POLICY BRIEF

Agroforestry for sustainable mountain management in Southeast Asia

AWG-SF
ASEAN Working Group on Social Forestry

Schweizerische Eidgenossenschaft
Confédération suisse
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Prepared by World Agroforestry Centre Southeast Asia Regional Program
in collaboration with the ASEAN Working Group on Social Forestry

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List of acronyms and abbreviations

AMS	ASEAN Member State
ASEAN	Association of Southeast Asian Nations
ASFCC	ASEAN-Swiss Partnership on Social Forestry and Climate Change
AWG-SF	ASEAN Working Group on Social Forestry
NDCs	Nationally Determined Contributions

> While mountains are rapidly degrading as a result of deforestation and degradation, agroforestry systems offer great solutions as they can be developed in unfavourable conditions where agricultural production would either rapidly degrade the land or otherwise would not be possible.
>
> Unruh 1995

No.	Key messages	Policy implications
1	Agroforestry in the mountains offers multiple benefits, addressing deforestation and degradation, poverty, food insecurity and climate change.	Agroforestry in the mountains will likely benefit from forestry and agricultural policies that support diversification on farms and agroforestry integration in forest zones.
2	Farmers practising agroforestry as a form of subsistence farming often find it financially unattractive compared to annual crops or exotic timber plantations.	Along with secure land and tenure rights, the keys to agroforestry development are enhanced access to quality planting material extension services and markets.
3	Disincentives occur at every stage of agroforestry development, from poor access to inputs through weak management to poor marketing of agroforestry products and derived ecosystem services.	Agroforestry must be seen as a part of sustainable landscape management in mountain ecosystems rather than as just a technical solution.
4	Forest policies tend to favour either strict forest conservation or monocultural plantations of exotic, commercial tree species.	Cross-sectoral coordination is needed to catalyse agroforestry development in mountainous areas.
5	The ecosystem benefits of agroforestry, such as water regulation and agro-biodiversity, are often undervalued or overlooked in many incentive mechanisms.	Incentive mechanisms must account for the public ecosystem goods and services provided.
6	A 'land-sharing' strategy is urgently needed to address multiple needs.	A land-sharing strategy requires multi-sectoral coordination that removes institutional barriers.

Findings

1. Agroforestry addresses land and forest degradation but forest-conservation policies impede development

Southeast Asia's mountainous region (land above 300 m) covers about one-half of the mainland in Lao PDR, Myanmar, Cambodia, Thailand and Viet Nam (Fox et al 2014). In the Philippines, mountains occupy 17.5 million hectares, or 59% of total area.

Mountain forests are important resources for millions of people but face serious challenges with the environment and livelihoods owing to unsustainable farming and other development. Losses of soil, forests, biodiversity and income opportunities are widespread.

Mountain communities often use agroforestry to secure food supply and diversify income yet forest-conservation policies regulate tree seedlings and nurseries, harvesting and sale of trees and products and prohibit swiddening and crop production. This discourages farmers from growing trees on cultivated land and agroforests on land designated as 'forest'. There is a lack of policy for coordinating agroforestry development.

2. Bottlenecks to agroforestry development

A. Lack of tenure

Devolution of rights to land and trees has been much slower in forestry than in agriculture. Most forest land is still owned by governments although much has either no tree cover or is already under agriculture. For example, 5.7–6 million hectares of forest land is being cultivated in the Philippines (Fortenbacher and Alave 2014). In Indonesia, 33 million of the total 133 million hectares of the official Forest Zone has no forest cover (Contreras-Hermosilla and Fay 2005). A considerable part of Indonesia's closed-canopy forests are actually agroforests, illegal within the Zone, that have been planted by local farmers (van Noordwijk et al 2003). A lack of tenure discourages farmers from making a long-term investment like agroforestry. Providing tenure to land and trees can be an important incentive for adopting agroforestry. According to a study by Schwarz (2012) in the uplands Leyte Province, the Philippines, tenure increased the extent and number of trees on plots by more than 180% than those without, and plots with tenure also had a higher number of distinct trees.

B. Lack of access to high-quality planting material

Most forestry departments are mandated to supply germplasm (seeds and seedlings). However, unlike agricultural extensionists (advisory staff), foresters can lack understanding of what farmers need. Further, farmers' knowledge of seed collection, propagation and multiplication is often poor, even for native trees (Place et al 2012). Farmers generally grow indigenous species on a small scale, often transplanting naturally-regenerated seedlings (van Noordwijk et al 2003). Privatisation of germplasm supplies to increase farmers' access has not been well developed (Place et al 2012).

