of voice and choice and vulnerability (World Bank 2000). Specifically, village geo-location can suggest co-management



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agreements such as with forestry agencies responsible for management of forest management units (*Kawasan Pengelolaan Hutan, Hutan*) established by Governor Decree and with national park authorities for park zonation.

The human, social and knowledge assets of local communities can therefore be mobilized for management and conservation of natural assets including biodiversity. Thus the full array of assets can be mobilized for sustainable development – financial, physical, natural, social, human and knowledge assets or capital (World Bank 2002). Moreover, the spatial plan by conferring asset security on local communities, converts those communities into assets for biodiversity conservation along the lines of the principle, "assets for the poor … the poor as assets" (Bennett 2004). Papua Province's acknowledgement of an enhanced role for local people in co-managing natural resources comes is timely, given that this year's (shared) nobel prize for economics has gone to Professor Elinor Ostrom for her critically-acclaimed empirical work showing the value of communally-managed resources where it succeeds and where it fails (The Economist 2009). Clearly the time has come for more genuine policy support for region-wide co-stewardship of land and marine resources among local communities and responsible government agencies, backed by political will that might yet follow through to practice the landmark natural resource and land declaration of MPR Declaration IX of 2001 that was the result of close collaboration between NGOs and the highest house of parliament at that time in Indonesia (Bennett 2002c).

**Structure of this Paper.** This contribution to the 2009 International Biodiversity Conference goes on to outline the challenges for spatial planning in Papua Province related to Biodiversity Conservation in the next chapter. Chapter 4 outlines the five development pillars of Bappeda's innovative approach to self-reliant and participative spatial planning for Papua Province. After this discussion of process, Chapter 5 presents some product highlights of the approach, notably realistic maps that would not have been possible without the effort taken to involve stakeholders in spatial plan preparation. A brief conclusion follows in Chapter 6. Finally, in a post-script, Chapter 7 outlines the development road ahead for spatial planning to continue to support conservation of biodiversity.

## 2. Challenges for Spatial Planning in Papua Province Related to Biodiversity Conservation

Among the major development challenges that the Papua spatial plan seeks to address are,

- *Towards Resolution of the "Papua Paradox"* – rich in natural and cultural resources, low population density, high revenue, yet most remain poor.
- *Sustainable Revenue Generation*. After major mining and Special Autonomy revenues end, sources of alternative revenues that can be sustained and do not increase environmental degradation.
- *People-Sensitive Growth*. Growth-centered development that is also people-centered and people-sensitive.
- *Harnessing the Potential Energy of the People as Assets Rather than Simply Perceiving them as Environmental Liabilities*. Development that avoids marginalization of long-established



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Papuan communities, recognizing their human, social and knowledge capital as essential ingredients for sustainable natural resource management in general and biodiversity conservation in particular.

- *Integrated Transport Network Systems*. Integrated transport networks to link isolated communities in ways that overcome problems of high-cost road infrastructure and maintenance, and exert less development pressure on fragile ecosystems.
- *Harmonious Administrative Jurisdictions*. More harmonious relationships among village, district, provincial (exacerbated by uncertain boundaries) and international neighbours as well as with national agencies in Indonesia's eastern-most and largest frontier province.

**A Spatial Plan that Underpins Papua Province's Overarching Vision and Mission**

As Indonesia's eastern-most and largest frontier region, from the outset Papua Province's approach to spatial planning process has been guided by the Government of Papua's over-arching vision and mission,

Vision: *A New Papua, good for the province, the nation and the global community*

Mission: Within Papua Province

- *Better governance at all administrative levels, following principles of transparency, participation and accountability*
- *People of Papua welfare, prioritizing everyone living in villages and the urban poor*
- *Peaceful Papua, with the population obeying the lawing and strongly supporting human rights*
- *Accelerated infrastructure development and maintenance across Papua that safeguards natural and cultural diversity*

## 3. Innovative Self-reliant and Participative Spatial Planning

Critical to achieving the goal of more effective spatial planning is the process of spatial plan preparation. Papua Province has adopted an innovative self-reliant (*swakelola*) and participative approach led by the regional planning agency or *Bappeda* as the framer of the provincial spatial plan (Alex Rumaseb 2009a & b). The approach promises a result that will be supportive of sustained growth and development in ways which promote social stability and conservation of the region's unique terrestrial and marine endowment of biodiversity. It replaces the conventional practice of outsourcing to a consultancy third party. The resulting provincial spatial plan and its preparation should guide subsequent District-level and village-level spatial planning as foreseen in Acts 26 and 27 of 2007.

In support of the self-reliant approach, technical assistance from Environmental Services Program (ESP) funded by the United States Agency for International Development (USAID) and from the United Kingdom's Foreign and Commonwealth Office (FCO) has been embedded in the spatial planning



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unit of Bappeda. In contrast to conventional spatial planning that usually relies on outsourcing the task to a consultancy or research agency, Bappeda draws on technical expertise that it lacks, while staying in control of the process from start to finish, up to submission to the Governor and provincial parliament (DPRP), scheduled for the end of 2009. The result is a spatial planning process that is more effective because Bappeda is better-informed about current provincial needs and developments, and more able to bring about genuine and ongoing participation of other government agencies and civil society in the process than an outside institution. With guidance from the provincial Bappeda, this more inclusive model of spatial planning should also have application to District-level spatial planning, and indeed may be especially relevant where institutional capacity is limited.

