MANAGEMENT OF PEAT SWAMP FORESTS FOR CONSERVATION AND SUSTAINABLE USE – AN INTEGRATED APPROACH

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Pahang

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MALAYSIA – FOREST AREA

- Malaysia total land area - about 328,600 km^2
- About 59.5% (19.52 million ha) is still under forest cover

Region	Land area (mil ha)	Natural Forest Types			Plantation forest	Total Forested land	% of total land Area
		Dry inland	Swamp forest	Mangrove forest			
Pen. Malaysia	13.16	5.40	0.30	0.10	0.08	5.88	44.7
Sabah	7.37	3.83	0.12	0.34	0.11	4.40	59.7
Sarawak	12.30	7.92	1.12	0.14	0.06	9.24	75.1
Total (Malaysia)	**32.83**	**17.15**	**1.54**	**0.58**	**0.25**	**19.52**	**59.5**

PEAT SWAMP FOREST

Malaysia possesses about 1.54 million ha of peat swamp forest (PSF), of which some 300,000 ha remains in Peninsular Malaysia.

Peat swamp forests are highly significant globally, both for their diverse and threatened species and as representative unique ecosystems.

BACKGROUND

CONSERVATION AND SUSTAINABLE USE OF TROPICAL PEAT SWAMP FORESTS AND ASSOCIATED WETLAND ECOSYSTEMS PROJECT

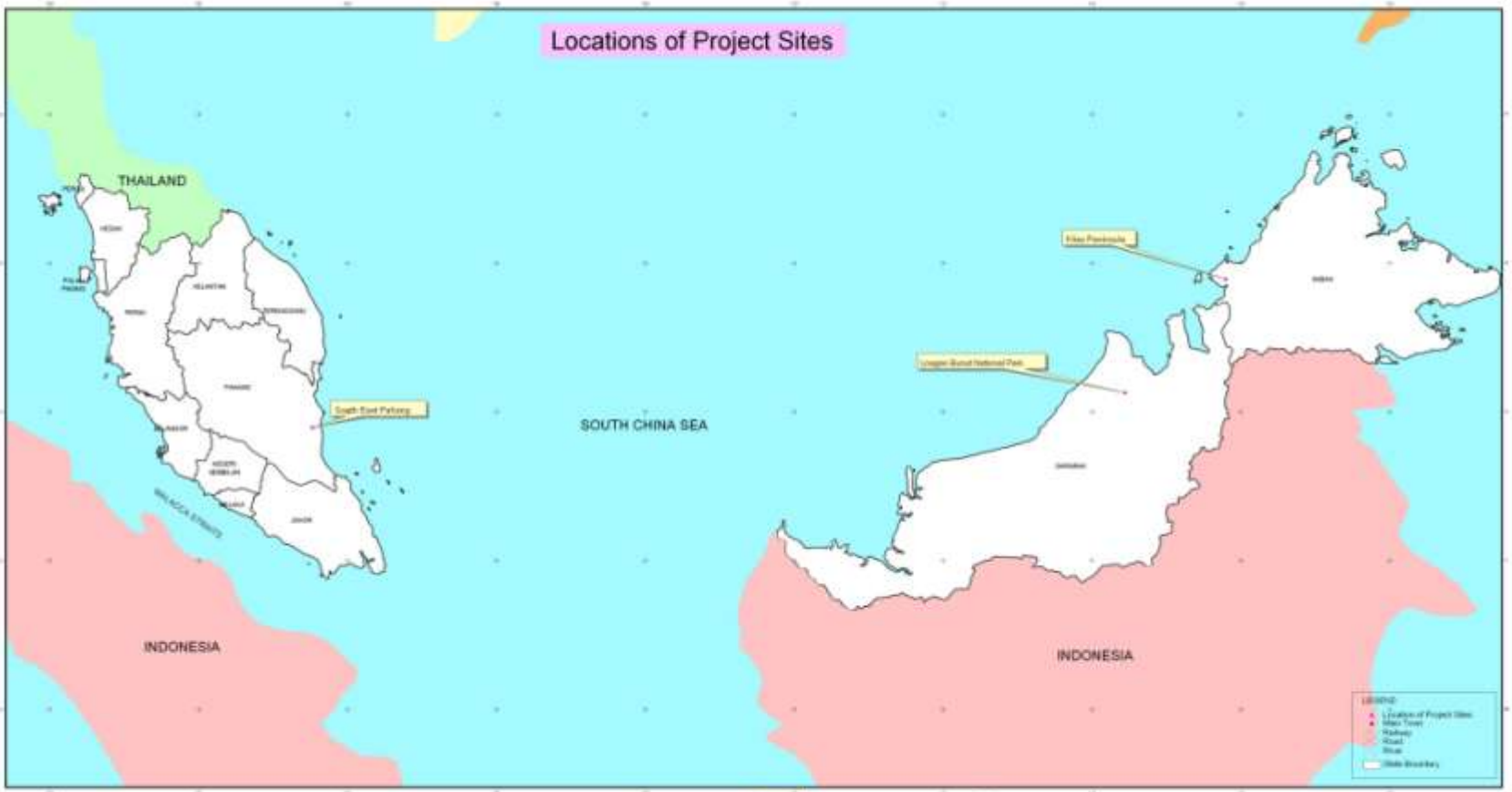
- Initiated by the M'sian Govt and UNDP/GEF in 1999, the five-year project started in June 2002 and completed in 2007.

OBJECTIVES:

- Promote conservation & sustainable use of PSFs and associated wetlands ecosystems, by demonstrating this at three project sites
- Develop & implement plans, which encourage processes to ensure conservation of globally significant biodiversity
- Contribute towards better understanding of PSFs in M'sia as well as the region.

