POLICY BRIEF

Swidden-fallow agroforestry for sustainable land use in Southeast Asia

AWG-SF
ASEAN Working Group on Social Forestry

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

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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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Regrowth on swidden in Palawan, Philippines

Photo: Wolfram Dressler

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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
NDC	Nationally Determined Contributions
REDD+	Reducing emissions from deforestation and forest degradation

Swidden agricultural systems alternate annual food crops and perennial vegetation in a deliberate manipulation of natural vegetation successions. These systems are still widely used by farmers throughout Southeast Asia's uplands and forest margins, sustaining a range of social and ecological services. The swiddening process is often combined with agroforestry systems, where abandoned fallows are planted with a variety of useful trees that can merge into forest ecosystems. These agroforests are integrated with farming systems and are a proven strategic option for smallholders, contributing to food security and diversification of production and incomes. This improves economic resilience while providing effective carbon sinks and essential environmental services. However, governments in the region have often preferred to support the rapid expansion of specialised monocultural systems rather than encouraging a gradual evolution.

No.	Key messages	Policy implications
1	Governments in the region generally view swiddening as destructive: a major cause of forest fires, deforestation and degradation of soil and water resources. Swidden is considered to be inefficient and unable to raise living standards compared to modern, intensive agriculture.	Swidden practices provide multiple benefits within multifunctional landscapes and policy needs to capture this perspective.
2	Fallow land is perceived by governments as abandoned and unable to provide direct economic benefits. Such land is not distinguished on maps nor recognised as part of agricultural landscapes.	Policies need to recognise fallow land as an economically productive land-use type that provides substantial ecosystem services.
3	In traditional swidden systems, cultivating fallow through agroforestry is a diversification strategy for farmers that reduces the risk of food and economic insecurities.	Agroforestry in swidden systems allows farmers more independence from market trends while increasing their economic resilience; policy support is needed to stimulate investments by swidden farmers.
4	Swidden-fallow agroforestry systems allow for permanent sustainable land use without burning and soil depletion. They provide effective carbon sinks and essential environmental services.	Effective policy needs to recognise the ecological, economic and social functions of swidden-fallow agroforestry systems.
5	Anti-swidden farming policies have undermined the practice of cultivating fallows and have driven a rapid transition to monocultural tree-and-crop systems and plantations rather than supporting the gradual evolution of the swidden systems.	A supported transition to agroforestry systems will ensure the optimisation of production, income and environmental benefits.

Photo: World Agroforestry Centre/Noviana Khususiyah

Photo: World Agroforestry Centre/Noviana Khususiyah

Swidden-fallow agroforests

Swiddens are often used to grow staple food for local consumption and rarely produce surpluses for sale. Cultivating fallow land is a community strategy that complements other subsistence-farming practices. It plays a determining role in the farm economy not only through a regular cash flow from traded commodities but also as a risk buffer in times of stress through food and dietary diversity (Michon 2005, van Noordwijk et al 2008).

Agroforests are often part of swidden systems. Fallow land is planted with a variety of useful trees that are frequently integrated with forest ecosystems.

In Indonesia, communities plant fruit, rubber, coffee, cocoa and rattan that create diverse agroforests on managed swidden fallow. While resembling forests, these agroforests are fully integrated with local farming systems.

In the Philippines, smallholding plantations that allow substantial spontaneous regeneration are in decline but naturally-regenerated, swidden-fallow secondary forests help check build-up of pests, diseases and weeds, serve as grazing and browsing land, as shelterbelts and as sources of fuel wood, food and medicinal plants (Lasco et al 2001).

In Viet Nam, agroforestry has been a feature of agricultural and forested landscapes since before the modern era but scientific research only began in the early 1970s, which led to adaptation of some of the customary systems, particularly, agroforestry swiddens and introduction of new systems, such as alley cropping, boundary planting and 'taungya'[1] (Snelder and Lasco 2008).

Findings

1. Conversion of swidden fallows

Important transitions occur in swidden systems when the economic value of the tree products increases—for example, rubber and coffee—and when cash crops are added to food crops. When these transitions work effectively, cash crops permanently replace the swidden. However, rather than a gradual evolution, government support has focused on a rapid transition to permanent food cropping or specialised, monocultural tree-and-crop systems and plantations (van Noordwijk et al 2008, Schmidt-Vogt et al 2009). For instance, in Indonesia, communities turn fallow into oil-palm plantations. Swidden is also declining owing to a progressive shift from farm to off-farm activities, including mixed forms of commercial agriculture (in fallow or fixed plots), and/or completely non-agricultural employment (Ziegler et al 2011).