ESP has provided capacity-building for and technical input to Papua Province in support of self-reliant spatial planning, working with a wide range of key government and non-government stakeholders. Although primarily aimed at provincial level engagement, ESP has also including engagement from villages to the national level. Complementary support to Bappeda from the FCO has focussed more on the sustainable development economic underpinnings of decision-making for spatial plan preparation and implementation.

The *swakelola* approach has encouraged closer and more dynamic inter-institutional linkages, horizontally with other provincial government agencies, as well as vertically, "down" to Districts and "up" to national agencies, yielding more reliable and efficient information sharing among them about plans and programs and databases with spatial implications. Bappeda has specifically invited NGOs (*mitra pembangunan*) into the information-sharing and response process. The outcome promises to be a spatial plan that not only will be more respected by decision-makers, and local communties, subject to public review, but will also guide subsequent District/town spatial planning, and finally, spatial planning of clusters of villages as mandated by Spatial Planning Act 27 of 2007, consistent with the Governor's invocation to government and non-government agencies alike of *continuous improvement*.

Provincial spatial planning in Papua, embracing principles of participation and transparency, is acheiving spatial or landscape planning that is not only economically-efficient and environmentally-sound but also socially-responsible. The Government of Papua Province now considers the spatial plan as the fundamental reference point for development policy and decision-making for natural resource management in Papua, as well as for the preparation of medium- and long-term development plans (RPJMD and RPJPD, respectively). This in turn should contribute to Indonesia's growth and stability, while safeguarding and fostering development for major regional, national and international challenges such as mitigation of and adaptation to climate change, resilience in the face of economic turbulence as well as reduction of rural and urban poverty.

Spatial planning under Bappeda's self-reliant management should invite new research and development to make sustainable use of Papua's unparalleled biological diversity providing benefits to the people of Papua and the rest of Indonesia. For conservation strategy in Papua, arguably the expression "from ridge to reef" should be changed to "from the cryophiles above the snowline to the thermophiles beneath the sea bed". Papua Province as a sub-national region is probably home to the greatest range of biological diversity in the world. The province encompasses one of the world's three largest expanses of tropical rain forest and lies within the heart of the "coral triangle". It's unique biodiversity endowment is matched by high cultural diversity represented by some 250 language groups. Effective spatial planning in Papua promises to become truly emblematic of Indonesia's national purpose of Unity in Diversity (*Bhinneka Tunggal Ika*).



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## 4. Five Development Pillars for Spatial Planning

Bappeda's the self-reliant and inclusive provincial spatial planning process in Papua has rested on the following five development pillars, outlined in more detail below, namely, (1) Embedded support for self-reliant (*swakelola*) spatial planning, (2) strong and dynamic inter-institutional linkages, (3) building capacity and contributing to key outputs in the spatial planning process, (4) transparent, iterative and participative facts and analysis reporting, (5) Building a legacy for sustainable spatial planning.

### (1) Embedded Technical Support for Self-Reliant (*Swakelola*) Spatial Planning

Technical assistance from ESP and FCO has been integrated into a Bappeda-led process, and hence differs from typical third party outsourcing of spatial plan preparation by a consultancy entity, and as such is better informed about current local developments while generating a greater sense of shared local ownership in the process, especially readiness among government and non-government institutions to share relevant information. This is particularly important given the currently short time horizon (completion by December 2009) to produce a provincial plan under a tight time constraint yet quality-assured (*dikejar waktu, namun menjamin mutu*), and more likely than in the past to be respected by land and marine exploitation decision-makers.

#### Demand-driven Identification and Management of Technical Support

Decision-making over technical assistance provided by ESP was based upon needs identified by Bappeda as data sets from the draft 2006 spatial plan for all Papua (*Tanah Papua*) were gathered and analyzed and gaps identified. A condition of selection of all ESP candidate technical assistant was first was that they be interviewed and approved by Bappeda in collaboration with ESP's environmental governance advisor.

Mobilization of technical assistance began in early 2009 with the formation of a core team consisting of (1) a *general GIS* specialist, concerned both with data gathering and processing as well as capacity-building within Bappeda's Spatial Planning Information Centre (*Lab Simtaru*), (2) a *village GIS* specialist tasked with "*Putting the People of Papua Province in the Plan*" by geo-locating some 2000 village settlements across the province to empower local communities as natural resource management participants in line with Article 38 of Papua's Special Autonomy Act of 2001 and the Governor's People-Driven Development Strategy (RESPEK), (3) a *land tenure* specialist to ensure that spatial planning captures respect for traditional community rights of over 200 indigenous language groups, (4) an *institutional* specialist, who takes a critical lead in fostering inter-institutional connectivity and collaboration, particularly during workshops and public consultations, and last but not least, (4) spatial planning specialist entrusted with crafting the spatial plan process in line with regional and national rules, regulations and norms. As requested by Bappeda, the complement of ESP



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specialists was later expanded to include (5) a *strategic spatial planner* well-versed in formal planning guidelines and their relationshp to other planning processes, (6) an economic *resource valuation specialist* to assess the environmental economic impacts of natural forest conversion, major road- and canal-building scenarios, (7) *an environmental carrying capacity specialist* to develop a land use plan, (8) a *transport system specialist* to evaluate the various infrastructure plans, and (9) c*oastal resource management specialist.* A modest set of additional equipment and servicing was provided to upgrade Bappeda's GIS laboratoryn, namely, laptops, GPS and camera, backup hard disk and related software.

Day-to-day collaboration and coordination among ESP's technical staff and counterparts in has been the cornerstone of Bappeda's self-reliant or *swakelola* approach to spatial planning, an approach that has reached out and actively engaged with a wide range of government and non-government institutions at various administrative levels. Through capacity-building and technical inputs to Bappeda's Spatial Planning Unit and a broader-based technical team formed by Bappeda, spatial planning for Papua Province has rested upon five development pillars.

