

**Study Tour Report**  
**Climate Adaptation and Provincial Governance Programme**  
**25.08.2025-30.08.2025**



**Prepared by: Navodya Dissanayake**  
**Deputy Director ( planning)**  
**Planning secretariat**  
**Southern Province**



## **Executive Summary**

This report presents findings from the Indonesia Study Tour on Climate Adaptation and Provincial Governance programme conducted from August 25-30, 2025, focusing on mangrove restoration policies and processes. The study tour covered Jakarta and North Kalimantan, providing insights into Indonesia's comprehensive approach to mangrove ecosystem management, community-based restoration programmes, and policy frameworks. Key recommendations are presented for potential applications in Sri Lankan mangrove restoration initiatives.

## **1. Introduction: Indonesia - Demographic and Forest Cover Profile**

### **1.1 Demographic Overview**

Indonesia, the world's largest archipelagic nation, consists of over 17,000 islands spanning across Southeast Asia. With a population exceeding 275 million people, it represents the fourth most populous country globally. The nation's coastal communities are particularly dependent on marine and mangrove ecosystems for their livelihoods.

### **1.2 Forest Cover and Mangrove Significance**

Indonesia hosts the world's most extensive mangrove ecosystem, covering **3.44 million hectares** - representing **23% of global mangrove coverage**. This positions Indonesia as a global leader in blue carbon initiatives and mangrove conservation. The country's mangrove ecosystem can store approximately **5.33 GT CO<sub>2</sub> equivalents**, making it crucial for global climate change mitigation efforts.

#### **Key Statistics:**

- Total mangrove area: 3.44 million hectares
- Carbon storage capacity: 5.33 GT CO<sub>2</sub> equivalent
- Global mangrove percentage: 23%
- Potential mangrove restoration area: 756,000 hectares

- Carbon stored: ±1.016 MTon C/ha

### **1.3 Economic Value**

The total economic value from Indonesia's mangrove ecosystem services is estimated at USD 1.5 billion annually, supporting approximately 120 million people who depend on mangrove ecosystems for their livelihoods.

## **2. Indonesia's Mangrove Restoration Policy Framework**

### **2.1 Legal Foundation**

Indonesia's mangrove management is governed by a comprehensive legal framework:

#### **Primary Legislation:**

- Law Number 41 of 1999 on Forestry (amended by Law Number 19 of 2004)
- Law Number 6 of 2023 concerning Job Creation
- Government Regulation Number 23 of 2021 on Forestry Administration
- Government Regulation Number 27 of 2025 on Protection and Management of Mangrove Ecosystems (newly established)

#### **Implementation Regulations:**

- Minister of Environment and Forestry Regulation Number 7 of 2021
- Director General of Forestry Planning Decrees on National Forest Inventory technical guidelines

### **2.2 Social Forestry Integration**

Indonesia has revolutionized mangrove management through its Social Forestry (Perhutanan Sosial) program, which provides community-based management rights. The program has achieved remarkable success:

### **Achievements (as of June 2025):**

- Total area under Social Forestry: 7.99 million hectares
- Beneficiary families: 1.37 million households
- Number of management units: 10,029 units

### **Mangrove-Specific Achievements:**

- Social Forestry in mangrove areas: 251,143.58 hectares (3.02% of total Social Forestry area)
- Distributed across 30 provinces
- Additional potential area identified: 272,099.81 hectares across 29 provinces

## **2.3 World Mangrove Center Initiative (WMC)**

Indonesia has established the **World Mangrove Center (WMC)** as an international hub for mangrove conservation and management, with the vision "United for Mangroves, United for the Future."

### **WMC Objectives:**

- International information and data center
- Capacity building and knowledge sharing platform
- Development of science-based management standards
- Promotion of sustainable mangrove management
- International dialogue and cooperation facilitation

## **3. National Forest Inventory and Monitoring System**

### **3.1 Evolution to NFI 2.0**

Indonesia has upgraded its National Forest Inventory system:

**NFI 1.0 (1989-2024):** Focused on timber potential assessment NFI 2.0 (2025): Comprehensive forest information system for rapid, accurate, and accountable reporting

### **3.2 Mangrove-Specific Inventory Design**

The mangrove inventory employs Stratified Systematic Sampling with:

- 603 cluster plots (17% of total 3,632 cluster plots)
- Hexagon-based grids: 2.5-15 km spacing
- Three-plot L-shaped design (P, U, T plots)
- 5-year monitoring cycle

#### **Geographic Coverage:**

- 4 provinces in initial phase: North Sumatra, Riau, East Kalimantan, North Kalimantan
- 158 total clusters across target provinces

### **3.3 Data Collection Parameters**

Comprehensive data collection includes:

- Canopy density and regeneration assessment
- Soil carbon and environmental parameters (pH, salinity)
- Species diversity and biomass estimation
- Dead wood and litter analysis
- Living and dead tree measurements

## **4. Study Tour Observations and Key Learnings**

### **4.1 Institutional Framework (Jakarta Meetings)**

#### **Ministry of Environment and Forestry Engagement:**

- Strong institutional commitment to climate adaptation
- Integration of mitigation and adaptation strategies
- Emphasis on accurate data collection for international reporting (UNFCCC, REDD+)

### **4.2 Provincial Implementation (North Kalimantan)**

#### **Multi-Stakeholder Approach:**

- Provincial government leadership
- District government collaboration (Bulungan District)
- Private sector engagement
- Development partner coordination
- Community participation

### **4.3 Field Implementation (Tarakan)**

#### **Community-Based Enterprises:**

- Liagu Village: Successful mangrove rehabilitation with community participation
- Siandau Village: Value-added processing (shrimp paste, dried products)
- Industrial-scale shrimp processing integration

#### **Conservation Integration:**

- Mangrove and Proboscis Monkey Conservation Area
- Ecotourism development
- Scientific research facilities

## **5. Success Stories and Best Practices**

### **5.1 KTH Bhakti Alam Lestari - Malang, East Java**

#### **Achievements:**

- Restored 60.7 hectares from only 17 hectares remaining in 2005
- Integrated conservation and tourism development
- Community-based management of 81-hectare area
- Development of mangrove-based products (batik using mangrove dyes)

#### **Innovative Approaches:**

- Six-point tambak (pond) liberation for mangrove conservation
- Hexa-helix stakeholder collaboration model
- Bird migration conservation programs
- Environmental education integration

### **5.2 Kelompok Tani Cinta Mangrove - North Sumatra**

#### **Community Organization Structure:**

- 5 specialized groups with 115 total members
- Tourism management (40 members)
- Aquaculture and crab farming (20 members)
- Mangrove nursery and rehabilitation (15 members)
- Commerce and trading (20 members)
- Batik production using mangrove materials (20 members)

## **5.3 Bentang Pesisir Landscape - West Kalimantan**

### **Integrated Management:**

- 10 village forest units covering mangrove and peat swamp ecosystems
- Annual production: 200 tons wild crab, 17 tons cultured crab, 10 tons mangrove honey
- Sustainable aquaculture: 40 tons/year shrimp production

## **6. Policy Innovations and Mechanisms**

### **6.1 Social Forestry Rights Framework**

#### **Community Rights Categories:**

- Village Forests : Community-based forest management
- Community Forests: Group-based forest utilization
- Plantation Forests: Individual/cooperative plantation rights
- Conservation Partnerships: Collaborative conservation management

### **6.2 Utilization Guidelines for Mangrove Areas**

#### **Permitted Activities:**

- Silvofishery (integrated fish/crab/shrimp farming)
- Non-timber forest product harvesting
- Environmental service development (ecotourism)
- Sustainable timber harvesting (production forests only)

#### **Restrictions:**

- No mechanical equipment in protection forests
- Prohibited landscape alteration in protection zones
- No palm oil cultivation
- Temporary suspension of timber access for environmental evaluation

## **6.3 Financing and Incentive Mechanisms**

### **National Rehabilitation Program (2021-2024):**

- 84,396 hectares planted
- 2,992 communities involved
- 4.5 million person-days employment generated
- 41,352 workers engaged
- 363 community-based management units established

## **7. Lessons Learned and Critical Success Factors**

### **7.1 Policy Integration**

- Comprehensive legal framework linking forestry, environmental, and spatial planning laws
- Multi-level governance integration from national to village levels
- Inter-ministerial coordination for policy implementation

