International Conference
on Sustainable Mangrove Ecosystem
18-21 April 2017, Bali

FSC Certified Sustainable Mangrove Forest Management - Best Practices

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PT. BINTUNI UTAMA MURNI WOOD INDUSTRIES

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Outline

- PT. BUMWI Operation
- FSC Certification
- Pillars for Sustainability
- Challenges and Opportunities
- Conclusion

PT. BUMWI - Sustainable Mangrove Management

Mangrove Production Forest

- Bintuni Bay, West Papua, Indonesia
- 82,120 ha
- Main product is wood chips

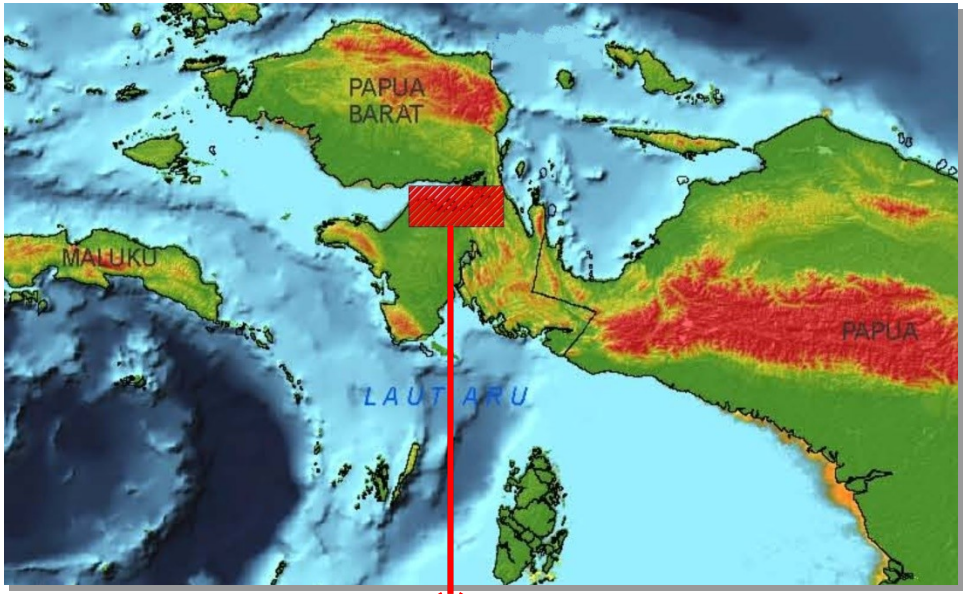
Minister of Forestry Decree

No. 174/Kpts-IV/1988

Extended

No. SK.213/MENHUT-II/2007

(valid until 2052)