Crucial to maintaining a close relationship between ESP and Bappeda as a primary asistance partnership, has been the ESP principle of, "*the best surprise is no surprise*", especially with respect to the provision of short-term technical assistance (STTA). On arrival, and before departure, each STTA has provided a briefing to Bappeda and the long-term assistants (LTTA) about work plans and progress, highlighting major activities and achievements related to their scopes of work (SOW). Portfolios of their c.v.'s, SOWs and reports are shared and filed, including respectively, Bappeda's and ESP's overarching Terms of Reference and SOW for the spatial planning support. This model has been proposed by Bappeda for all their donor assistance.

UK-FCO specialists provided analytical inputs on macro- and micro-economic analysis related to spatial planning as well as some legal analysis of tenurial issues in collaboration with the ESP land tenure specialist.

**GIS Spatial Planning Laboratory**

Assistance is centered in the Bappeda spatial planning division with its GIS facility (*Laboratorium Sistem Informasi Tata Ruang, Lab Simtaru*), which should also serve as a centre of excellence for similar self-reliant approaches by Papua's Districts as they bring their spatial plans in line with the provincial spatial plan.

**Tim Teknis**

The dedicated Technical Team (*Tim Teknis*) established by Bappeda has harnessed input and comment from within the agency on a day-to-day basis (in contrast to third-party outsourcing where interactions with Bappeda are restricted to a few events for the presentation of reports). Smaller focus groups consisting of Bappeda, ESP, FCO and other agency members inlcuding NGOs take on specific issues that require cross-sectoral discussion, namely,

- infrastructure development,
- forest function determination,
- socio-cultural aspects.



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Bappeda staff in the Technical Team have been able to cover industrial and communications infrstructure planning as well as various other inputs from the members of a dedicated Technical Team (*Tim Teknis*), some of whom have come from other government and non-government agencies such as Conservation International (CI) and Word Wildlife Fund for Nature (WWF). Major forestry spatial planning contributions have also been provided by the Ministry of Forestry's branch office for Delineating Forest Functions (*BPKH*) and the new agency for natural and environmental resource management (*BPSDALH*). Cendrawasih University also made important contributions to socio-cultural aspects as well as natural disaster mitigation.

(2) **Effective and Dynamic Inter-institutional Linkages to Ensure Adequate Communication of Ideas, Information and Reactions among Stakeholders**

Dynamic linkages among government and non-government agencies have been fostered by Bappeda's explicit commitment to and demonstration of information-sharing, prompting other agencies to be equally open with their data. This has resulted is less *ego-sektoralisme.* Thus, transparency has encouraged more participation and mutual access in GIS development than is often the case when a third-party agency is contracted to prepare a spatial plan. The following inter-institutional connectivity has contributed to the preparation of a better-informed and guided spatial planning process than less consultative approaches,

HORIZONTALLY, across sectoral government agencies at the provincial level (including the *Badan Koordinasi Penataan Ruang Daerah, BKPRD*), notably,

- Agency for Environmental and Natural Resource Management (BPSDALH), Forestry Delineation Agency (*BPKH*), Forestry Service (*Dinas Kehutanan*), Fisheries & Marine Affairs (*DPK*), Agriculture (*Dinas Pertanian*), Public Works (*Dinas Pekerjan Umum, Balai Pekerjaan Umum*), Statistics Bureau (*BPS*), Electronic Data Centre (*Pusat Data Elektronik*) and the Papua Knowledge Centre
- Key civil society organisations such as branches of WWF and CI and local NGOs (*YBAW*, *PPMA* and AFP3*)*.

VERTICALLY "up" with both the national level, through the Coordinating Agency for Nation Spatial Planning (*Badan Koordinasi Penataan Ruang Nasional, BKPRN*), thereby reducing perceptions of *ego-sentralisme*, primarily through,

- Ministry of Public Works' Directorate General for Spatial Planning, Region IV (Provinces of NTB, Maluku, Maluku Utara, Papua Barat, and Papua).
- Ministry of Forestry's Directorate General for Spatial Policy (*Planologi*), particularly for the process of rationalization and harmonization of forest functions (see below).
- Invitations to all major spatial planning events (Introductory Report, Facts & Analysis and Draft Spatial Plan workshops) of selected BKPRN members, Ministry of Public Works, Coordinating Ministry of Finance, State Ministry for the Environment, Ministry of Home Affairs' Directorate for Spatial Planning and Environmental Management, Ministry of Fisheries and Marine Affairs, Ministry of Forestry and Bappenas (National Development Planning Agency)

VERTICALLY "down" to Kabupaten's and Kota, notably through,



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- 27 Kabupaten spatial planning surveys
- Among 29 Kabupaten's and Kota, rationalisation and harmonisation of forest functions
- invitations to major provincial events (Introductory Report, Facts & Analysis Report and Draft Provincial Spatial Plan),
- culiminating in public consultations of the draft spatial plan itself in four locations (Jayapura,

pivotally, with Governor Barnabas Suebu, who invited regular consultations with the Bappeda-ESP-FCO team. The Governor expects the spatial plan to feature in the International Biodiversity Conference in November 2009 and COP 15 in Copenhagen in December 2009.

Public consultation has included stakeholder participation in feedback-oriented workshops on the spatial planning products (see below), informal and formal dialogue with stakeholders from all Districts, as well as with both the Governor and the DPR Papua. In October and November, public consultation will culminate with presentation of the draft spatial plan in four regional centres (see below).