PROJECT SITE

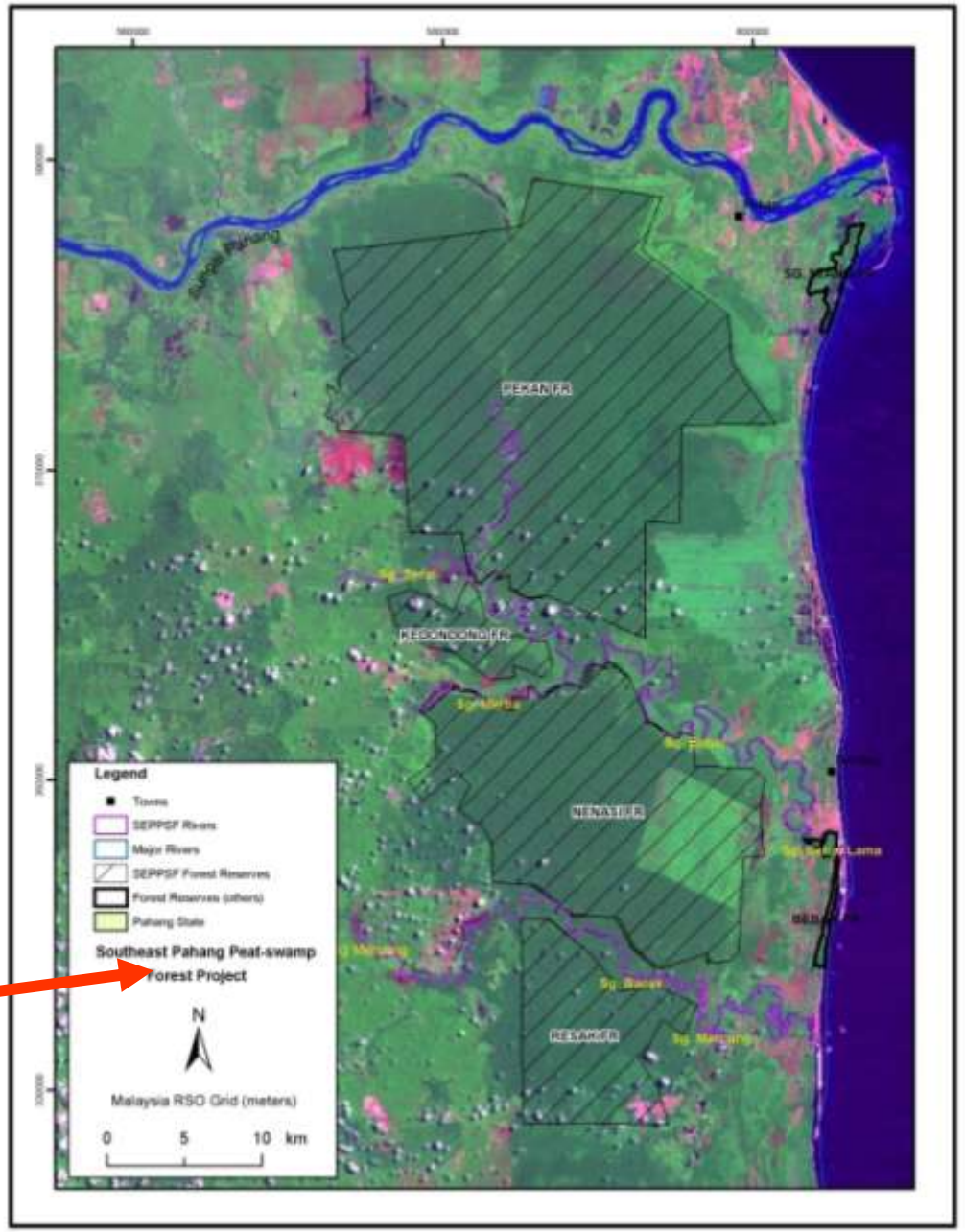
Conservation and Sustainable Use of Tropical Peat Swamp Forests and Associated Wetland Ecosystems (MAL/99/G31)



PROJECT AREA – THE SOUTH EAST PAHANG PEAT SWAMP FOREST (SEPPSF)

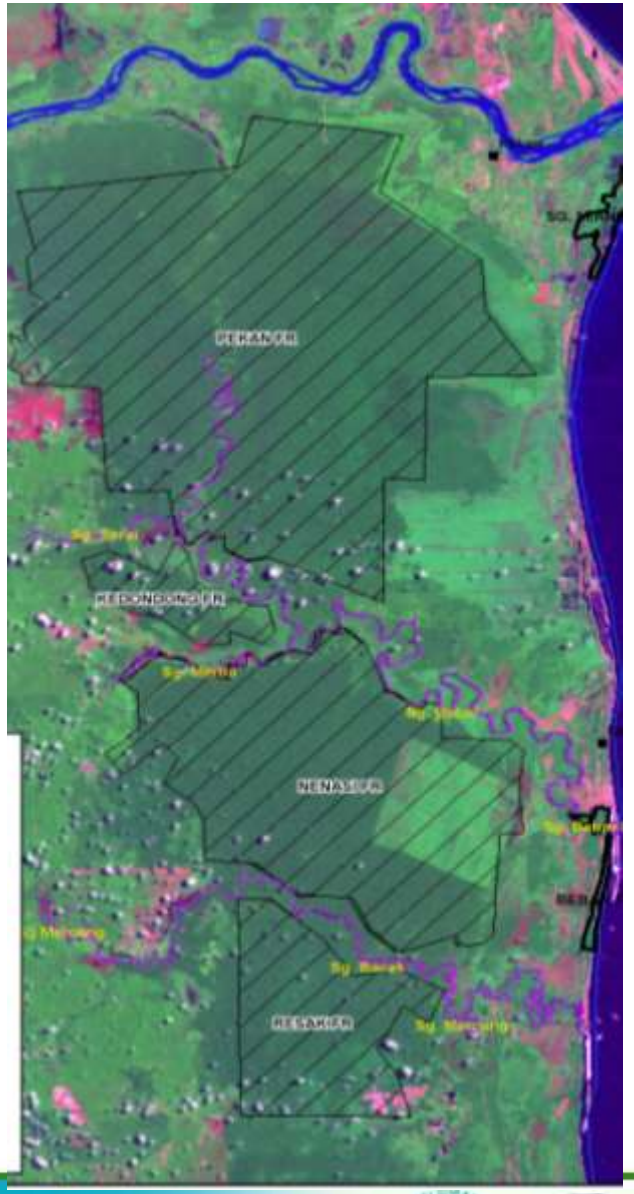
Areal Extent : 230,256 ha.
Located in the district of Pekan and Rompin,
The largest intact psf area (160,000ha) in mainland tropical Asia.

Four Production Forest Reserves (FRs):-
Pekan, Nenasi, Kedondong and Resak FRs



WHAT ARE THE ISSUES AND THREATS?

- Fragmentation of peat swamp complex
- Protection of river systems
- That the water table is being lowered due to a number of threats:
  - Drainage activities
  - Land conversion activities
  - Logging activities
- Leading to amongst others, increased fire hazard



The Challenges:

- Continued fragmentation of PSF ecosystem
- Unregulated state land logging
- Continued land-use pressures
- Forest fire at adjacent state lands
- Inappropriate canal system
- Unsustainable NTFP collection
- Poaching of exotic species
- Livelihood of Jakun Communities
- Eco-tourism potential to explore
- Absence of integrated management plan
- Absence of specific PSF management prescriptions: technical guidelines
- Inter-agency coordination

WHAT IS REQUIRED?