Although commercial agriculture allows former swidden farmers to earn more money and have more access to health and education, the vulnerability to economic loss through crop failure or market

reversal increases with specialisation. Diversification of production and income streams improves farmers' economic resilience. This can be achieved by supporting a gradual evolution of fallow land that involves rehabilitating existing swidden-fallow agroforests and degraded fallows rather than promoting monocultural systems.

2. Insecure tenure

Throughout Southeast Asia, governments have exerted control over most of the forests. Yet, swidden land does not appear in forestry statistics even though it is governed by forestry regulations. Most governments do not recognise swidden fallow as part of the agricultural landscape but rather classify fallow as degraded forest or abandoned land. Although fallow covers several million hectares, it is not mentioned in land-use categories. Communities living in state forest domains have rarely been able to receive any official tenure rights to the land they manage. Agroforests and less-managed fallows are still inconsistently distinguished on government maps. The legal inability to access fallow classified by the State as forest forces farmers to illegally reopen their fallow fields or to practise permanent cultivation.

Example from the Philippines

In the Philippines, anti-swidden discourses have supported laws, policies and practices that have sought to criminalise and eradicate swidden practices. In the uplands, wealthier domestic migrants with secure title have been able to expand wet-rice cultivation while poorer, indigenous communities have been left to cultivate swidden on right-of-use plots. As a result, migration to the uplands has led to the increased socioeconomic marginalisation of indigenous groups (Suarez and Sajise 2010) and a related negative environmental impact from intensification. Even among the various indigenous groups, the pressure to increase productivity in response to increased population results in the low sustainability of their swidden systems.

Photo: World Agroforestry Centre/Prasit Wangpakapattanawong

3. Sustainable swidden-fallow agroforests

Traditional swidden systems function differently from the way domestic migrants and agribusinesses use land, that is, replacing forests with annual and perennial crops without committing to sustainability.

Complex swidden systems of agriculture and forestry combine cultivated fields and diverse, secondary agroforests, yielding a wide range of ecosystem services that are integral to the wellbeing and livelihoods of the people and the sustainability of the environment. They are a major conserver of varieties of useful, endemic plants and wildlife.

These systems can be seen as superior to traditional agriculture because, despite low yield per unit area, they protect the soil and require no inputs based on expensive and harmful fossil energy, such as commercial fertilisers, herbicides or insecticides (Suarez and Sajise 2010, Dressler et al 2014).

Swidden-fallow agroforestry, in contrast to commonly-used shifting cultivation and monocultures, allows for permanent land use without burning or risk of soil depletion. The system is an effective restoration method used to convert degraded land into productive and sustainable areas. By using natural-succession dynamics[2], pioneer species are supported to colonise and recover open sites.

Intensive cropping systems that replace swidden also contribute to an overall reduction in total carbon stock (Ziegler et al 2010). International policy debates related to REDD+ have supported the role of mixed forest landscapes that provide ecosystem services in a mosaic of smallholders' land uses, including swidden and agroforestry. Despite this, global forest-governance initiatives and national governments continue to press for the replacement of swidden with other land uses, considering it destructive of forests, weak on improving livelihoods and a higher emitter of greenhouse gases than other land uses. However, agroforestry systems provide effective carbon sinks in above- and belowground biomass.

