

Delivering Climate Solutions from Policy to Implementation:

Harnessing Social Forestry and Agroforestry in Southeast Asia

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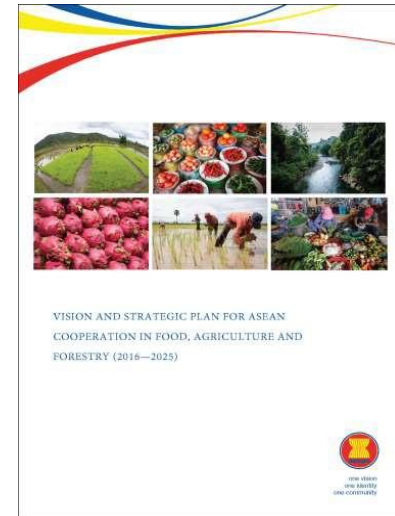
Association of Southeast Asian Nations

- ASEAN: Brunei, Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, Vietnam
- Some member countries among most climate vulnerable
- Integrated as single market in 2015; 6th largest economy
- With over 622 million population, has 3rd largest labor force in the world
- ASEAN has one third of world's agricultural lands with 30% tree cover
- Has 5% of the world's forests and one-third of the world's coastal and marine habitats.
- Forests cover over 193 million hectares, 44% percent of the land area; over 85% owned by government
- **Almost 14 million hectares of ASEAN forests managed under various forms of social forestry ; Target for social forestry is 20.02 million hectares**



Strategic Cooperation on Food, Agriculture and Forestry

- Cross-sectoral Framework for Climate Change and Food Security adopted in 2009
- Vision and Strategic Plan for a competitive, inclusive, resilient and sustainable ASEAN Food, Agriculture and Forestry Sector, 2016-2025
- Vision for ASEAN Forestry: *“Forest resources are sustainably managed at the landscape level to meet societal needs, both socio-economically and culturally, of the present and future generations, and to contribute positively to sustainable development”*.
- **Cooperation on Social Forestry** started in 2005 as a learning network with Indonesia as lead country
- Learning network upgraded in 2016 to a technical subsidiary body (ASEAN Working Group on Social Forestry) mandated to recommend policies to enhance SFM and the welfare and livelihoods of indigenous peoples, local communities, forest dwellers and forest dependent communities.
- ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC) provided technical support from 2011-2020



Regional Social Forestry Cooperation

- Social forestry (SF) an umbrella term for a policy approach that engages local and indigenous peoples and forest dependent communities in forest management by granting a range of rights using diverse tenure instruments.
- Wide range of models including: ‘community forestry’, ‘community -based forest management’, and ‘village forestry’; initial models in 1970s/ 1980s
- Initial focus on reforestation, watershed protection, fire prevention and provision of wood; current broadened focus include carbon sequestration, benefit-sharing, income-generation, and mixed land-use, notably **agroforestry**.
- 8 of 10 countries implement social forestry programmes; 7 have programmes that feature transfer of land rights to local people.
- Rapid increase in social forestry areas with new waves of legal reforms and initiatives since 2016
- Guidelines on Agroforestry Development adopted in 2018; Guiding Principles for Effective Social Forestry Legal Frameworks adopted in 2022

Agroforestry in Social Forestry

- Agroforestry pertains to land-use systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same land-management units as agricultural crops and/or animals and fishery, in some form of spatial arrangement or temporal sequence (ICRAF 2021).
- **Agroforestry has been practiced for centuries in Southeast Asia through swidden agriculture, 'taungya' and homegardens.**
- Swidden agriculture and taungya involve clearing patches in forests to grow staple crops and then abandoning the land for fallow periods. Cash-crop plantations and permanent farms are replacing swidden fields and rotational fallows.
- Taungya is a forestry practice wherein farmers are allowed to grow crops in young forestry plantations which they tend until canopy closure. **Taungya was the earliest form of social forestry in the region.**