An Ecosystem Approach in Managing the Peat Swamp Forest

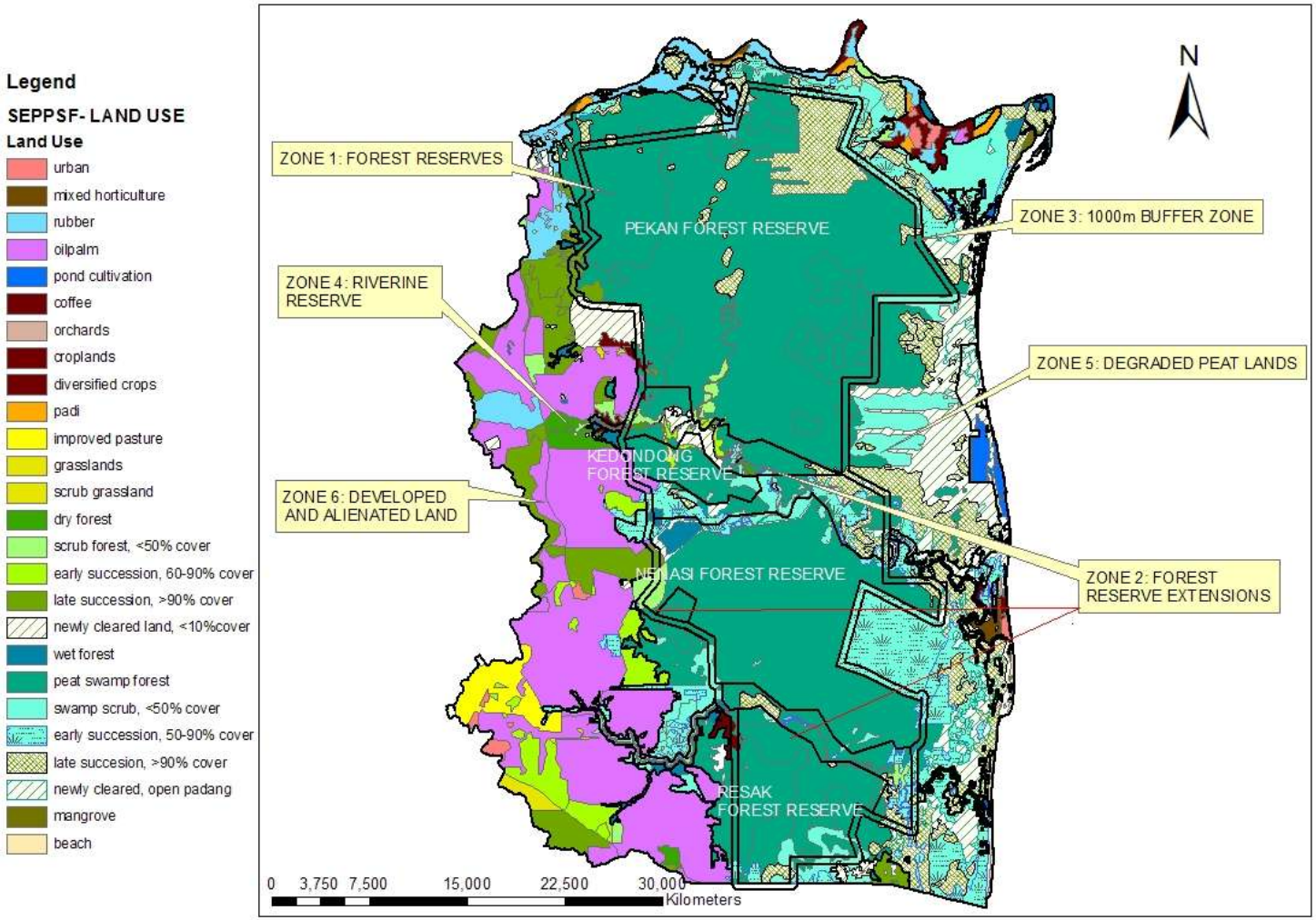
Definition: ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.

Thus, the application of the ecosystem approach will help to reach a balance of the three objectives of the Conservation: conservation; sustainable use; and the fair and equitable sharing of the benefits arising of the utilization of genetic resources.

ECOSYSTEM APPROACH TAKES INTO CONSIDERATION:-

- Land Use/Land cover pattern
- Ecosystem Diversity
- Floristic Diversity
- Faunal Diversity
- Local Community
- Hydrological characteristics

LAND USE MAP SEPPSF



LANDSCAPE ASSESSMENT

- **Ecological Assessment** - Multidisciplinary Assessment (MDA)
- **Achievements :–**

  + Information updated (flora, fauna socio-economic etc)
  + knowledge gap assessed,
  + threats identified,
  + interim action plan & monitoring system proposed,
  + basic data, maps, photographs compiled

FLORISTIC DIVERSITY

221 plant species

Durio carinatus

Monkey Lipstick

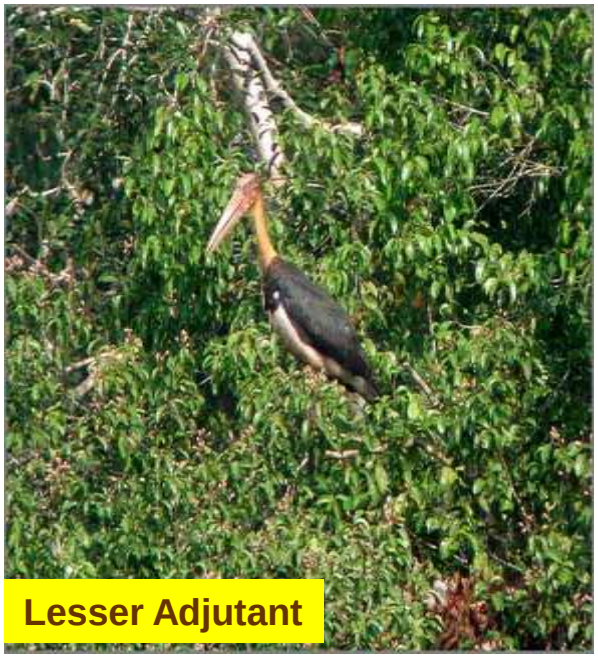
Nepenthes ampullaria

Koompassia malacensis (Kempas)

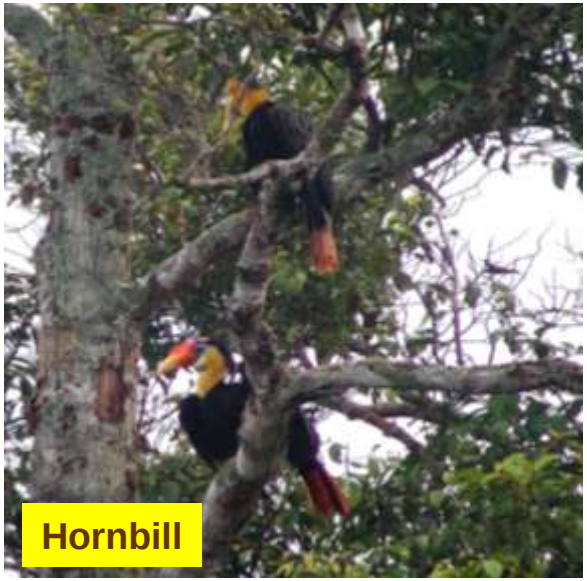
Gonystylus bancanus (Ramin)

FAUNAL DIVERSITY

- 19 species of mammals present in Peninsular Malaysia are on the IUCN Red List, have been recorded in the SEPPSF.
- A total of 233 species of birds (including the migratory species). *3 Globally Vulnerable species; 37 Globally Near Threatened species.*
- At least 56 species of fish have been recorded.
- Very important habitat for the stenotopic blackwater fishes (fish that survive or are found in blackwater habitats) in Peninsular Malaysia.