C. Lack of advice leads to poor management of agroforests

In ASEAN Member States there are no specific institutions responsible for agroforestry. There is little or no coordination between organizations promoting agroforestry. Agroforestry advice from extension agencies is often hampered by shortages not only of training in agroforestry for staff but also the resources to then train farmers (Place et al 2012). Farmers who want to learn agroforestry turn to other sources, such as television or neighbours. In many mountains, farmers have rarely seen an extensionist (Mai et al 2005, Fortenbacher and Alave 2014, Catacutan and Naz 2015).

D. Poor access to markets for agroforestry products

Poor access to markets is a common constraint to agroforestry development but is more challenging in mountains because of remoteness, poor roads and a lack of processing facilities. For example, less-developed physical infrastructure and support services have deterred farmers in Lao PDR and Viet Nam from integrating rubber and other cash crops with swiddening as has been done in Malaysia and Indonesia (Rasul and Thapa 2003).

Other causes of market problems—such as price fluctuations, poor handling by traders or lack of markets—can be addressed through collective marketing, which helps meet demand, reduces the cost of moving products to markets and increases bargaining power (Catacutan et al 2008). But such development has been hindered by a lack of recognition of customary rules and of supporting legal and institutional frameworks.

3. Lack of incentives for agroforestry's environmental services

Most mountains are designated for biodiversity conservation and watershed protection. The main justification for government control of these forests is that they generate 'externalities,' that is, effects that may be desirable for society but not of interest to private owners (Contreras-Hermosilla and Fay 2005). Agroforestry can help to conserve biodiversity (Swallow et al 2006), protect watersheds for both up- and downstream users, rehabilitate soil (Lal 1990, Place et al 2012) and sequester carbon (Unruh 1995, van Noordwijk et al 2003). However, there is almost no market for environmental services wherein agroforestry is the key land use (Unruh 1995, Schoenberger and Ruark 2003, Place et al 2012). It is important to create markets for environmental services or to develop mechanisms that compensate land users for investing in agroforestry.

4. The need for land sharing

Land-use strategies are dominated by a 'segregated' approach wherein forestry and agriculture are developed separately (see no. 1 in this series). Farmers must pursue a relatively risky strategy for their livelihoods of unsustainably intensifying agriculture, leading to land degradation and yield decline.

Forest-protection policies have seen large reductions in production (Angelsen 2010). This trade-off has been intensified by programs for biodiversity conservation or upland cash crops, such as rubber (Fox et al 2014). To reconcile development and conservation and to achieve multifunctional landscapes (van Noordwijk et al 2011), a land-sharing strategy—inherent in agroforestry—should be urgently considered (Figure 1).

BOX 1. What is land-sharing?

Land sharing is a 'mosaic' land-use strategy where trees and natural vegetation can be planted on or next to farms (agricultural crops) to improve environmental and economic benefits without sacrificing agricultural land for forest restoration and conservation.