Management Unit of PT. BUMWI

World Largest Certified Mangrove SFM

Indonesian LEGAL Wood

No. 11-SIC-04.01-Re.1

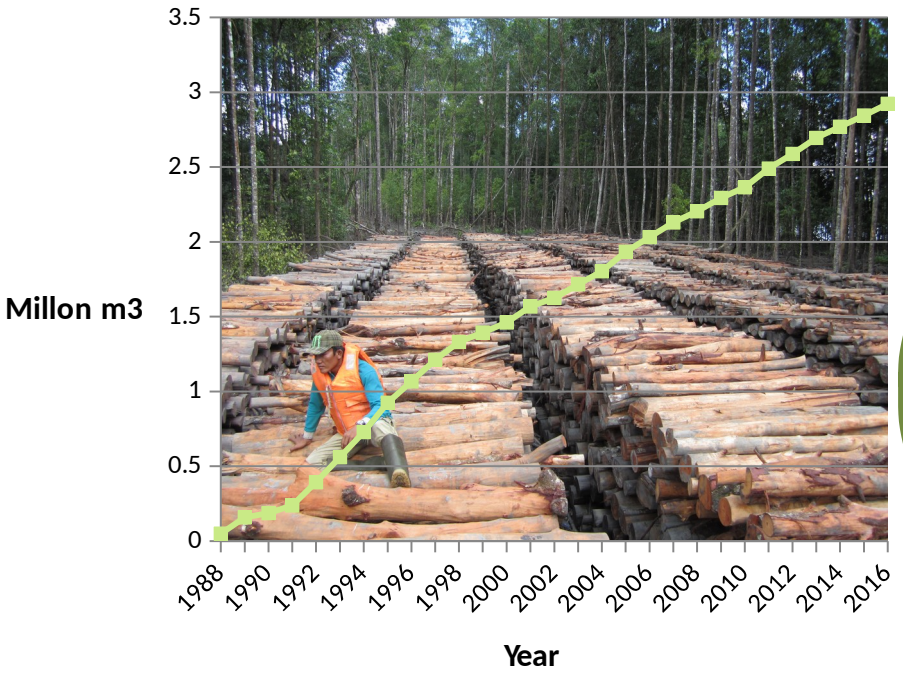
FSC

FSC - C122450

SCS-FM/COC-005054

PT. BUMWI Operation

Cumulative Wood Chips Production 1988 – 2016



- 2.9 Millions m³ wood chips produced
- Harvested area: 600 – 800 ha/year
- With very limited forest

PT. BUMWI Operation

Successfull regeneration (T+10)

Seedling: 17,401/ha

Sapling: 3,521/ha

PT. BUMWI Operation

Sufficient standing stock

Tree: 211,9 m^3/ha

Pillars for Sustainability

1. Compliance to Laws, Regulations and International Agreements