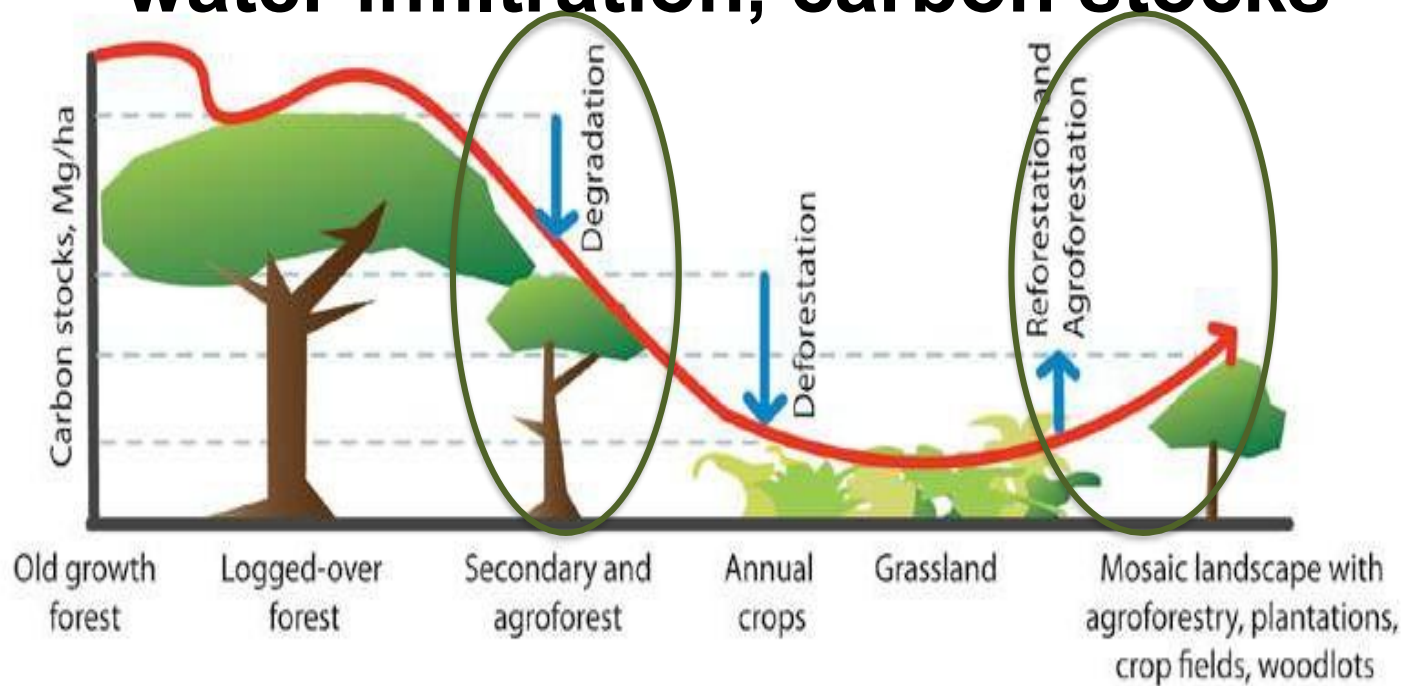
Forest transition curve

forest—agroforest - agriculture—agroforest

Changes in ecosystem functions, e.g.

biodiversity,

water infiltration, carbon stocks



Source: ICRAF.

Dynamism of swidden systems and their implications for carbon stocks and ecosystem services



Land cover classes :

Swidden	Bush Fallow
Young Fallow	Mature Fallow
Forest	Other

Source: CIFOR/ASFCC

Landscape Perspective Needed for Effective Social Forestry

- Successful social forestry often includes an agroforestry component both within and outside forests.
- Trees on agricultural land central to mitigation goals given limited available areas for large-scale restoration; the food system source of 74% of GHG emissions
- Landscape perspective needed to achieve multiple objectives through processes that recognize, reconcile and synergize interests, attitudes and actions of multiple actors.
- Landscape approaches typically involve multi-stakeholder mechanisms, including mechanisms for participation, negotiation, decision-making, benefit sharing, conflict resolution and learning.



Agroforestry in Southeast Asian Forest

- Agroforestry in forests of Southeast Asia using herbaceous crops generally the most expansive (Tenneson et al (2021))
- Agroforestry involving shrub crops, such as coffee and tea, most common in Indonesia and Viet Nam, having a total area that reached 719,000 ha and 137,000 ha, respectively.
- Main palm crops are oil palm in Indonesia and Malaysia, and coconut in the Philippines and Thailand.
- Cambodia and Indonesia have large areas of agroforestry with tree crops (fruit or nut tree species or tree species commonly used in forest plantations e.g. rubber, or pulpwood species, e.g. acacia or eucalyptus).