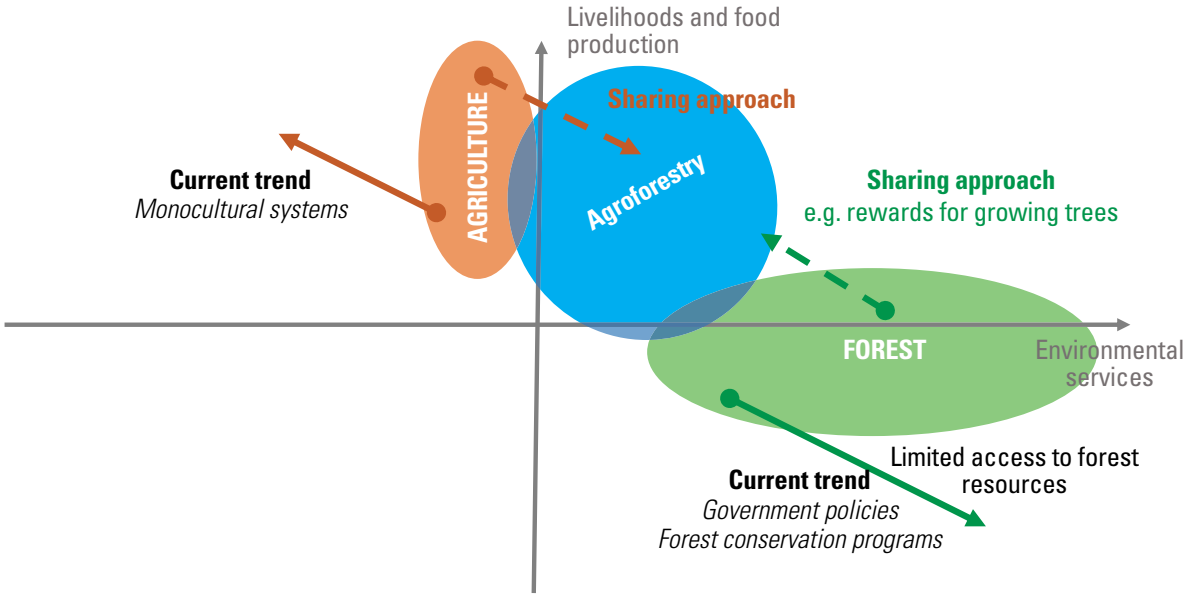

Figure 1. Desirable pathway for the mountains of Southeast Asia

5. Regional policies and coordination: a new hope for agroforestry development in mountainous areas

Most of the obstacles mentioned above have been a persistent issue amongst ASEAN Member States due to lack of political will and/or efficient coordination mechanisms to support agroforestry development. Fortunately, regional frameworks exist and can serve as vehicle to raise the profile of agroforestry in the region. The Strategic Plan for ASEAN cooperation in the Food, Agriculture and Forestry sector (2016–2025) sets out a vision of a competitive, inclusive, resilient and sustainable sector wherein agroforestry is both a measure and a target. For instant, the Plan's Strategic Thrust 4 (Increase resilience to climate change, natural disasters and other shocks) specifically recommends pro-agroforestry actions: expand resilient agroforestry systems where ecologically and economically appropriate. Bottlenecks to agroforestry adoption can be partly removed by regional policies, for example, the Master Plan for ASEAN Connectivity commits to accelerate the free flow of goods within the ASEAN region by eliminating barriers to merchandise trade (Strategy 5) thus paving the way to expand markets for agroforestry products. There are also opportunities for increased recognition of ecosystem services delivered by agroforestry practices through regional collaborations, such as through the Paris Agreement (Nationally Determined Contributions/NDCs). At least seven of the ASEAN Member States have their agricultural sectors included climate-change mitigation targets. Lao PDR even specifically emphasises agroforestry in the context of adaptation and mitigation (Richards et al 2015). All of these highlight the central role of ASEAN as a regional coordination body for an integrated food, agriculture and forestry sector, in general, and agroforestry development, in particular.

Photo: World Agroforestry Centre/Nguyen Minh Duc

Conclusion

Agroforestry brings not only direct benefits for livelihoods and the environment in mountains but also indirectly to lowlands. It improves adaptive capacity through diversification and spread of production risks and also mitigates climate change. Lack of recognition of the benefits of agroforestry and a shortage of government support miss opportunities for sustainable development.

Recommendations

1. Provide mountain communities with secure land tenure and greater access to markets and agroforestry inputs, especially, information, extension services and high-quality planting material.
2. Develop an ASEAN Agroforestry Strategy—with linked policies in member states—that overcomes the limitations of sectoral approaches.
3. Strengthen agroforestry-related frameworks and mechanisms for cross-sectoral dialogue and coordination within ASEAN.
4. Develop the capacity of agriculture and forestry extension workers to better transmit agroforestry technologies.
5. Recognise the contribution of agroforestry in providing ecosystem services and include it in incentive schemes.
6. Adopt a land-sharing approach.

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ASEAN Working Group on Social Forestry (AWG-SF) is government-initiated network that aims to strengthen social forestry in Southeast Asia through the sharing of information and knowledge. AWG-SF established by the Association of Southeast Asian Nations (ASEAN) Senior Officials on Forestry (ASOF) in August 2005, linking government forestry policy makers directly with the civil society organizations, research organizations, academia, private sector, and all of whom share a vision of promoting social forestry policy and practices in ASEAN.

The **ASEAN-Swiss Partnership on Social Forestry and Climate Change (ASFCC)** is a Partnership Programme of ASEAN that aims to contribute to the ASEAN Mandate and Policy Framework through support for the ASEAN Working Group on Social Forestry and the ASEAN Multi sectoral Framework on Climate Change towards Food Security.