2. Implementation of a Sustainable Silviculture System
3. Economic Development
4. Environmental Management, Monitoring and Research
5. Community and Stakeholders Engagement





FSC Certification

FSC Principles and How it Relates to PT. BUMWI Five Pillars

FSC Principles

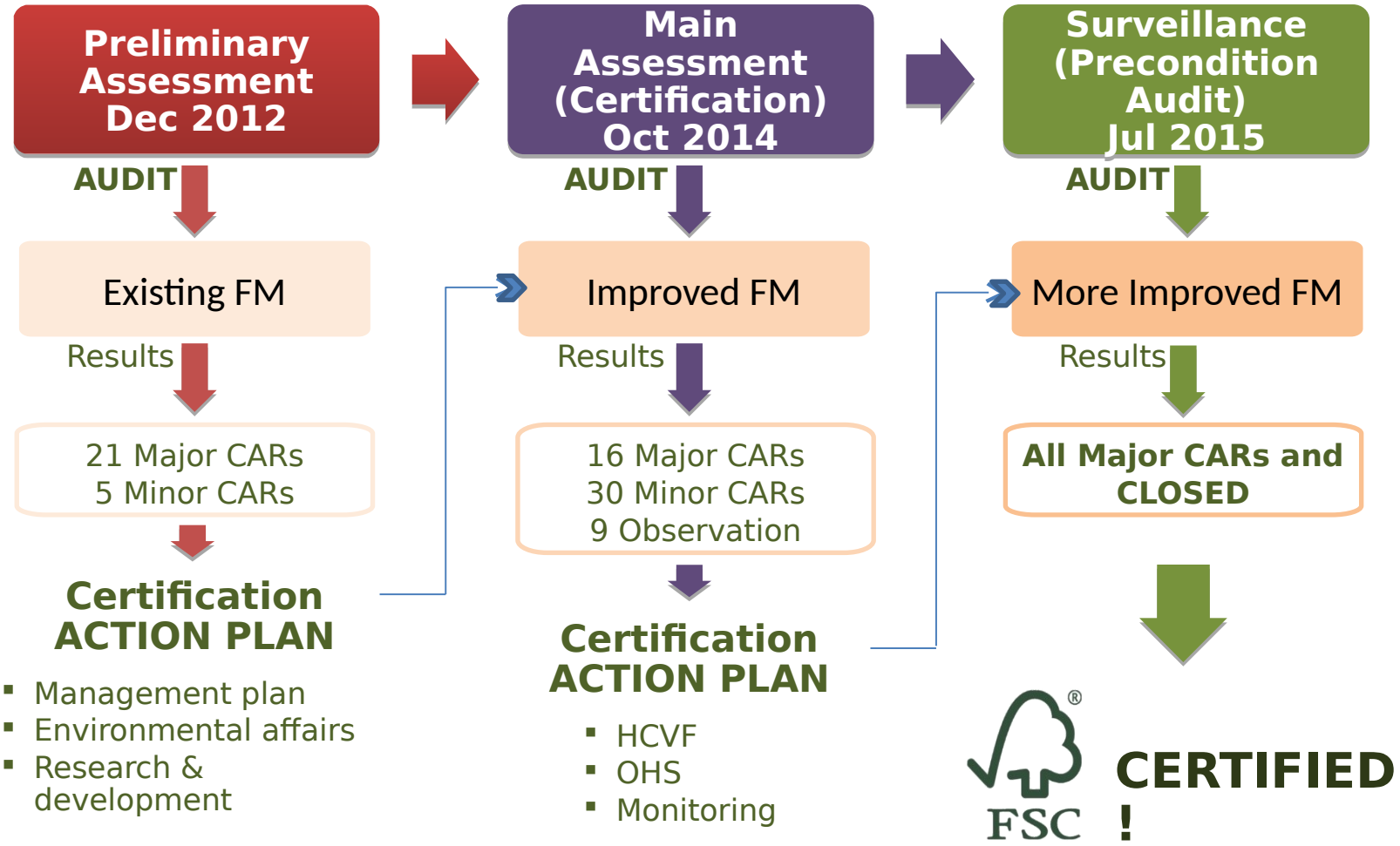
1. Compliance with laws and FSC principles
2. Tenure and use rights and responsibilities
3. Indigenous Peoples' rights
4. Community relations and workers rights
5. Benefits from the forest
6. Environmental impact
7. Management plan
8. Monitoring and assessment
9. Maintenance of HCVF