Social Forestry and Demand for Deforestation-free Supply Chains Driving Agroforestry Expansion

- **Demand for sustainable and deforestation-free supply chains** is affecting rubber and oil-palm production activities in Indonesia, Malaysia and Thailand. In 2019, these three countries together made up 87.87% and 57.78% of global production of palm oil and rubber, respectively (FAOSTAT 2021).
- In the Philippines farmers are increasingly converting their monocultural coffee systems into coffee agroforestry **to gain product certification and greater market value** for their product
- **Commodity agroforests have been shown to deliver higher yields and co-benefits of biodiversity and water conservation, soil erosion control with greater profits.** Further successes from agroforestry expansion requires supportive **policies for rewarding environmental services.**

Benefits from Effective Social Forestry and Agroforestry

- Community forest protection **reduced government cost of forest protection, incidence of conflict, illegal logging and overall forest degradation.**
- **Improved local livelihoods** : In protection forests under social forestry in Indonesia, nearly 89% of coffee are grown in multilevel systems with other fruit trees and vegetables as income-diversification strategies.
- **Reduced forest fires**: Cultivation of coffee and other commodities around and inside the forests and social forestry-mandated protection measures reduced forest fires.
- **Improved biodiversity , water and soil conservation**: In Philippines, allowing farmers to plant and use multipurpose trees on their farms and land near forests reduced dependence on natural forests and enhanced conservation .

Contribution to Carbon Sequestration

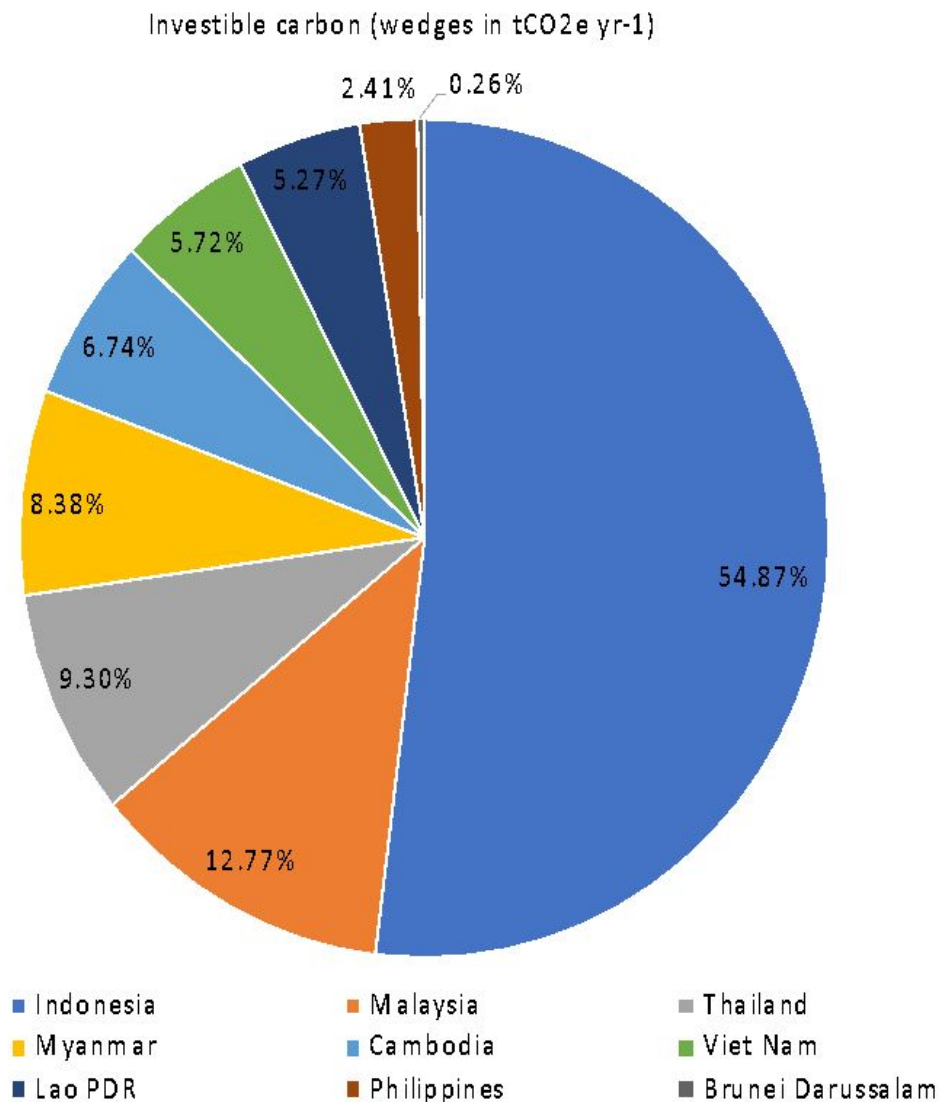
- In Sabah, Malaysia, **oil-palm agroforestry systems had higher total ecosystem carbon stock than monocultures**. Carbon stock ranged 78.28–85.40 Mg C ha⁻¹ for agroforestry systems and 60.30–76.44 Mg C ha⁻¹ for monocultures (Besar et al 2020).
- About 534 million t CO₂ from **fertilizers would not be released into the atmosphere** if all rubber monocultural plantations in Southeast Asia were under agroforestry systems (FAO 2021).
- ASEAN region has 420.01 million t CO₂e yr⁻¹ in **potential investible carbon**, mostly in Indonesia (Koh 2021).
- **Opportunity to obtain financial returns for forest protection, especially related to social forestry and agroforestry, but requires holistic, dynamic system-based standards.**