Lesser Adjutant

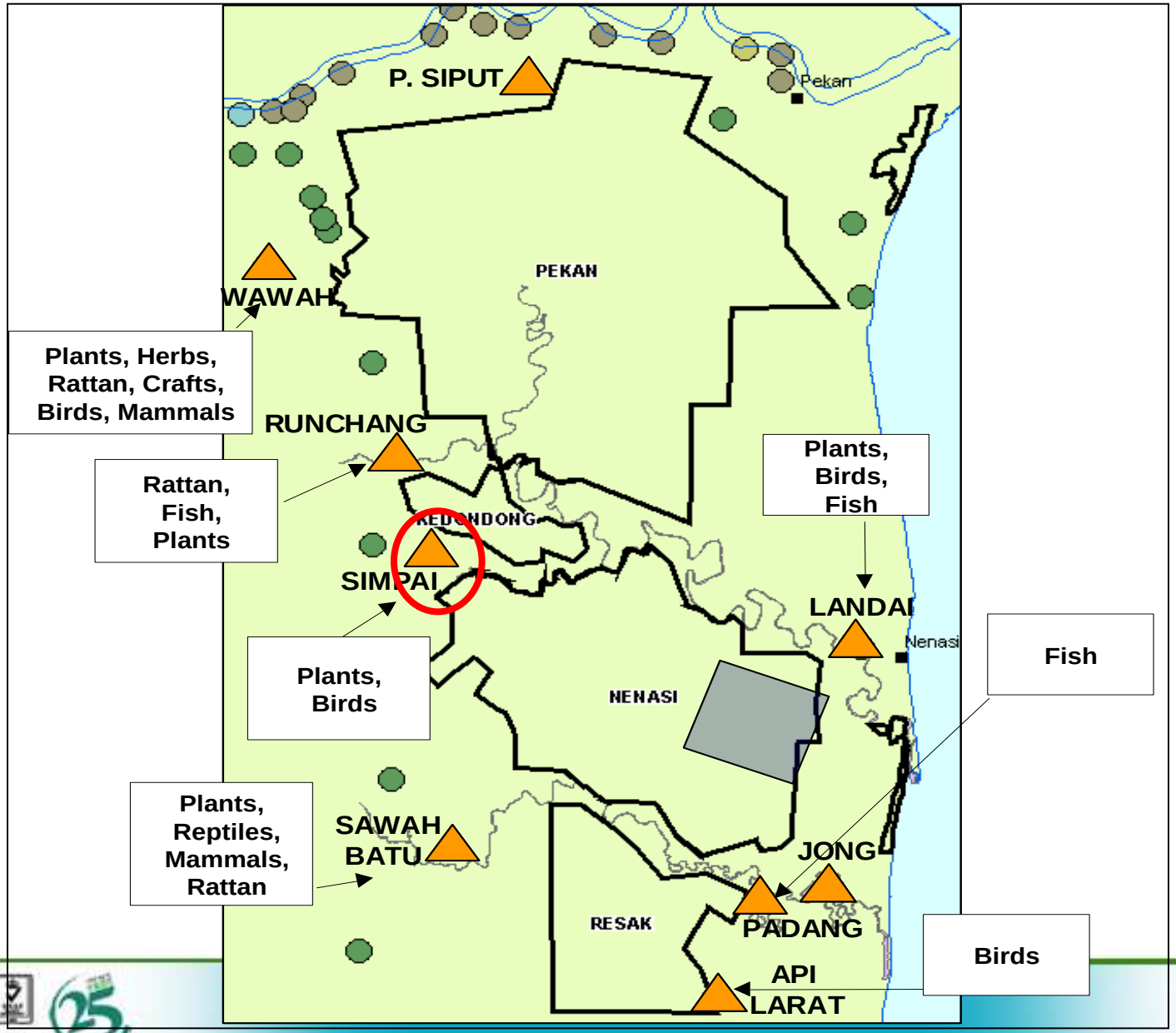


Hornbill

THE LOCAL COMMUNITY - THE ASLI JAKUN

- Original inhabitants of the SEPPSF
- One of 18 subgroups of the Orang Asli
- Traditionally shifting cultivators/hunter-gatherers
- Holders of traditional ecological knowledge
- Changing lifestyles - losing identity with gradual loss of peat swamp forests & modernisation
- 63% depends on fish from PSF
- 36% depends on forest produce

DISTRIBUTION OF ASLI JAKUN COMMUNITY IN SEPPSF



LOCAL COMMUNITY'S PERSPECTIVE ON THE IMPORTANCE OF CONSERVING PSF

- Source of fresh water supply
- Source of livelihood
- Various uses: food, material for handicraft, house-building, traditional medicine, etc.
- Shelter from scorching sun
- Protection from natural calamities, e.g. typhoons
- Preservation of livelihood, knowledge & heritage for future Asli Jakun generations

Socio-economy Strategies for the Local Asli Jakun

- Aim to to improve their livelihood
- Strategy 1: To establish and network a community-based organisations (CBOs) amongst Asli Jakun villages
- Strategy 2: Capacity building for JHEOA in terms of managing and sustaining livelihood programmes & promoting ‘two-way awareness-raising/communication’ between relevant government agencies and the local Asli Jakun communities.
- Strategy 3: To formulate a social development plan via a multi-agency community consultative process.
- Strategy 4: To initiate two pilot supplementary livelihood projects for the local Asli Jakun communities, one being the Heritage Garden Project in Kg. Simpai and the other, an aquaculture project at Sg. Bebar, RPS Runchang.

PARTNERSHIP & INTER AGENCY PARTICIPATION

- Danida (Hydrology and Sustainable Timber Production)
- FRIM – Study on optimum harvesting regimes for PSF
- Government Agencies
- NGOs (MNS, Wetlands International, WWF etc)
- Universities
- Other Stakeholders (ASPA, LKPP etc)

CONSULTATIVE PLANNING

PREPARATION OF INTEGRATED MANAGEMENT PLAN (IMP)

- Multi-stakeholders consultation in preparing an Integrated Management Plan (IMP)

- The approach allows the establishment of a full planning process which is consultative:

  - Taking into account broad stakeholders' views
  - Cross-sectoral as it involves relevant inter-agencies
  - Formation of Core Team comprising representatives/members from 11 agencies
  - Landscape level and Multi-disciplinary - involving knowledge on flora, fauna and socio- economic features.
  - Wider stakeholder workshop

IMP Development Process

- Baseline Information Assessment
- Identifying Key Issues
- Defining the Objectives
- Formulating the Strategy
- Undertaking the Consultative Process
- Formulating the Action Plans
- Implementation and Monitoring

IMP DEVELOPMENT - INTER-AGENCY CORE TEAM :