SFM of PT. BUMWI

- Compliance with Laws, Regulations and International Agreements **(FSC 1, 2, 3, 4, 7)**
- Implementation of a Sustainable Silviculture System and Research Program **(FSC 4, 5, 6, 7)**
- Economic Development **(FSC 5)**
- Environmental Management and Monitoring **(FSC 6, 7, 8)**
- Community and Stakeholders Engagement **(FSC 2, 3, 4, 5)**

FSC Certification

Certification Process at PT. BUMWI



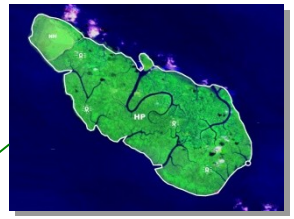
*FM = Forest Management
*CAR = Corrective Action Request

1. Compliance to Laws, Regulations and Int'l Agreements

1. Long term and short term Management Plan.
2. Free Prior Inform Consent.
3. Developing human resources.
4. Rights and opportunities for workers.
5. Compliance to occupational health and safety.
6. Application of information system in forest management.
7. Self assessment and internal audit.
8. Fees and royalties on forest product.

And other relevant regulations.

2. Implementation of a Sustainable Silviculture System



T-3
Area
Planning

T-2
Timber
Cruising

T-1
Zone
Marking

T
Harvesting

T+2
LOA*
Inventory

T+3
Seedling
Preparation

T+3
Enrichment
Planting

T+15/20
Thinning
(Optional)

30 YEARS
ROTATION

*LOA = Logged Over Area

3. Economic Development

Three Key Efforts

Increase forest timber productivity (MT/ha) – weight is the value:

1. Targeting high volume area for harvesting – research on remote sensing/ drone usage.
2. Targeting *Rhizophora apiculata* dominant area as they regenerate easily and produce 1.2 to 1.3 MT/m^3.
3. Clear cut selective area to reduce wasting seed trees.
4. Ensure all of LOA (Logged Over Area) is cleared and the log converted to woodchips in < 3 months.

Increase value of end products (collaboration with Green Forest):

5. Higher value with FSC certification (not yet realized).
6. Research and development on value add to woodchips (Bioenergy products).