4. Sustainable transition

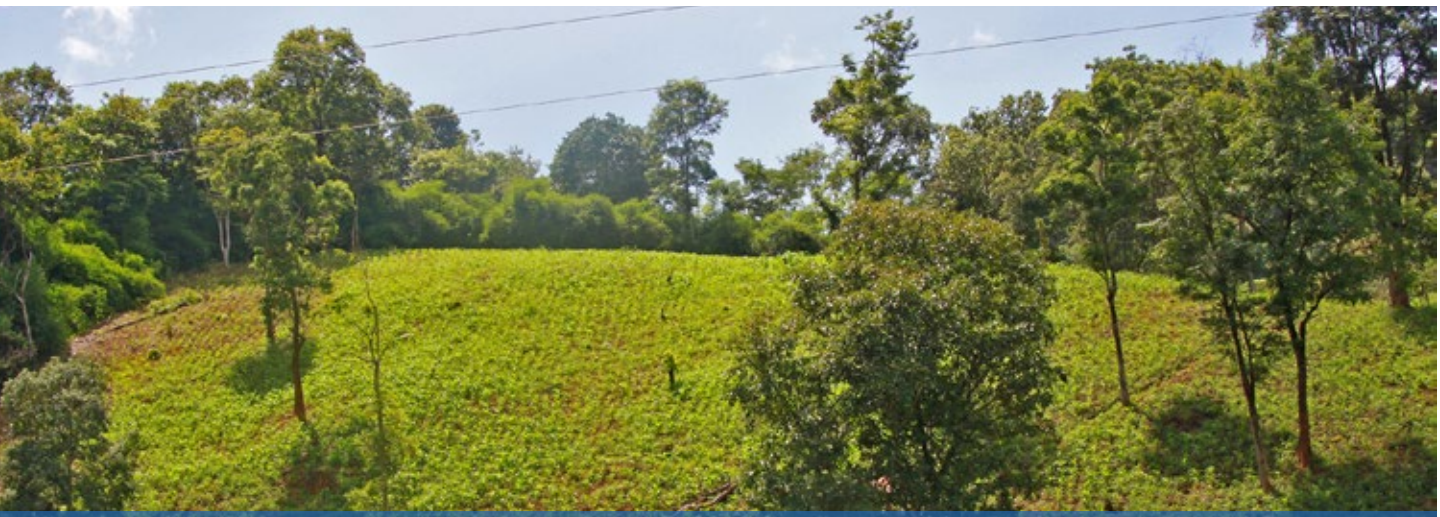
As major land-use transitions continue in Southeast Asia, there is considerable uncertainty about the impact that alternative land uses—particularly, intensified systems, crop rotations and protected forests—have on the security of livelihoods and ecosystem services compared to existing swidden systems (Dressler et al 2014).

Moving from swidden systems to other land uses could negatively affect biodiversity and soil fertility because land is used more intensively (Cruz 2015). Farmers could also experience a negative impact on their food security, access to land and cultural identity. Transition via a gradual evolution to agroforestry systems, therefore, holds great potential for improving swidden practices and offers an alternative option to highly specialised, monocultural tree-and-crop systems.

	Specialised monocultural systems	Swidden-fallow agroforests
Strengths	Farmers' economic welfare increased through specialisation.	• Diversity of production improves farmers' resilience, complements subsistence and improves diets. • Maintains essential ecosystem services. • Allows for permanent land use and provides effective carbon sinks.
Weaknesses	• Farmers more vulnerable to economic losses through crop failures or market reversals. • Replaces forest without committing to sustainable land use. • Uses expensive and potentially harmful fossil energy (fertilisers, pesticides, herbicides).	• Potential not optimised and underutilised. • Perceived as abandoned or degraded land.
Opportunities	Policies that support rapid expansion.	Gradual evolution for the rehabilitation of degraded fallow land.
Threats	• Low environmental sustainability. • Decrease in production over time through soil depletion.	• Not mentioned in land-use categories. • Weak tenurial security and lack of recognition. • Rapid transition to permanent cropping or specialised monoculture.

Figure 1. Strengths, Weaknesses, Opportunities and Threats analysis of specialised monocultural systems versus swidden-fallow agroforestry systems

Photo: World Agroforestry Centre



Maize in swidden area | Photo: World Agroforestry Centre/Mr.Sarun Jit-aree

Recommendations

In view of the strategic thrusts of the ASEAN Food, Agriculture and Forestry sector, ASEAN Member States could undertake a number of actions.

- Deploy policies that promote swidden-fallow agroforestry systems using succession dynamics to restore underused, degraded fallows as part of sustainable land and forest management.
- Expand agroforestry on fallow land and report as a nationally appropriate action and nationally determined contribution to mitigating climate change (NAMA and NDC).
- Build capacity, provide technical assistance and financially support swidden farmers to develop agroforestry systems. Provide access to quality germplasm, raise knowledge of tree management, and increase skills and information.
- Support the development of inclusive value chains for agroforestry products, providing adequate market information while linking swidden farmers with markets and promoting regional integration.
- Secure the tenurial rights of swidden farmers over swidden land through state-sponsored incentives (for example, community-based forest management) and agrarian reform, with the aim of encouraging long-term investment in agroforestry.

End notes

1. The term means 'hill' (taung) 'cultivation' (ya) and was coined in Myanmar in the 1850s by Sir Dietrich Brandis (1824–1907), a German forester who worked with the British Imperial Forestry Service in then Burma. Under taungya systems, farmers were allowed to grow crops in newly-established plantations (Watson 2013).
2. In nature, plant associations succeed one another in a dynamic, continuing process called 'natural succession' (Goetsch 1992). Natural-succession dynamics are the observed natural processes of change in species' structure, for example, after a fire.

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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.