



ASEAN GUIDELINES FOR AGROFORESTRY DEVELOPMENT

ASEAN SENIOR OFFICIALS ON FORESTRY
2018



one vision
one identity
one community



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2018

The ASEAN Secretariat
Jakarta

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ASEAN: A Community of Opportunities for All

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FOREWORD

The ASEAN Guidelines for Agroforestry Development is an important milestone towards increasing the prosperity, connectivity, resilience and security of the peoples of ASEAN Member States. Taken as a whole, the Guidelines form a framework in which development can take place.

The Guidelines are an outcome of the Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry 2016–2025 that was endorsed by the ASEAN Ministers of Agriculture and Forestry in 2016. That endorsement led to a decision to develop guidelines for the development of agroforestry in ASEAN Member States, through an extensive consultation process across the region with stakeholders not only from agriculture and forestry but also other sectors, such as climate change, energy and water.

We anticipate that the Guidelines will foster multi-sectoral cooperation and coordination amongst different sectors (land, economic, water, energy, agriculture, forestry, food, livestock, fisheries) within ASEAN Member States. We also expect that the Guidelines will stimulate the development of focused policies and programs for agroforestry in

Member States that will contribute to improving the livelihoods and increasing the asset-base of millions of farmers in the region as well as the supply of food that they produce while also improving the environment and increasing the sector's resilience to the vagaries of extreme events resulting from a changing climate. Further, we expect that the Guidelines will foster even greater collaboration between Member States in sharing technical and policy developments, promoting increased trans-border trade in agroforestry products and bolstering the enhancement of ecosystem services. All of which will support closer and quicker integration in keeping with the vision of the ASEAN Economic Community.

ASEAN appreciates the technical assistance of the World Agroforestry Centre (ICRAF) and the Food and Agriculture Organization of the United Nations (FAO) which facilitated the process, in collaboration with a wide range of partners from national government agencies, international, regional and national research and academic institutions, non-governmental organizations, and civil society groups. We are grateful, too, for the leadership, foresight and

collaborative spirit of the ASEAN Working Group on Social Forestry and the technical support provided by the ASEAN-Swiss Partnership on Social Forestry and Climate Change program, itself supported by the Government of Switzerland. We also thank the Mekong Expert Group on Agroforestry for Food and Nutrition Security, Sustainable Agriculture and Land Restoration, which is part of the Swedish International Agriculture Network Initiative, for their consistent

support for, and input to, the process. Last but not least, we acknowledge that without the aspirations and leadership of the ministries of Member States, these Guidelines would never have come to fruition.

With such a wide-ranging group of contributors and supporters in both government, non-government and civil society, I am confident these Guidelines will assist in accelerating ASEAN-wide adoption of agroforestry and all the benefits that will follow.

***ASEAN Senior Officials on Forestry
(ASOF)***

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The Secretariat of the ASEAN-Swiss Partnership for Social Forestry and Climate Change also deserve our gratitude for coordinating the partners' contributions to the Guidelines.

We would also like to thank the more than 100 people from ASEAN Member States, including policy makers, farmers' groups and cooperatives, community-based forest management groups, practitioners, technical experts and researchers, who participated in the initial consultation held at the 7th ASEAN Working Group on Social Forestry conference in Chiang Mai, Thailand, 12–14 June 2017. The consultation focused on the purpose and general contents of the Guidelines, setting the

ground for subsequent development. Last but not least, we express our warm thanks to the World Agroforestry Centre (ICRAF) for leading the preparation of the Guidelines and coordinating the technical contributors, peer reviewers and advisors.

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CHAPTER 1

BACKGROUND AND SCOPE OF THE GUIDELINES

The Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry 2016– 2025, as endorsed by the 38th ASEAN Ministers of Agriculture and Forestry meeting in 2016, aims to ensure that, ‘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.’

Recognizing the contribution of agroforestry in achieving food security, enhancing climate-change adaptation and mitigation, and reducing land degradation; to many of the Sustainable Development Goals; and in an effort to strengthen links between forestry and food production through an integrated approach to landscape management as well as enhancing sustainable forest management, the 20th ASEAN Senior Officials of Forestry meeting agreed to develop ASEAN guidelines on agroforestry. The 39th ASEAN Ministers

of Agriculture and Forestry meeting adopted the recommendation to develop the guidelines as one of the key deliverables of ASEAN cooperation in forestry in 2018.