Develop NTFP* and waste by-products (collaboration with Green Forest):

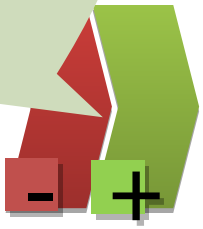
7. Development of bark and other waste into valuable products.
8. Research conducted on the value of fruits, leaves, and certain

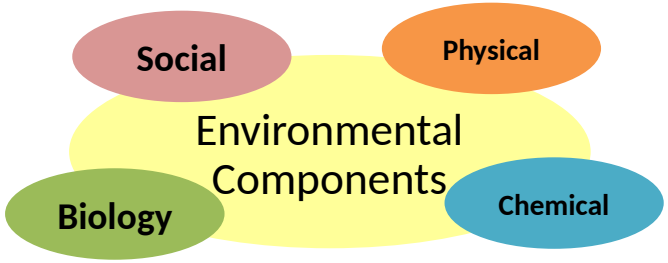
*NTFP = Non Timber Forest Product

4. Environmental Management, Monitoring and Research

Company's Operation

Improvements





Management

Monitoring

Impact mitigation

Increase the positive, mitigate the negative.

Early warning system

To assess the effectiveness of management efforts.

PT. BUMWI Research Program

Objectives

- Carry out research that supports operations and improves silviculture practice. Help ensure the lowest possible impact on the environment and fulfil our mandate for sustainability (environmental, social, and economic)

- Contribute to the global database and knowledge of mangrove ecosystems and coastal management

- Be a platform for domestic and international researchers to do independent research on mangrove and coastal environments

PT. BUMWI Research Program

Activities

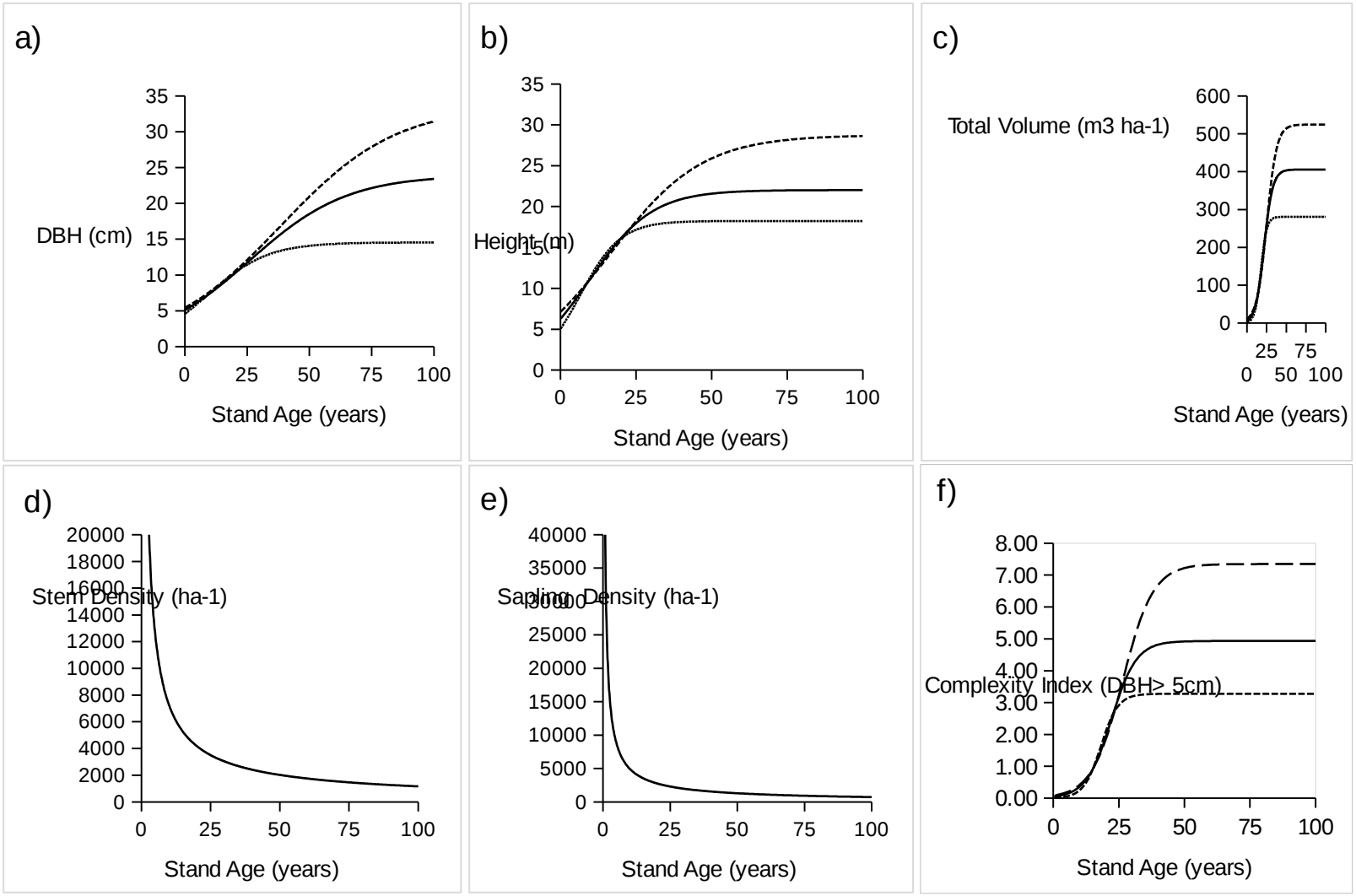
Surveys and Monitoring
- Forest species and biodiversity surveys
- Fauna & Flora Surveys
- Classification of mangrove sediment