Annual sequestration rates of above ground, below ground and soil organic carbon for agroforestry systems in Asia ($t\ CO_2\ e\ ha^{-1}\ yr^{-1}$).

System	Above Ground Carbon	Below Ground Carbon	Soil Organic Carbon
Rotational woodlot	23.0 ± 5.9	n.d.	n.d.
Multi-strata	11.1 ± 7.7	2.7 ± 1.8	n.d.
Improved fallow	10.6 ± 6.7	n.d.	n.d.
Home garden	10.2 ± 1.7	n.d.	14.1 ± 1.3
Agroforestry (all types)	9.9 ± 2.6	4.0 ± 2.2	n.d.
Silvopastoral	9.7 ± 2.9	n.d.	n.d.
Shaded perennial	7.6 ± 1.9	1.8 ± 0.5	n.d.
Silvo-arable	5.5 ± 4.1	1.3 ± 0.9	4.8 ± 4.6
Agrosilvicultural	4.1 ± 2.9	n.d.	0.9
Alley cropping	n.d.	n.d.	7.0 ± 2.7
Hedgerow	n.d.	n.d.	2.2 ± 1.2

Source: FAO (2021) drawing from Feliciano et al (2018), Cardinael et al (2018) and Bernal et al (2018).

Investible Forest Carbon in the ASEAN Region



Country	Investible carbon (t CO ₂ e yr ⁻¹)
Indonesia	230,478,000
Malaysia	53,632,000
Thailand	39,054,000
Myanmar	35,182,000
Cambodia	28,307,000
Viet Nam	24,031,000
Lao PDR	22,123,000
Philippines	10,133,000
Brunei Darussalam	1,101,000
Singapore	1,000
Total	420,011,000