(3) **Capacity-Building for Spatial Planning Process as well as and Technical Contributions to the Framing of the Spatial Plan**

Building on the Spatial Plan for *Tanah* or *Pulau Papua* (Papua + Papua Barat Provinces) of 2006, ESP support focuses on,

- Capacity-building for Bappeda Province's Spatial Planning Unit (notably, its *Laboratium Sistim Informasi Tata Ruang (Lab Simtaru)* and inter-institutional engagement processes), including cross-learning visits to Nanggroe Aceh Darussalam Province, another ESP site

- Databases required for spatial planning have been compiled, including updating, quality control and provision of additional data in line with provincial policies and supportive of national development policies

- est carrying capacity, resource valuation endowment, hazards, …., roads,

- Geo-location of villages represents a major innovation that has enjoyed wide support. Neither stipulated by spatial planning law nor at variance with it, village geo-location enables Article 38 of Regional Autonomy Act 21 of 2001 and provides an opportunity for more effective support and evaluation of the regional *RESPEK* policy, the cornerstone of the Governor's strategy for village development as *RESPEK (Rencana Strategis untuk Pembangunan Kampung*).

Overlayn with language groupings, village geolocation thus strengthens the rights of local Papuan communities as well as emphasizing their responsibilities and capabilities arising from their human assets (capital), social assets, and indigenous knowledge assets (*kearifan tradisional*) that support sustainable management of natural assets (e.g., land, waterways and coastal, forest, and mineral resources).



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Specifically, geo-location has enabled GIS overlaying of some 2,000 villages with,

* over 200 language group domains
* forest management units (Kawasan Pengelolaan Hutan, KPH) established by Governor's decree, inviting future determination of co-stewarsdship arrangements among forestry agencies and local communities in production and protection forest areas
* river basins and sub-catchment areas as a basis for zonation in conservation and non-forest estate areas

While not all villages are covered, the vast majority are, and certainly all Kecamatan capitals. Ground-truthing and completion of this work can be achieved by Kabupaten's and Kota as they adjust their spatial planning to be in line with the provincial spatial plan, preferably identifying village areas as well as settlements through participative boundary setting. Equipped with GPS even in mobile phones, in future geo-location data of villages could readily be taken when service agencies visit villages as part of their regular duty visits (Agus Sumule 2009).

- Spatial planning outputs, produced in an iterative, transparent and participative manner began with the,

(A) **Introductory Report**, and were followed by the

(B) **Facts and Analysis Report (F&A)**, various draft versions thereof and the foundation for preparation of

(C) the **First Draft of the Spatial Plan** (*konsep laporan RTRW*) in readiness for public consultations with Kabupatens and Kota as well as at the Provincial level to frame the

(D) **Draft Spatial Plan Report** and

(E) **Draft Government Regulation (*Raperdasi*)** ready for parliamentary submission. All outputs and processes are in line with national laws (notably, UU 21 of 2001, UU26 and UU27 of 2007, and PP26 of 2008) and regional policies.

(4) **Participative, Transparent and Iterative Preparation of the Facts and Analysis Report Consistent with Strategic Environmental Assessment (SEA) to Inform the Spatial Planning Process**

Unlike conventional spatial planning, after its initial presentation, the facts and analysis report (a spatial planning requirement) of F&A was regularly updated, running alongside and informing the preparation of the draft final spatial plan, and ultimately becoming a companion document to it (though not legally-binding) for future reference for spatial plan revisions and Kabupaten / Kota spatial planning. As the F&A process has captured stakeholder feedback, incorporated analytical, participatory and iterative elements, it can be considered as a Strategic Environmental Assessment (SEA) that is consistent with four articles of the new environmental law issued in September 2009 as well as Minister of the Environment Decree No.27 of July 2009 that mandate the application of SEA for spatial planning as well as preparation of any medium-



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(RPJM) and longterm (RPJP) development plans. The F&A is being developed further by UK-FCO as an SEA to continuously inform the provincial spatial planning process.

Preparation of the F&A report consisted of,

- building and testing of alternative spatial development scenarios assessed according to economic and environmental resource valuation (*VESDAL*) focusing on direct (extractive) and indirect (non-extractive) use values, environmental carrying capacity that also takes into account population dynamics, and proximity of affected geo-lcated village communities. For example,
  - new infrastructure proposals, notably, the Timika to Merauke grand canal and the Habema to southern lowlands road, and
  - alternative land use scenarios, particularly 4.8 million hectares of natural forest in production forest areas currently allocated for conversion to agriculture, over 3.5 million hectares of which is still primary forest. Much of this forest area and another million hectares of secondary forest could be economically conserved with international funding in support of combating climate change through carbon capture under such schemes as Reduced Degradation and Deforestation or REDD.
- Recording, analyzing of and reponses to public dialogue and consultations.

  Major information sources have resulted from intensive and constructive interactions between the Kabupatens/Kota and Province, notably,

  * Socio-economic on-the-ground surveys of 27 Kabupaten/Kota. Tabulation of the results were shared with participant areas.

  * Among 29 Kabupatens and Kota in collaboration with the Province (Bappeda, BPKH and BPSDALH), rationalization and harmonization of forest functions overseen by the Planology Agency of the Ministry of Forestry, encouraging consensus over one of the more problematic spatial planning issues. Kabupaten / Kota spatial planners presented their plans for forestry resource management which were then evaluated according to existing formal functions and estimates of carrying capacity to produce a "rationalized" map for public consultation as well as consultation with the Ministry of Forestry to achieve a "harmonized" result with a wide sense of local ownership.