Production/ Operations Studies
- Forest regeneration: estimate production potential
- Seed productivity
- Seed Tree Survey
- Clearcut vs. Seed Tree Method – Silviculture systems
- Remote Sensing: Projecting Mangrove Forest Volumes and Species

Environmental Impact Assessments
- Soil Impact study
- Macrobenthos Studies and Marine Impact Studies

Research Leads to Evidence based Management

MONITORING MANGROVE REGENERATION (Sillanpaa et al. 2017)



HCVF and Conservation Activities

Sago Forest

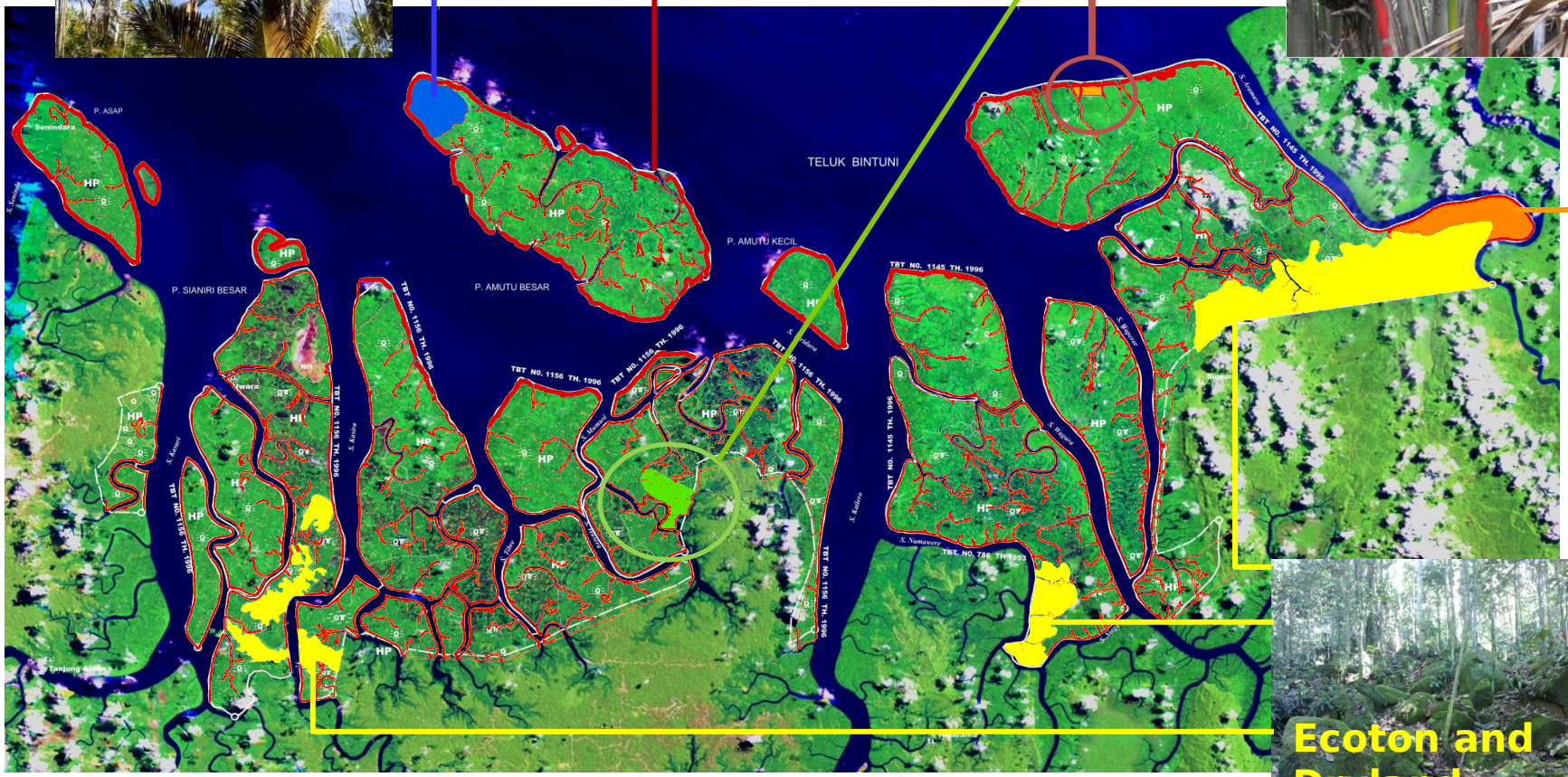
High Conservation Value Forest

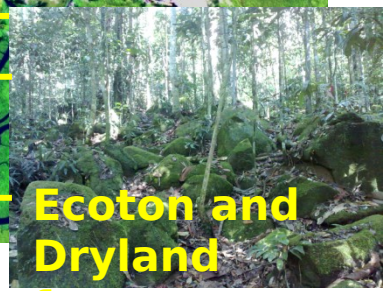
19,123 ha ~ 24.15 %

Nypa

Local habitat

Buffer





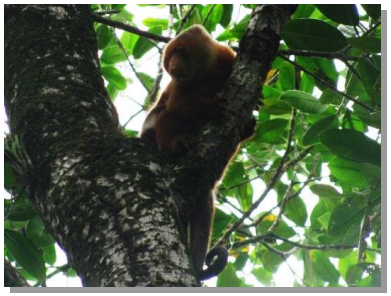
Ecoton and Dryland forest

HCVF and Conservation Activities

Biodiversity

22 mangrove species from 8 families
- Rhizhoporaceae consist of 9 species
- *Rhizophora apiculata* the most dominant

175 birds from 38 families
6 reptiles from 4 families
5 mammals from 5 families
1 amphibians from 1 families




5. Community and Stakeholders Engagement

The community is our main partner in mangrove forest management.