### **7.2 Community Empowerment**

- Long-term tenure security (35-year management rights)
- Capacity building and technical assistance programs
- Market linkage development for community products
- Institutional strengthening of community organizations

### **7.3 Scientific Foundation**

- Standardized monitoring systems with 5-year cycles
- Technology integration (mobile data collection, GIS mapping)
- Evidence-based management decisions
- International reporting compliance (UNFCCC, REDD+)

## **7.4 Economic Sustainability**

- Value chain development for mangrove products
- Ecotourism integration for additional income streams
- Public-private partnerships for market access
- Payment for ecosystem services mechanisms

## **8. Potential Applications for Sri Lanka**

### **8.1 Policy Framework Development**

#### **Recommendations:**

1. Comprehensive Mangrove Protection Act similar to Indonesia's PP 27/2025
2. Community-based Management Rights system for coastal communities
3. Integrated monitoring system for mangrove ecosystem assessment
4. Inter-ministerial coordination mechanism for mangrove management

### **8.2 Institutional Arrangements**

#### **Proposed Structure:**

- National Mangrove Center as coordinating hub
- Provincial implementation units in Provinces
- District-level technical teams for field implementation
- Community-based organizations for direct management

### **8.3 Community Engagement Model**

#### **Sri Lankan Adaptation:**

- Fisheries community integration in mangrove restoration

- Women's group participation in value-added processing
- Youth engagement in ecotourism development
- Traditional knowledge integration with scientific approaches

## **8.4 Financing Mechanisms**

### **Potential Sources:**

- Climate finance through Green Climate Fund (GCF)
- Blue Economy development programs
- Carbon credit revenue streams
- Ecosystem service payment systems
- Tourism revenue sharing arrangements

## **9. Implementation Roadmap for Sri Lanka**

### **9.1 Short-term Actions**

1. Policy Development: Draft comprehensive mangrove protection legislation
2. Institutional Setup: Establish National Mangrove Coordination Committee
3. Baseline Assessment: Conduct comprehensive mangrove mapping and inventory
4. Community Engagement: Initiate stakeholder consultations in priority areas
5. Pilot Project Selection: Identify 3-5 demonstration sites for initial implementation

### **9.2 Medium-term Actions**

1. Legal Framework: Enact mangrove protection legislation
2. Capacity Building: Train technical teams and community organizations
3. Pilot Implementation: Launch community-based restoration projects
4. Monitoring System: Establish standardized assessment protocols
5. Financing Mobilization: Secure climate finance and development funding
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### 9.3 Long-term Vision

1. **Scaling Up:** Expand to all significant mangrove areas in Sri Lanka
2. **Ecosystem Restoration:** Achieve measurable improvement in mangrove coverage
3. **Community Benefits:** Generate sustainable livelihoods for coastal communities
4. **International Recognition:** Establish Sri Lanka as a regional leader in mangrove conservation
5. **Climate Contribution:** Significant contribution to national climate commitments

## 10. Conclusions and Recommendations

### 10.1 Key Insights

Indonesia's success in mangrove restoration stems from its integrated approach combining strong policy frameworks, community empowerment, scientific monitoring, and economic incentives. The Social Forestry program demonstrates how community-based management can achieve both conservation and livelihood objectives.

### 10.2 Critical Recommendations for Sri Lanka

1. **Adopt Integrated Approach:** Combine conservation, restoration, and sustainable utilization in a comprehensive framework
2. **Empower Coastal Communities:** Provide long-term management rights and technical support to fishing communities
3. **Establish Scientific Monitoring:** Implement standardized assessment and monitoring systems for evidence-based management
4. **Develop Economic Incentives:** Create sustainable financing mechanisms including carbon credits and ecosystem service payments
5. **Build Institutional Capacity:** Establish dedicated mangrove management institutions at national and provincial levels
6. **Foster International Cooperation:** Engage with Indonesia's World Mangrove Center and other regional initiatives

7. **Integrate Climate Commitments:** Align mangrove restoration with national climate adaptation and mitigation strategies

### **10.3 Expected Outcomes**

Implementation of these recommendations could position Sri Lanka as a regional leader in mangrove conservation while providing significant benefits to coastal communities and contributing to national climate objectives. The Indonesian model demonstrates that with proper policy frameworks and community engagement, substantial restoration and conservation achievements are possible.