  * Public consultations of the draft spatial plan itself in October and November 2009, providing each Kabupaten / Kota with the draft document ahead of consultations (see above).

(5) **<u>Continuous Improvement by Learning Lessons from Preparation of the Provincial Spatial Plan to Ensure a Legacy of Sustainability After the Spatial Plan is Legally Constituted</u>**

In answer to a universal if symbolic question about technical assistance, "*what will happen on the first day after the last day of the project?*", ESP support to the Provincial Bappeda Spatial Planning Unit can reasonably expect the following activities to continue during the post-project era and the 20-year life span of the spatial plan,



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- ability to respond to DPRP, local legal and national review of the draft final provincial spatial plan
- technical guidance to the 29 Kabupatens and Kota who must bring their spatial plans in line with the provincial spatial plan, particularly with regard to the natural resource management rights of Papuans and environmental management in general
- institutional guidance for annual and longer-term development planning, including new medium- (RPJM) and long-range (RPJM) plans
- institutional guidance for policy development with spatial implications
- begin a process of review of the plan after five year

Ensuring wide respect for the spatial will require more institutional strenghtening from a higher-level and technically-competent institution.

**On-going Lessons-Learned Process**

Over the past year, part of ESP's support for Bappeda's Swakelola spatial planning has adopted an on-going lessons-learned exercise, periodically posing then answering the question, "*what we thought we knew but experience taught us otherwise*", and acting accordingly. Lessons from experience may yet influence institutions that are reluctant to reform, provided they are widely shared, both successes and failures (Bennett 2006). The following main lessons have emerged,

- First and foremost, the **information impetus of inter-institutional collaboration among sectoral agencies.** Unilateral sharing of information with government and non-government institutions can be more more effective at obtaining information in return than relying upon instructions to do so. The open and transparent approach of Bappeda's Lab Simtaru to provide data freely then persuaded other institutions who were initially reluctant to reciprocate with their own data sets. This tendency was certainly enhanced by offering GIS training opportunities in Jayapura and with the Aceh Geographic Data Centre but that alone would not have been enough. Along with sharing of information came the synergy of shared ideas.
- The **importance of stepwise and trust-building approach among NGOs and local government**. Starting informally (following the Trajectory of Trust, from mutual understanding → mutual respect → mutual trust), government reluctance to include NGOs in the spatial process can be transformed to a welcoming attitude that recognizes NGO inclusion as sources of data, ideas and understanding about local sensitivities ahead of formal public consultations, and finding ways to achieve this institutionally, e.g., ultimate inclusion of NGOs in the Technical Team six months after denying them such a role.
- **Value can be added to a spatial planning process in ways not explicitly foreseen by official guidelines** but also not at variance with them, the idea of "*Tata Ruang Plus*". Examples are the geo-location of geolocation of villages and provincial – kabupaten/kota dialogue to achieve rationalization and harmonisation of forest functions, both of which are in the spirit if not the letter of national guidelines.



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- Greater inter-institutional participation among government and non-government agencies at various levels results in a spatial plan that is more attuned to local and national needs but is undeniable **more costly than conventional top-down approaches**. If implemented elsewhere, it will require higher dedicated budget allocations.
- Last but not least, a **self-reliant or swakelola approach to spatial planning enables better control over the process, keeping it far better-informed** than a conventional third-party approach, promising a plan that is likely to be more respected by all parties.

## 5. Highlights of Spatial Planning Outputs for Papua Province

While the participative and self-reliant processes have been key defining features of preparing the spatial plan, obviously, the product must reflect not just social legitimacy but technical necessity. At the end of the day, this means maps and directives within the spatial plan. The following four maps represent the current highlights of spatial planning outputs for Papua Province that have a bearing on biodiversity conservation. These maps, still provisional, are shown at the end of this paper and on the poster:

**Map 1. FOREST FUNCTIONS.** Draft rationalization and harmonization of forest functions resulted in the present map to achieve greater and wider respect for formal forest functions as well as opportunities for forest conservation in forests previously intended for conversion to agriculture such as through funding for achieving reduced carbon emissions from degradation and deforestation (REDD). After a series of consultations between provincial and district governments and initial dialogue with the Ministry of Forestry, and integration of carrying capacity and resource potential considerations, the present modification is proposed from that initially planned in 2006.

The opportunities for REDD are evident from the large area of production forest dedicated for conversion (see Table 1) that are still primary forest; secondary forest that could recover over time. It is here that the text of the spatial plan becomes important as a complement to the maps of forest functions. Conversion to agriculture (including plantations) should prioritize areas no longer covered by forest, and require compelling justification according to subsequent regional guidelines before standing natural forest be allocated for conversion.

**Table 1. Forest Cover by Forest Function in Papua in millions of hectares, 2006**

(before forest rationalization and harmonization)

| Land Use Type | **Primary** Forest Cover | **Secondary** Forest Cover | **No** Forest Cover | Total |
|---|---|---|---|---|
| **Area outside State Forest Area** / Areal dengan Pengunaan Lain, APL | 0.3 | 0.2 | 0.9 | 1.4 |



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| | | | | |
|---|---|---|---|---|
| **Production Forest** / Hutan Produksi, HP+HPT | 6.9 | 1.7 | 1.6 | 10.2 |
| **Production Forest for Conversion** / Hutan Produksi untuk Konversi, HPK | 3.7 | 1.1 | 1.7 | 6.5 |
| **Protection Forest** / Hutan Lindung, HL | 6.4 | 0.8 | 1.1 | 8.3 |
| **Conservation Forest** / Hutan Konservasi, TN+SMS+CA+TR+TB | 3.9 | 0.5 | 1.0 | 5.4 |



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**Map 2. GEO-LOCATION OF VILLAGES.** Geo-location of village settlements and language groups enhance inside and outside different kinds of state forest areas should consolidate rights and responsibilities of local communities as co-managers and co-stewards of natural resources, providing a basis also for conflict resolution over local, regional and national claims to areas for exploitation. This is very much a first step, requiring further ground-truthing during District-level spatial planning and participative determination of actual areas.