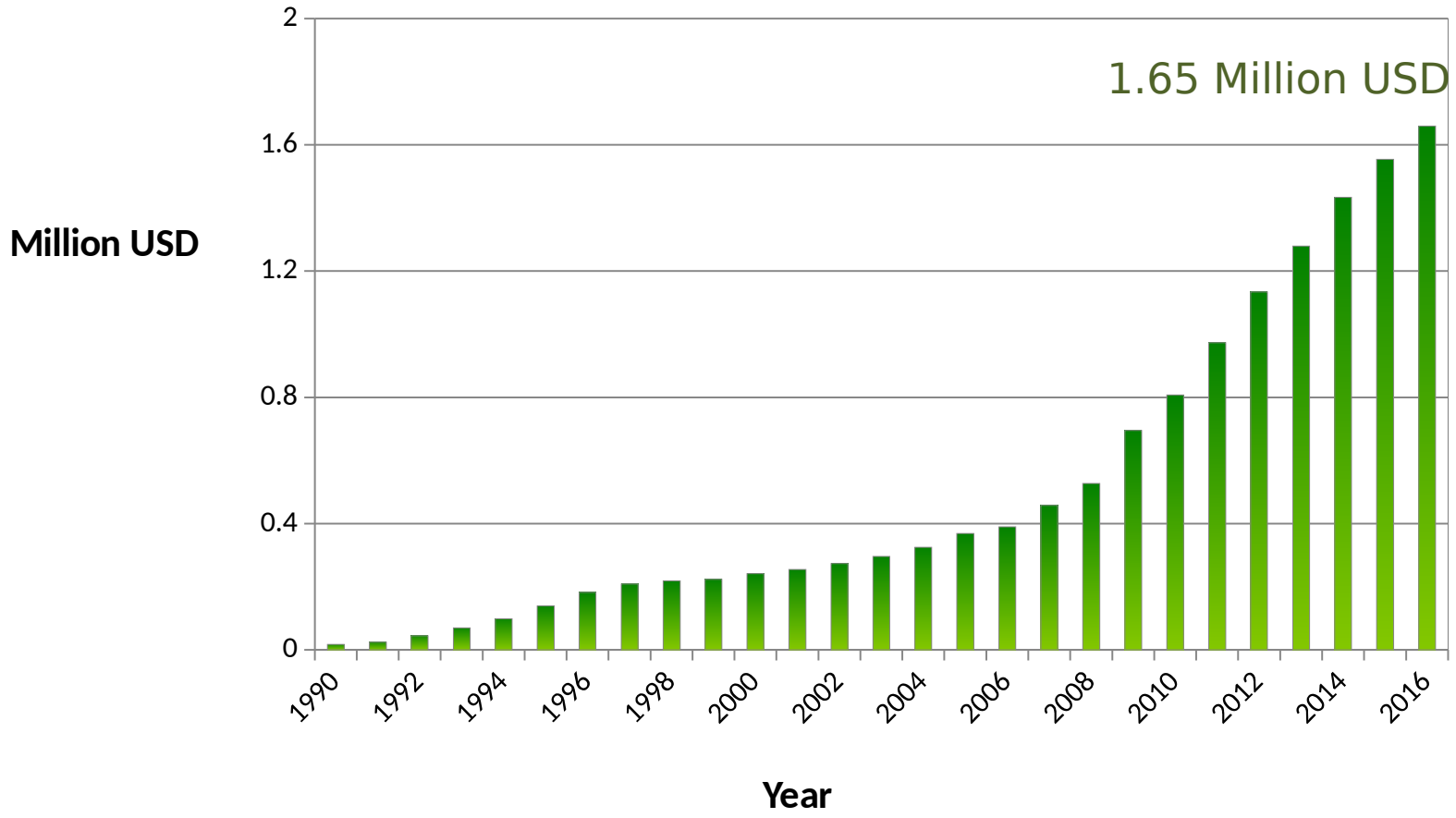
Recruitment of local people.

Infrastructure establishment.

Develop local farming.

Ulayat payment.

Cumulative Social Contribution (1990 – 2016)