- State Economic Planning Unit
- Forestry Department
- Pekan District and Land Office
- Department of Orang Asli Affairs
- Department of Environment
- Drainage and Irrigation Department
- Land and Mines Department
- Town and Country Planning Department
- WILDLIFE Department
- Agriculture Department
- Pekan District Council
- Forest Research Institute Malaysia (FRIM)

CONSULTATIVE PLANNING

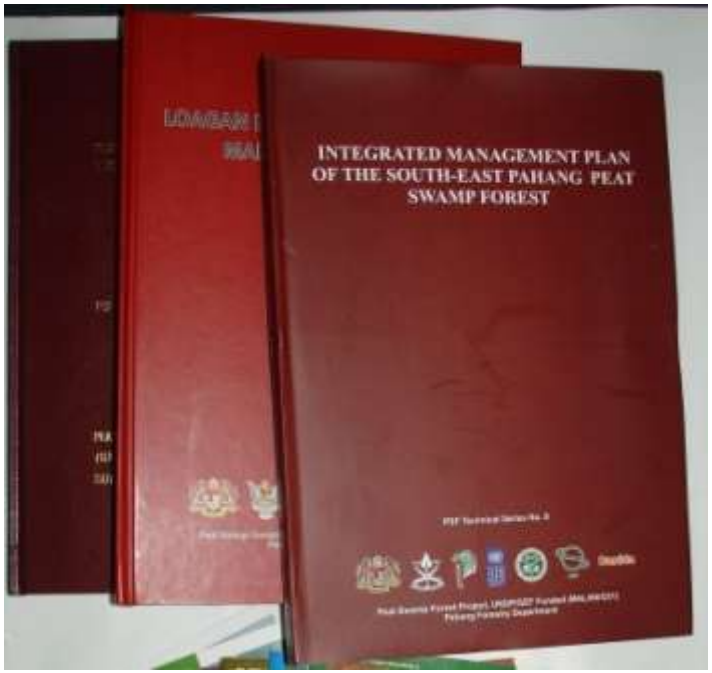
- The Core Team meeting is a learning forum, allowing for the establishment of a stronger partnership among the different agencies to enhance coordination among the different agencies.

- It also promotes transformation of the temporary core team to become a permanent state instrument in the future linking to the expected ‘wetland management committee’.

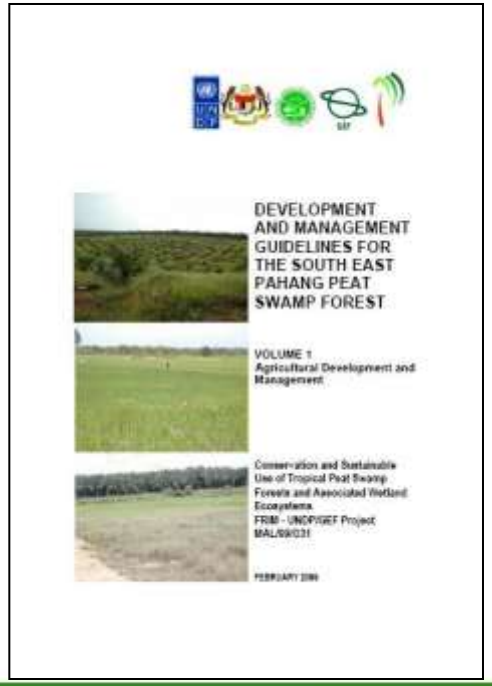
The Importance of the Consultative Approach

1. Taking ownership
2. Capacity building
3. Integrated effort and synergy
4. Creating technical competence
5. Awareness and communication
6. Political support
7. Institutional gap analysis

THE OUTPUTS



Pekan District
Local Plan



THE OUTPUT

The IMP serves as:

- Consensual guidance
- Long-term planning for the PSF
- Main reference in operations for state agencies and stakeholders
- To ensures working towards the same goals

IMP FORMALISATION

- Endorsement by the State Authority:-
  - State Planning Committee (2006)
  - State Executive Council (EXCO) (2006)
- Attachment to District Local Plan
- Formation of committees

- State level - State Wetland Management Committee (including RAMSAR Site)

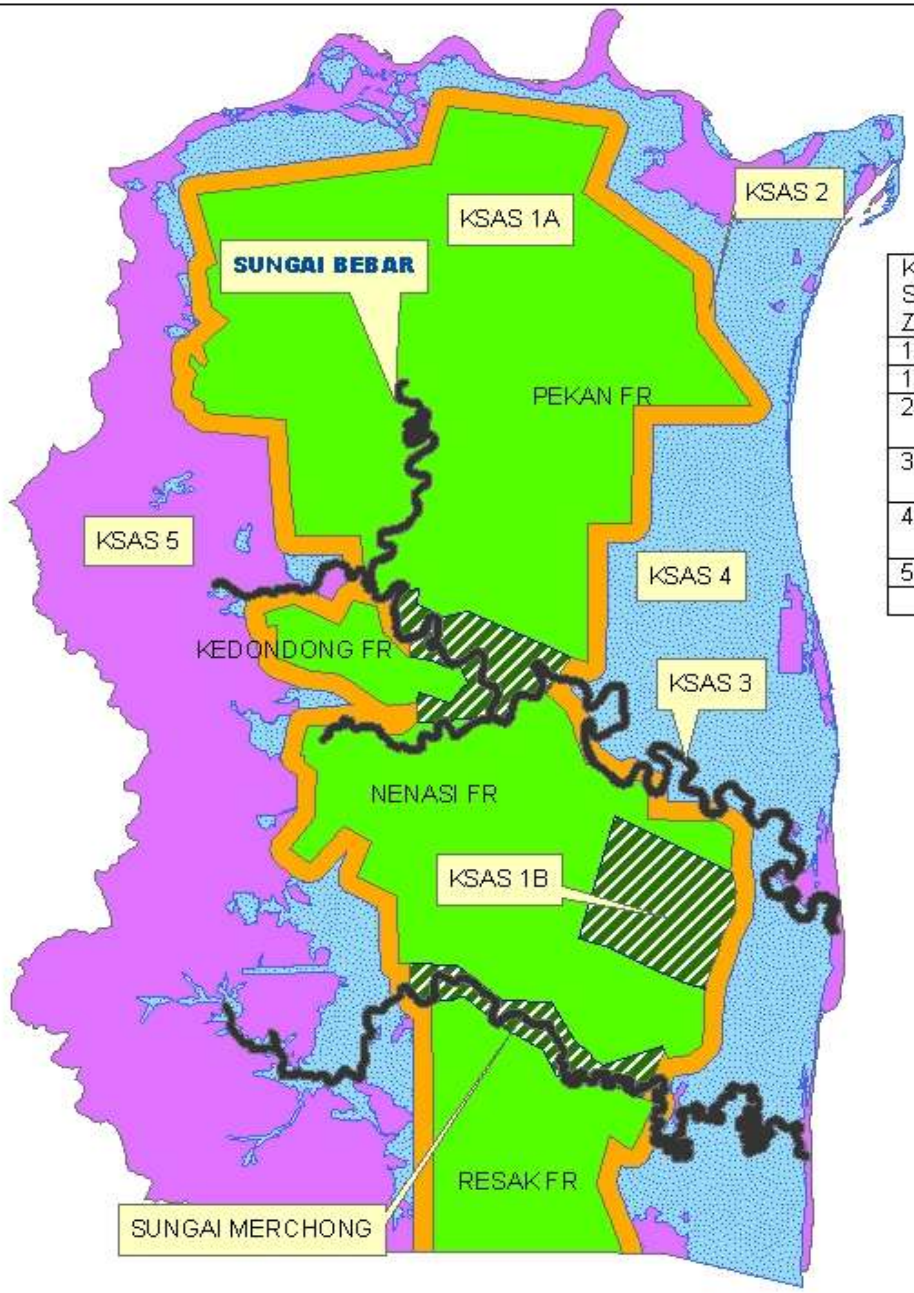
- District Level – Site Management Committee:-