**Map 3. TRANSPORT.** Applying the principal of integrated transport system networks should reduce ecological imprints on fragile geomorphology such as in the example shown, otherwise known as a multi-modal transport approach linking air, road, river and coastal routes. The fundamental challenges facing road construction are not only high costs, estimated at US$1million per kilometer in upland and highland areas but also the very high cost of maintenance, problematic even elsewhere in Indonesia even where the geomorphological risks are not as high.

**Map 4. INTER-DISTRICT BOUNDARIES.** Until there is consensus over District areas, uncertainty will undermine efforts to achieve investment in the future. Using topographical features such as rivers and watersheds to rationalize boundaries between districts was well-received by stakeholders as the basis for future resolution of local disagreements over district boundaries after approval of the spatial plan. Although beyond the purview of the spatial planning process, it is encouraging that there has been so much agreement (during province - district dialogue related to spatial planning) over an issue that has proven the most contentious because of its implications to sub-regional access to natural resources and government budget (the formula to determine disbursement of annual budgets to Districts is dependent upon District area and population). This map can only be considered as input to a subsequent higher-level process of rationalizing District boundaries.

## 6. Conclusion: Shared Ownership of Spatial Planning

This, the shortest section, emphasizing the most important characteristic of Papua Province's spatial planning process, a work in progress, coming to its culmination in the preparation of a draft spatial plan and enabling decree ready for submission to the DPRP. Bappeda's *swakelola* spatial planning approach, guided by principles of transparency, participation and accountability is true to the local saying about the importance of shared ownership,

> *ko punya, sa punya, tong sama sama punya* (you own it, i own it, therefore we both own it), reminiscent of the Javanese saying, *rumongso melu handarbeni* (achieving a sense of shared ownership),

and promising a plan that while not perfect should be far better than before and far more likely to be respected by policy-makers, decision-makers, planners, investors, indeed the entire community of *masyarakat* Papua.



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## 7. POST-SCRIPT: What Remains to Be Done for the Spatial Planning to become an Enduring Safeguard of Biological and Cultural Diversity in Papua Province?

Although well advanced, Papua's spatial planning process remains a work in progress with a number of challenges ahead to provide enduring safeguards and guidance for biodiversity conservation. These remaining challenges occur relate to tasks facing the various administrative levels involved in developing spatial plans not just for Papua province, its Districts and villages but also the whole of Indonesia.

PROVINCIAL SPATIAL PLAN

- ACCOMMODATING PARLIAMENTARY RESPONSES. Appropriate responses to comments from the DPRP on the draft RTRW and Perdasi
- ACCOMMODATING NATIONAL-LEVEL RESPONSES. Appropriate responses to comments from the BKPRN on the draft RTRW and Perdasi
- LAB SIMTARU. Translating spatial data sets into open source software configurations which are integrated horizontally with other government agencies at the provincial level.

KABUPATEN / KOTA ISSUES

- TECHNICAL GUIDANCE TO KABUPATEN / KOTA. Technical guidance to Kabuatens / Kota to bring their spatial plans in line with the provincial spatial plan
- RESOLVING KABUPATEN / KOTA BOUNDARIES. Acheiving lasting agreement among Kabupaten / Kota about their boundaries
- VILLAGE BOUNDARY-SETTING APPROACH. Based upon NGO experience (notably, CI, WWF, PPMA), development of regional guidelines for particpative boundary setting of village areas
- DETERMINATION OF VILLAGE AREAS. At the Kabupaten / Kota level for development of their spatial plans, follow established regional guidelines to determine village areas and boundaries as well as ground-truth village settlement geo-location

VILLAGE-LEVEL SPATIAL PLANNING

- VILLAGE CLUSTERING. Clustering of villages by participative means for village-level spatial planning as conceived in Act 26 of 2007. This may be based upon customary or *adat* groupings, river basins, sub-districts, national park zonation, or forest management units (KPH), or combinations thereof.
- FOREST MANAGEMENT UNITS. Devise practicable and orderly schemes for co-stewardship of the existing FMUs (KPHs) and zonation in conservation and non-forest areas.

COMPLIANCE



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- COMPLIANCE. Ensuring that processes for natural resource exploitation licensing and infrastructure development stay within parameters set by the plan
- ENFORCEMENT. Managing non-compliance of resource exploitation licensing or infrastructure development with the spatial plan

APPLICATION TO OTHER PARTS OF INDONESIA

- SHARING LESSONS LEARNED. Convey lessons learned from the Papua spatial planning process to other parts of Indonesia