PT. BUMWI IS OUR KITCHEN

DAPUR BERSAMA BAGI MASYARAKAT HUKUM ADAT

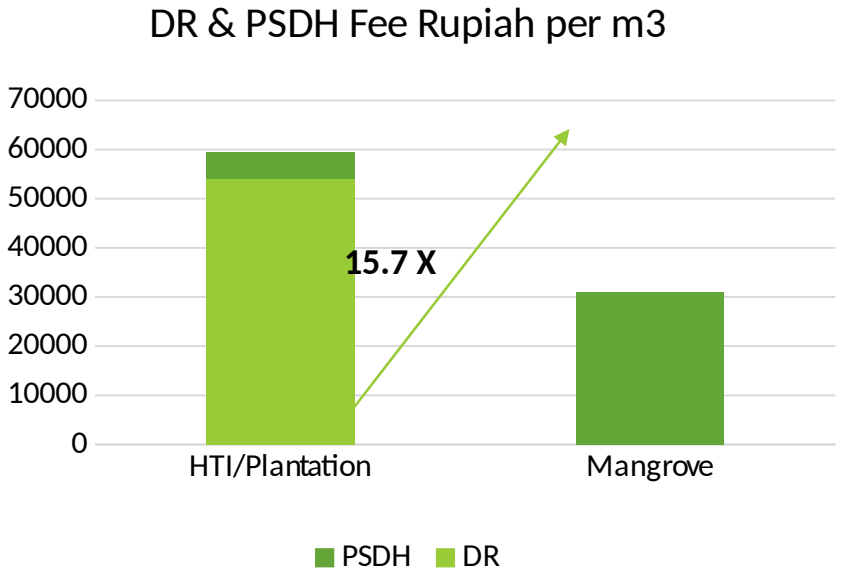
Challenges and Opportunites

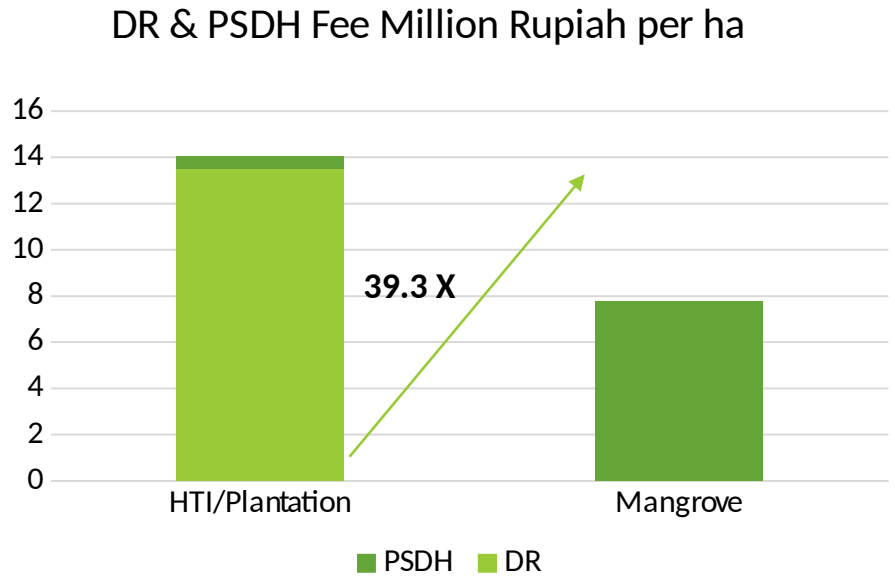
Consistency to implement FSC Principles and Criteria in order to maintain the certificate and to increase the quality of sustainable mangrove forest management.

- Improvement on environmental management and monitoring as well as HCVF preservation.
- Comprehensive management plan and executed appropriately.
- Research and development on mangrove forest and ecological dynamic.
- Comprehensive implementation of Occupational Health and Safety.
- Survey of biodiversity to provide data base and reference concerning existing flora and fauna.

Key Economic Challenge to Mangrove Utilization

Indonesia Government policy heavily favors mono-culture plantation forest for the pulp and paper market and “ignored” native natural “plantation” such as mangrove. The fact that is supported by the taxation/ fee policy in the form of DR = Dana Reboisasi (Reforestation Fund) and PSDH = Provisional Sumber Daya Hutan (Forest resources provision) as shown in the figures below.





*HTI yield of 100 m3/ha, Mangrove yield of 250 m3/ha

CONCLUSIONS

1. Sustainable mangrove forest management could bring benefits to local community while preserving environmental services, which prevent conversion that destroys mangrove permanently.

2. Five pillars to sustainably manage a mangrove production forest:
   - Compliance to laws, regulations and international agreements
   - Implementation of a sustainable silviculture system
   - Economic development
   - Environmental management, monitoring and research
   - Community and stakeholders engagement

3. The economic value is the key driver to sustainability because it enables social and environmental improvements.

4. Evidence-based management needed – **Managers and Policy makers need to be scientifically literate .**

PT. BUMWI
Utilize, Preserve and Develop MANGROVE ECOSYSTEM

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