To monitor the IMP implementation,

The Planning Outputs

- Management zonation of PSF into 6 Zones.
- Zones require Multi-agency management attention
- PSF proposed as “Environmental Sensitive Areas” (ESA) with 6 Zones
- Management planning to synchronize with Local Areas Planning.

THE SOUTH EAST PAHANG PEAT SWAMP FOREST MANAGEMENT ZONES



KSAS SUB ZONES	DESCRIPTION	AREA (ha)
1A	Current Forest Reserves	85,328
1B	Proposed Forest Reserve Extensions	10,227
2	1000m Management Buffer Around the Forest Reserves	20,298
3	200m width River Reserve (Outside Forest Reserves)	4,099
4	State Land Peat Areas and Dry Forest Land	51,213
5	Alienated Developed Agricultural land	59,091
	Total Area	230,256

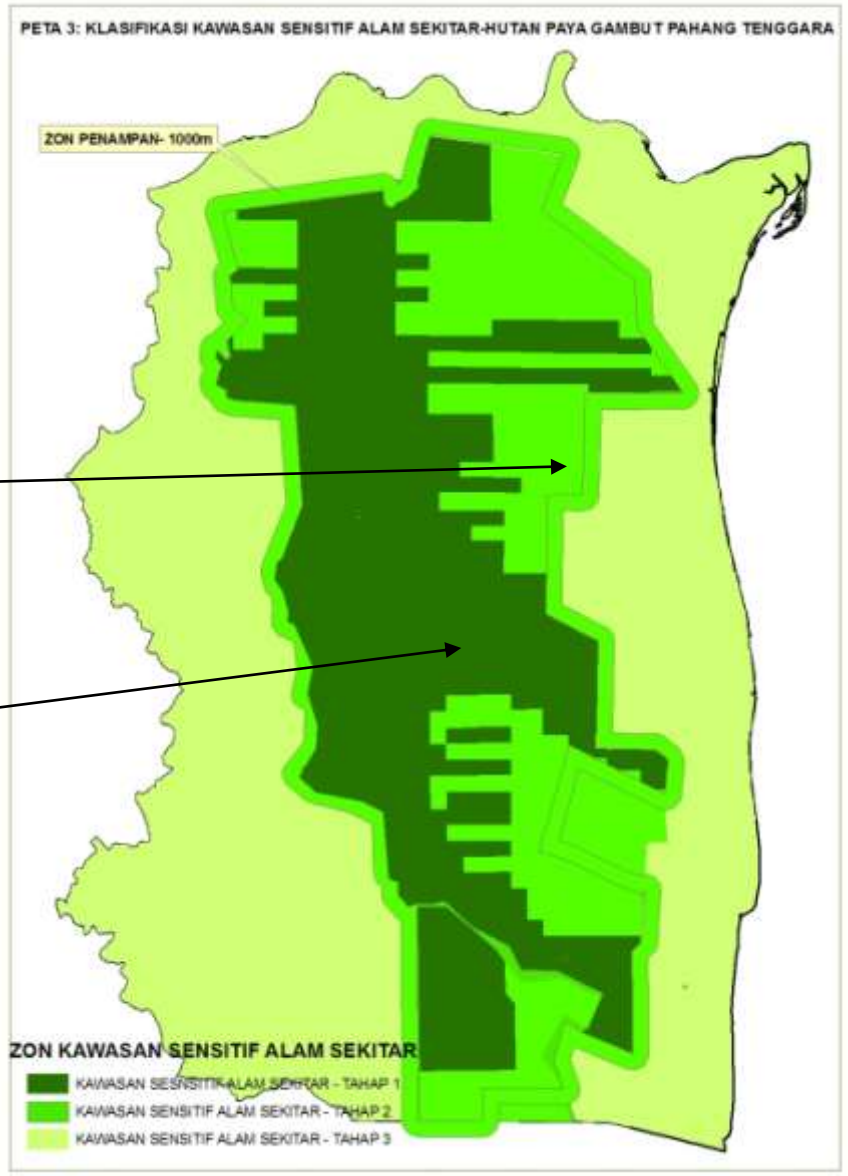
KSAS SUB ZONES

- KSAS 3- 200m River Reserve
- KSAS 5- Alienated developed agricultural land
- KSAS 1A- Current Forest Reserves
- KSAS 1B- Proposed Forest Reserve Extension
- KSAS 2 - 1000m Management Buffer
- KSAS 4 - State land peat area and dry forest