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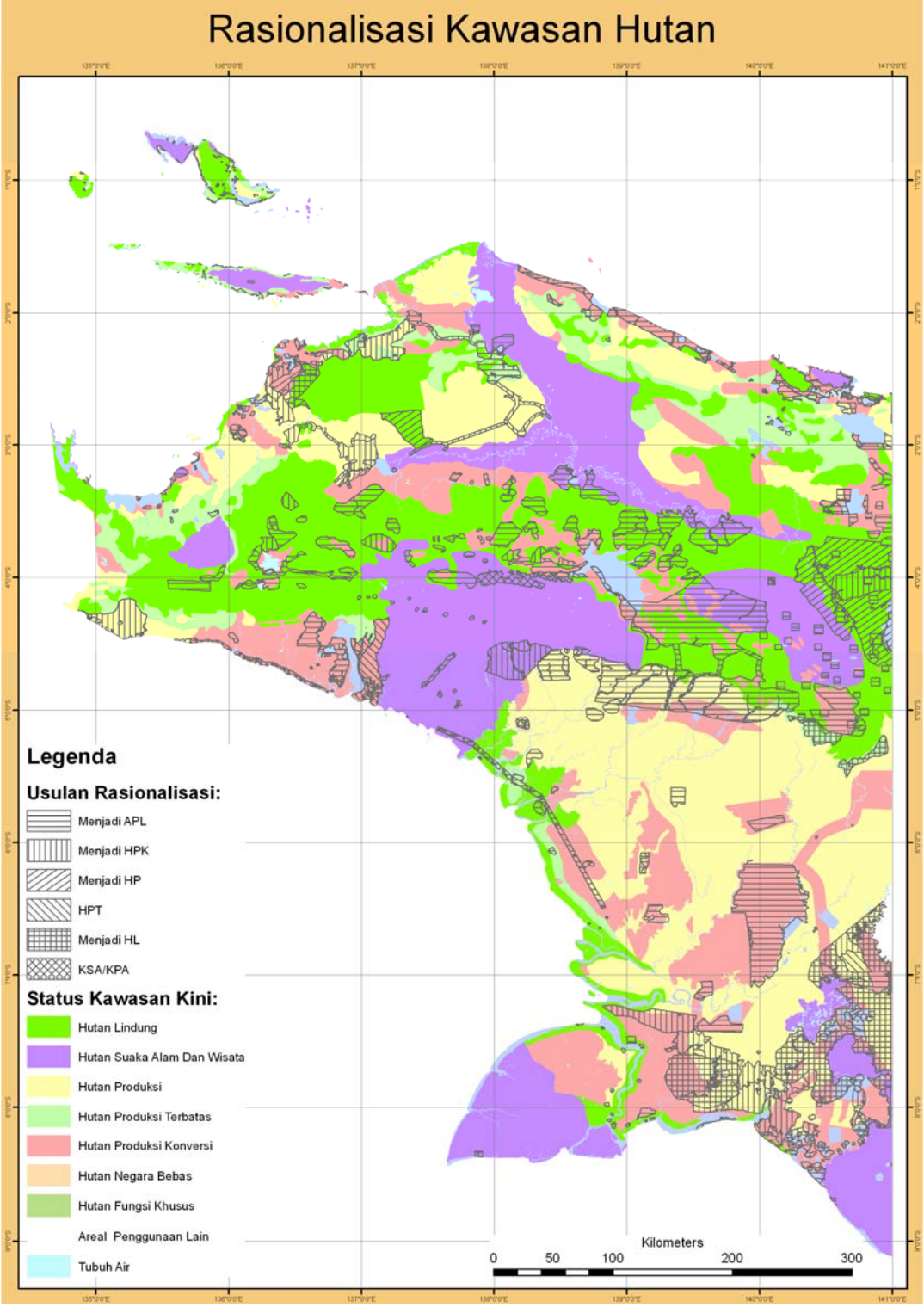
**Map 1. RATIONALIZATION AND HARMONISATION OF FOREST FUNCTIONS (provisional)**