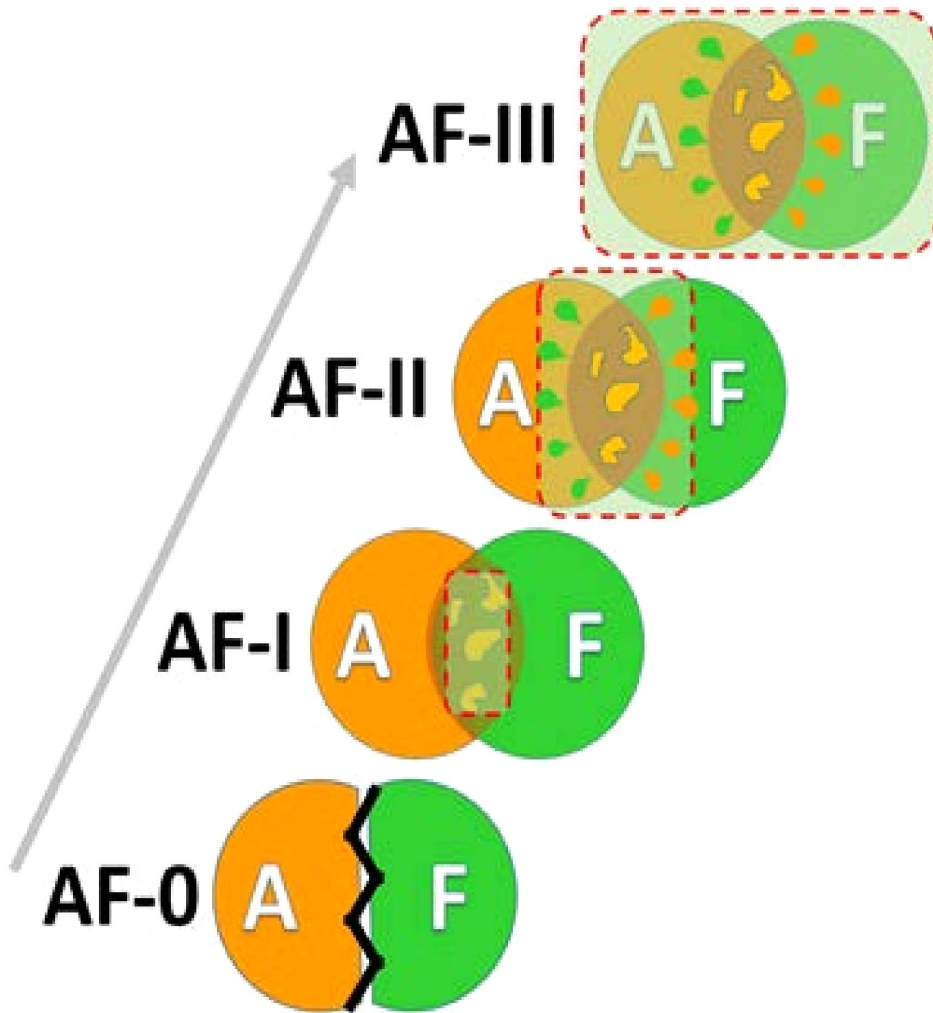
Contribution to SDGs and NDCs

- **Social forestry and agroforestry allows for joint and systemic approaches to address climate change in complementarity with other strategies to achieve SDGs and NDCs in the ASEAN region and in Member States.**
- 9 of 10 ASEAN countries' NDCs include forestry for mitigation and adaptation.
- While most NDCs do not specifically refer to social forestry, 5 of 10 countries mention community-based approaches, respecting the rights of local people, capacity building at local level and increasing resilience of local communities and ecosystems.
- 3 countries (Lao PDR, Myanmar and Viet Nam) explicitly mention agroforestry in their NDCs as a forestry and land-use approach to cope with climate change.

Impediments

- Significant progress with social forestry policy implementation, but agroforestry hobbled by lack of agroforestry policy
- Technical constraints – germplasm, extension support, management capacity
- Funds and access to finance for smallholders
- Access to markets, promotion, institutional support
- **Silo-based perspective on forest and land management**