Forest Reserve Zonation Based on Environmental Sensitive Areas

Timber Production Area

Biodiversity Conservation Area



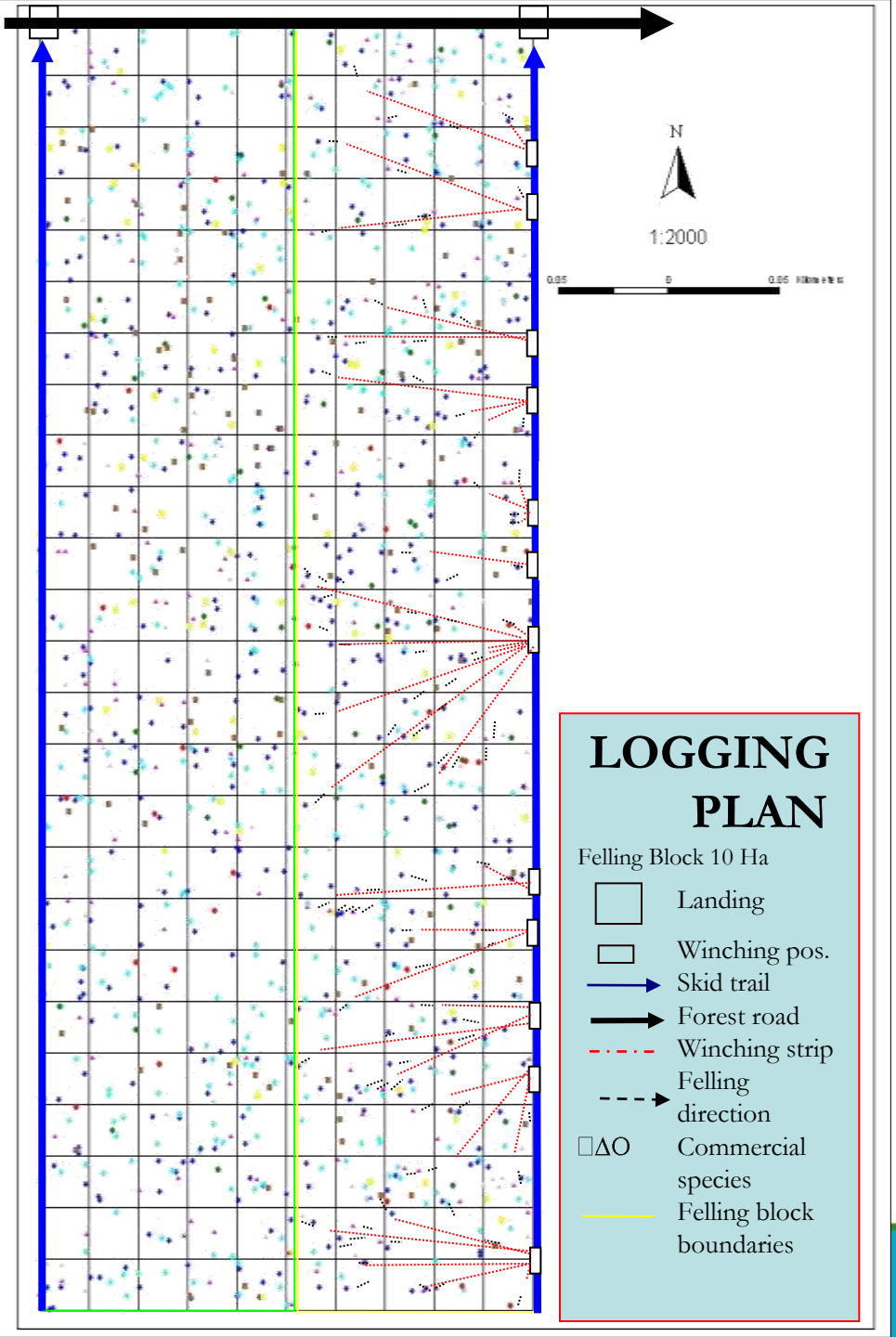
Logging in SEPPSF

- To use reduced impact logging method (RIL) as specified in the logging guidelines. (eg. RIMBAKA, LOGFISHER)
- Minimization of drainage.
- To comply with the Forest Management Plan:-
  - cutting limits (65 cm for Ramin and Dipterocarp species, 55 cm for others)
  - cutting cycle (55 years) as specified in Forest Management Plan

A RIMBAKA Logging Plan - RIL

- Forest road distance is determined by 2 x optimized maximum skidding distance (250 - 500 m)
- Skid trail distance and landings location are determined by 2 x optimized winching distance (100 - 150 m)
- Winching strips are planned as straight as possible from the tree to be felled to winching position
- Felling direction of tree should be directed toward or away from the winching strip. Preferable as straight as possible to the winching direction, or at least at an maximum angle of 45° (herringbone pattern)

Example of RIMBAKA Logging Plan on A Felling Block Map



RIMBAKA – RIL IN PSF

- Controlled machine movement

- Use long cable to extract log

- Less residual stand damage

- Minimise disturbance to the soil and natural hydrological system

- Faster recovery of the forest ecosystem


Forest Condition after logging
using RIMBAKA

Lesson Learnt - Key Factors To Ensure The Success of Consultative Planning Process

- Availability of actual landscape profile of the area, including accurate land-use maps (scale of 1:20,000 or 1:50,000) demographic records, and other multi-disciplinary information;
- Early and clear identification of the multi-stakeholders involved;
- Gradual approach, aiming at harmonising the different perceptions and interests of the stakeholders by grouping them according to core and broader stakeholders;
- Engagement of professional facilitator to assist in reconciling the views and interests of the different groups;

Lesson Learnt - Key Factors To Ensure The Success of Consultative Planning Process (continued)

- Sufficient pre-consultations with key stakeholders to sensitise them on the objective and benefits of the mission;
- The consultative planning undertaken at the operational level, with clear reference to current statistics and maps;
- Maintenance of proper documentation of consultation process;
- Conformity with the existing legal requirements including the master and district plans of the area; and
- Regular updates for the higher authority and local decision-makers on the planning progress and outcomes.

Lessons Learnt

- The IMP was developed through consultative process, hence all stakeholders views & concerns have been considered
- The SEPPSF has to be managed base on integrated approach to achieve sustainability and conservation of the forest
- The implementation of the plan requires full commitments from all agencies concern

Lessons Learnt (continued)

- The IMP Process creates a technical forum for inter-agencies consultations
- It promotes better understanding among sectors involved
- It promotes ownership and strong commitments
- It provides greater chance to succeed in implementation
- Crucial matters resolved and actions taken during the process

OUTCOMES

- **SEPPSF & surrounding associated wetland ecosystems managed systematically and sustainably – PSF intact (fragmentation minimised)**
- **Implementation of IMP - Project area managed as an entity through inter-agency coordination**
- **Improved sustainable livelihoods for the local communities**
- **Enhanced appreciation and understanding among the local communities of the ecosystems within which they live in**
- **Institutional and human capacities strengthened through trainings and study tours**

IMP STATUS

5 YEARS AFTER IMPLEMENTATION

MID-TERM REVIEW FINDINGS

Some Significant Achievements:

- Gazetment of about 13,251.0 ha stateland forests into PFE (current total = 100,000 ha of Forest Reserve)
- Logging only base on RIL method in PFE
- State Wetland Management Committee formed

MID-TERM REVIEW FINDINGS

- Two sets of Management Actions (MA)
- Short-term (2005 – 2007)

  - 53 MA
  - Implementation - very satisfactory
  - 94% implemented
  - 3 management actions pending

MID-TERM REVIEW FINDINGS

- Medium-term (2006 – 2015)
  - 45 management actions
  - Rather slow
  - 76% completed
  - 13 management actions pending

MTR - GENERAL RECOMMENDATIONS

- The state authority should ensure a regular Wetland Management Committee meeting as specified in the TOR of the WMC,
- Forestry Department to report the IMP Implementation progress and status regularly at the Wetland Management Committee meeting,
- Forestry department to organize discussion forum with relevant agencies to overcome any problems or constraint in the implementation of the management actions of the IMP,
- Forestry Department to lead in undertaking correction actions on all un-implemented short and long-terms Management Actions of the IMP
- Forestry Department to look into the possibility of getting external fund and request budget allocations to implement the remaining management actions whenever necessary

MID-TERM REVIEW FINDINGS

- The IMP is an important document for PSF management
- The IMP is still being referred by the state authority
- The management prescriptions in the IMP are being followed closely

THANK YOU

Pending management actions (Short term)