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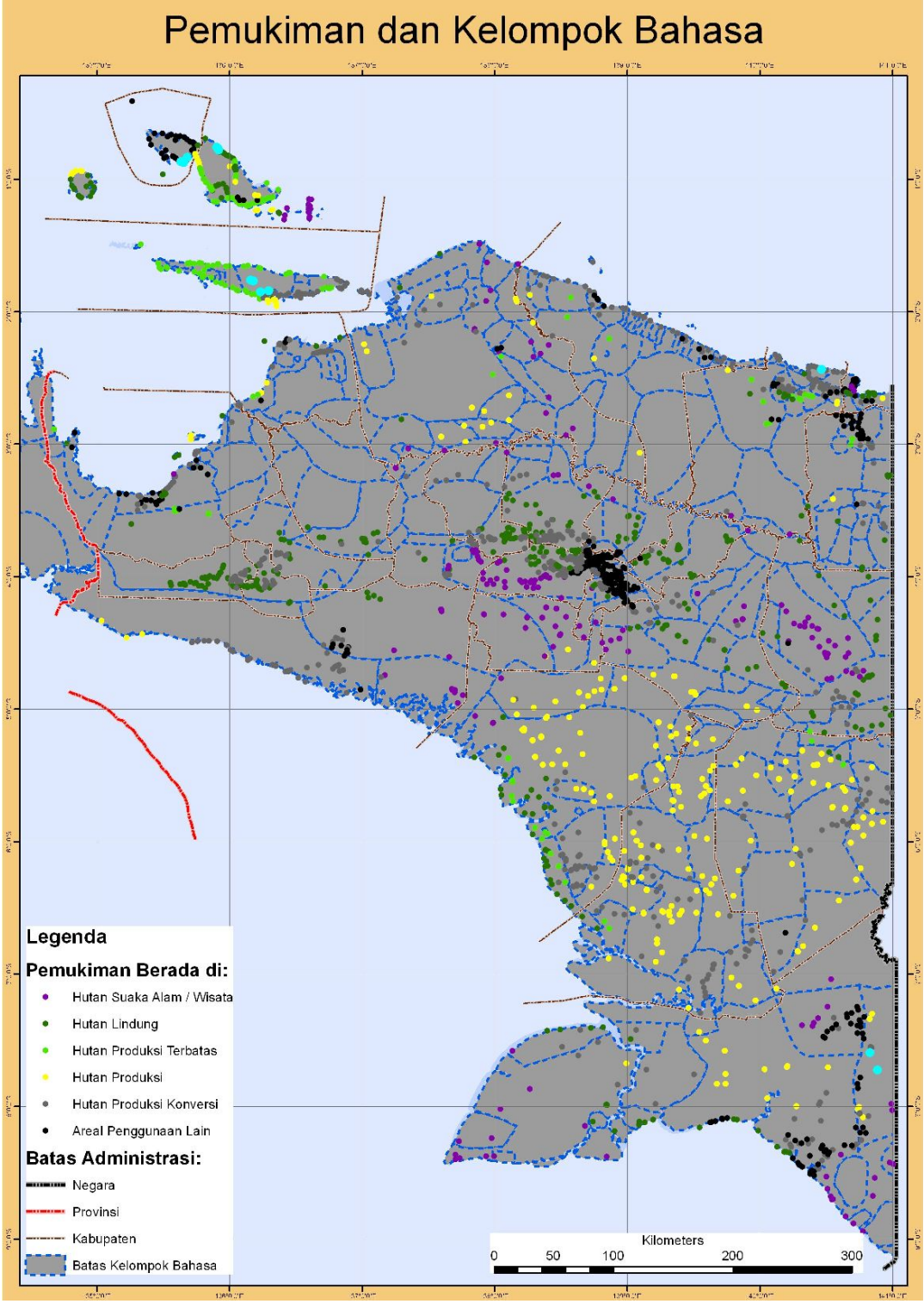
**Map 2. GEO-LOCATION OF VILLAGE LOCATIONS AND LANGUAGE GROUPS**



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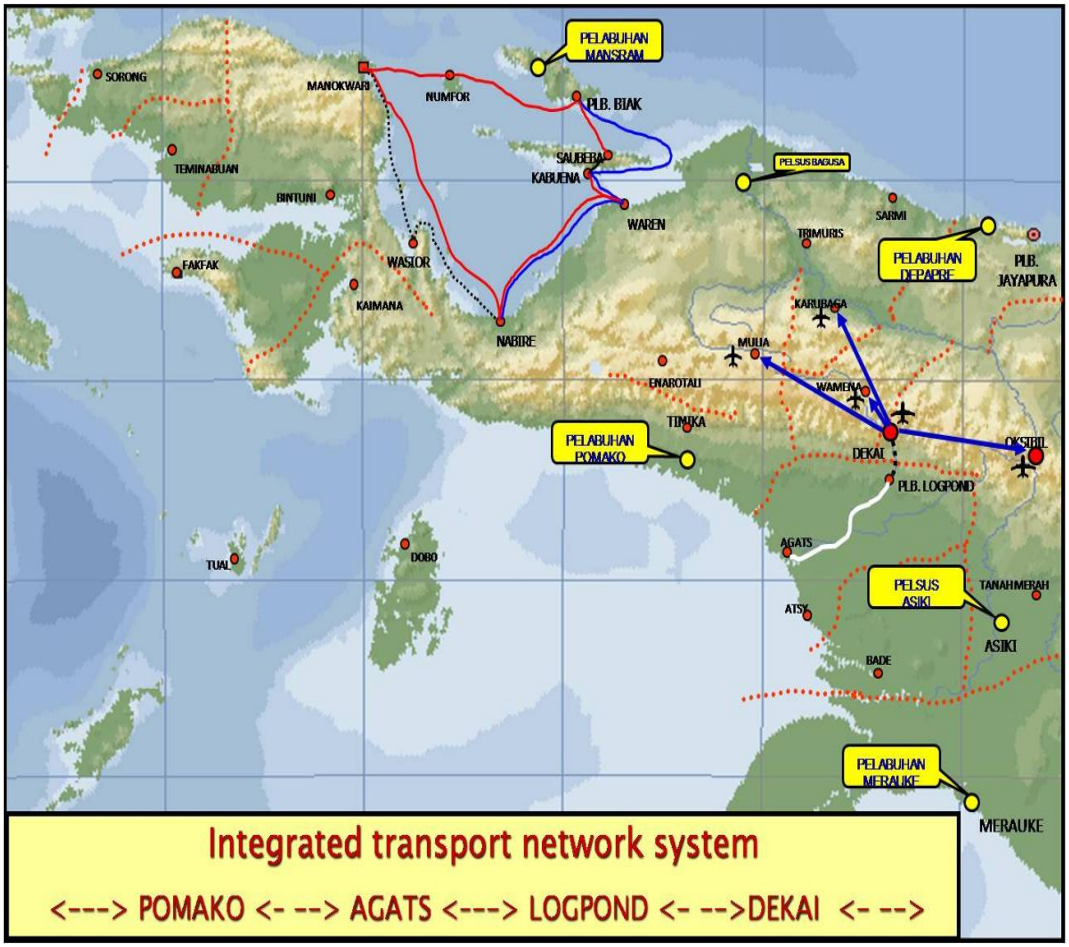
**Map 3. EXAMPLE OF INTEGRATED TRANSPORT NETWORK SYSTEM**



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**Map 4. RATIONALIZED INTER-DISTRICT BOUNDARIES (provisional)**

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