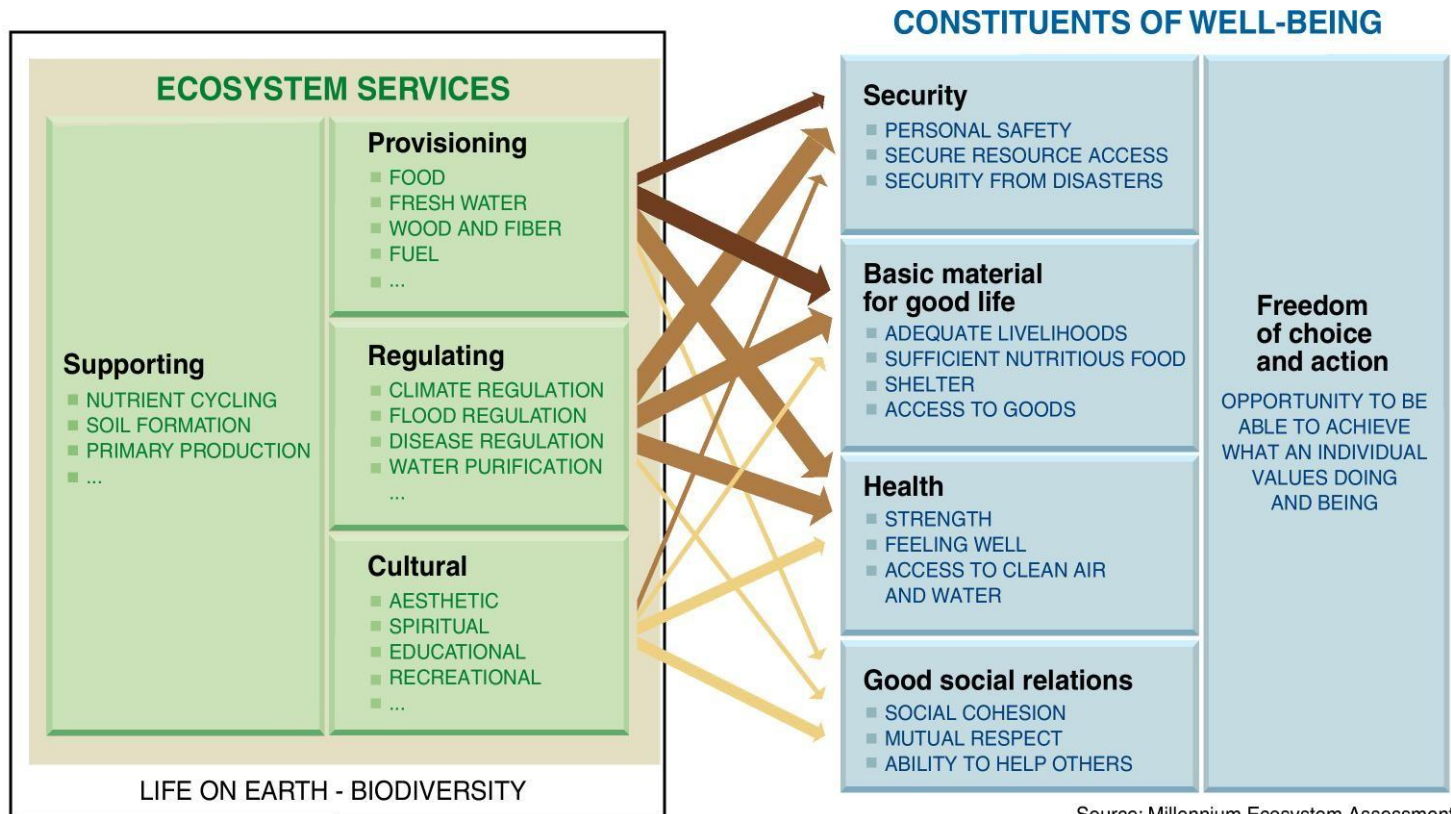
Needed: Broadened Perspective Operationalized through Holistic, Dynamic System-based Metrics and Standards



Evolution of what agroforestry is understood to be in relation to agriculture (A) and Forestry (F): exclusion, by definition of any interface (AF-0); a collective name for a collection of practices involving farmers and trees (AF-I); multifunctional landscapes (AF-II) and a domain for coherent policies for all landscapes (AF-III)

Nature-based, People-oriented Integrated Solutions

Incentivizing Positive Systems Interactions



Source: Millennium Ecosystem Assessment

ARROW'S COLOR
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

Concluding Comments

- **Caution against fragmented commercialization of ecosystem services**
- Clarity and security of rights even more important with increasing commercialization of ecosystem services and market-based arrangements
- Transparent and participatory governance, equitable sharing of costs, risks and benefits and conflict resolution mechanisms needed at all levels
- Empowerment, adequate incentives and timely provision of support for local communities key to effective climate solutions and sustainable development
- Beyond a policy approach and technical intervention, **social forestry and agroforestry a transformative social movement, its effects visibly imprinted on the landscape**