	Management Action	Details	Progress and status	Recommendations
1	14 - Develop faunal management guidelines	Preliminary guidelines have to be developed through consultation with PERHILITAN. Specialist report due in 3 months as base to finalise guidelines.	Due to financial and time constraints, the faunal management guidelines only focused on the conservation and management of hornbill avifauna in the SEPPSF	Working together with PERHILITAN state FD is recommended to look into a posibility of sourcing fund to undertake the remaining task

Pending management actions (Short term)

	Management Action	Details	Progress and status	Recommendations
2	18. Identification of local community roaming areas & formalise use	Local community utilisation of NTFP and dependency on forest reserves has to be ascertained through a consultative process. Once collection /roaming areas are identified, forest reserve utilisation for sustenance has to be formalised. Roaming areas to be mapped and monitored to prevent unsustainable practices.	UNDP and FD had in 2006 consulted the JHEO on the possible approach in determining and delineating and mapping the roaming areas. However due to some problems including financial constraint had limit the implementation of the action plan	FD is recommended to initiate a discussion with JHEOA on ways to overcome the problems including sourcing for funding.

Pending management actions (Short term)

	Management Action	Details	Progress and status	Recommendations
3	20. Facilitate the formation of wetlands management unit in the State Forestry Department	This is a crucial initiative as the unit will take charge of IMP in the SEPPSF. The unit will plan implementation and develop in the area and report to the state and the district level site management committees. The state FD and UPEN have to lobby the Federal FD to initiate establishment and fund through Federal sources	The wetland units at state FD has yet to be formed due to some administrative procedure. However at the HQ, a unit dealing with wetland had been formed to oversee the management of wetland forest including mangrove and peat swamp forests	The state FD is recommended to re-consider this management action once the financial situation permits to do so

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
1	5. Develop & implement logging impact monitoring protocols	The data has to be analysed and used for continuous improvement.	FRIM during the Harvesting regime research project in the peat swamp forest had completed a study on logging impact in the forest reserve. The information might be used as a basis in developing the monitoring protocol. (Refer also Action 12 of the short-term)	Documentation on the logging impact monitoring protocol should be prepared by FD
2	8. Monitor, moderate & record collection of NTFP	The monitoring results has to be used to promote sustainable extraction.	FD is indirectly monitor the NTFP collection through record of extraction licences issued (for example rattan collection) from psf. (Refer also Action 17 of the short-term)	Other than that difficulties in the recording and monitoring and enforcement hinder the implementation of this task. It is recommended that FD uses the existing field staffs to undertake the monitoring

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
3	9. Undertake detailed biodiversity surveys to update information & form collaborative effort with PERHILITAN to undertake wildlife survey & management	Funding should be sought to undertake annual surveys systematically spread over the 4 forest reserves. Collaborative research has to be promoted.	Biodiversity information collected during the UNDP project is at this stage sufficient to be used as base line information for the area. Financial constraint limit the proposed annual biodiversity survey of the peat swamp forest. (Refer also Action 14 of the short-term)	It is recommended that FD should look into the possibility of securing budget from the Levi fund
4	22. Mobilise local community to act as onsite guardians of the PSF	The effectiveness of mobilisation has to be reviewed annually and a decision can be made to stop this practice if found ineffective.	UNDP had consulted repsesentetives of the local community in particular the Asli Jakun and feedback recieved was not encouraging, as such the task was not explored further.	FD should ensure the security of the forest resources be monitored through the normal procedures under the SFM practices

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
5	23. Long term monitoring of water quality & water table through collaborative effort with DID including DOE	This should be a collaborative effort and effort should be made to seek funding. DOE commitment is needed to coordinate exercise.	Unable to secure funding as such the long-term monitoring of water quality and water table in the peat swamp forest was not materialised. However DID and DOE is continously monitor their existing stations located through out the Pekan District.	FD to have regular communications with DID and DOE and seeks advice on issues related to water quality in the project area
6	27. Establishment of contiguous protection areas within forest reserves & clear demarcation of these boundaries	Physical demarcation is needed to support management effort	Protection areas within the FR was clearly marked on the map and on the ground the standard procedure adopted by the state in demarcating forest reserve boundary is being implemented. But due to budget limitation it is of low priority to demarcate protection areas on the ground	Even though without physical demarcation on the ground, FD is recommended to have regular monitoring through ground check and request assistance from the HQ to also monitor the areas occasionally using remote sensing satellites

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
7	28. Long term monitoring of buffer zone by wetlands management unit. State: Wetland Management Unit. State's responsibility to demarcate buffer zone	Finalisation of gazetttement and physical boundary demarcation is a prerequisite to monitoring. Monitoring protocols need to be developed.	The buffer zone is being monitored based on the IMP recommendation. However, demarcation of the buffer zone on the ground was not implemented due to the budget constraint.	Similar recommendation as item 27 above
8	32. Physical demarcation of buffer zone. Clear demarcation of FR Clear demarcation of buffer zone with signages	Physical demarcation has to be undertaken using the definitive map produced by the project.	The buffer zone is being monitored based on the IMP recommendation and FR boundary is being demarcated on the ground based on the standard FR marking procedure. However, demarcation of the buffer zone on the ground was not implemented due to the budget constraint	Similar recommendation as item 27 above

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
9	33. Reporting & liaising with district level committee on management & development issues	The committee needs to be formed and supported by the state government. Terms of reference for the committee has to be formulated.	Monitoring and management of the FR is under the FD jurisdiction including reporting it to the state autority on any issues related to the forest reserve. This is of adequate and as such a specific committe as indicated and suggested is not formed.	To abide with the current practices of reporting any development activities at the district level
10	37. Facilitation of natural regeneration in remnant forest patches	The right approach needs to be devised on a case by case basis.	Due to financial constraint, no specific action on this and leaving it to the natural process of regeneration	Recommended State FD to request budget from the Levi allocation

Pending management actions (Medium term)

	Management Action	Details	Progress and status	Recommendations
11	39. Closure of canals in buffer zone	Funding needs to be obtained from either state or federal government sources. The process of seeking funds has to be formalised and initiated.	Due to financial constraint, there is no specific action taken on this task	Recommended State FD to request budget from the Levi allocation
12	41. Regular monitoring by special task unit and encouraging licenses application by local collectors from relevant communities to ensure the sustainable use of NTFP resources.	Enforcement phased in after consultation with local community. Monitoring of the current extraction rate is important to establish base. This is a major task and requires the development of a monitoring protocol.	No special task unit is formed. However, FD is indirectly monitor the NTFP collection through record of extraction licences issued (for example rattan collection) from psf. (Refer also Action 17 of the short-term)	Recommended that monitoring to be done by FD field staff
13	45. Long term monitoring for peat subsidence To adopt sustainable agricultural management practices.	Funds and collaboration needs to be explored.	As explained in Action 43 of the medium-term, as of today there is no specific task taken for this Action	FD to review and discuss the actions with plantation owners and explore potential source of fund