The World Agroforestry Centre¹ was requested through the ASEAN Working Group on Social Forestry to prepare — together with the Food and Agriculture Organization of the United Nations (FAO) and the partners² of the ASEAN-Swiss Partnership for Social Forestry and Climate Change project — a set of guiding principles in support of agroforestry development in ASEAN Member States. The guidelines are deemed necessary to achieve

1 The World Agroforestry Centre is a member of the CGIAR, a global partnership for a food-secure future, and a partner of the ASEAN-Swiss Partnership for Social Forestry and Climate Change project.

2 Center for International Forestry Research, RECOFTC: The Center for People and Forests, Non-Timber Forest Products-Exchange Programme, and the Southeast Asian Regional Center for Graduate Study and Research in Agriculture.

the ASEAN Food, Agriculture and Forestry Sector's Vision and Strategic Plan, particularly Strategic Thrust 4, 'Increasing resilience to climate change, natural disasters, and other shocks', and Action Programme 5, pertaining to the 'expansion of resilient agroforestry systems where they are ecologically and economically appropriate'.

Consultations with many stakeholders, including researchers, academics, practitioners, technical experts, forestry-agriculture-environment sector representatives from national governments, and farmers' associations, were facilitated since June of 2017. The authors and contributors would like to emphasise that the Guidelines are designed to ensure that agroforestry development is based on the unique contexts of ASEAN Member States. Individual Member States' socio-economic, policy and environmental conditions will need to be given equal consideration in the design of any agroforestry intervention.

The Guidelines are intended to be applicable to all types of land or ecosystems targeted for agroforestry interventions within ASEAN Member States, whether forests, farms, watersheds, uplands, lowlands, coasts, wetlands or peat. It is not a technical guideline for establishing agroforestry but, rather, a framework

for facilitating dialogue in the design of agroforestry policies, programs, projects and investments between, and within, ASEAN Member States. Implementation of the Guidelines is voluntary and neither add to, nor replace existing formal regional agreements or treaties, national laws and policies, but align with the ASEAN Multi-Sectoral Framework on Climate Change: Agriculture and Forestry towards Food Security³, and all other ASEAN sectoral guidelines relevant to agroforestry⁴.

The principles and guidelines described in this document, although intended for ASEAN Member States, represent a broad philosophy that can be adopted by States outside ASEAN.

3 The Multi-Sectoral Framework on Climate Change was developed under the purview of the ASEAN Senior Officials Meeting on Agriculture and Forestry, to provide the mechanism for coordinated action to address threats to food security from climate change. It focuses on the agriculture, fishery and forestry sectors, and aims to pursue a cross-sectoral approach for effective policy-making and implementation

4 ASEAN Regional Guidelines for Promoting Climate-smart Agricultural Practices; ASEAN Guidelines on Gender; ASEAN Guidelines on Responsible Investment.

CHAPTER 2

OBJECTIVES OF THE GUIDELINES

- 1) Promote the role of agroforestry in simultaneously achieving economic, environmental and social outcomes at farm, household and landscape levels.
- 2) Guide the formulation of agroforestry policies, strategies and programs of ASEAN Member States and private-sector investments, as well as higher education agroforestry curriculum and programs.
- 3) Help ASEAN Member States achieve their targets related to food security, 'green' or sustainable growth, reduction of greenhouse-gas emissions, land restoration, watershed protection, gender equality, social/community forestry, climate-change adaptation and mitigation and, more generally, the Sustainable Development Goals.
- 4) Strengthen partnerships among ASEAN Member States through joint action on agroforestry development.

CHAPTER 3

INTENDED USERS

The intended primary users of the Guidelines are ASEAN Member States' policy makers and, secondarily, program and/or project planners at national and sub-national levels, domestic and foreign investors, institutions for higher learning,

and local and international non-governmental organizations involved with agroforestry and development. The Guidelines can be also used by civil society groups for advocacy purposes.

Agroforestry is the interaction of agriculture and trees, including the agricultural use of trees. This includes trees on farms and in agricultural landscapes, farming in forests and at forest margins, and tree-crop production. Interactions between trees and other components of agriculture such as livestock, fish and aquatic species is important at a range of scales: in fields (where trees and crops are grown together), on farms (where trees may provide fodder for livestock, fuel, food, shelter or income from products, including timber) and landscapes (where agricultural and forest land-uses combine in determining the provision of ecosystem services). At national and global scales, forestry and agriculture interact ecologically and through policies relating to land use and trade and are important with respect to climate change and other environmental concerns. Agroforestry embraces an agro-ecological approach emphasising multi-functionality and the management of complex systems and polycultures rather than focusing exclusively on monoculture. The word 'tree' is used inclusively to refer to trees and shrubs, all woody perennials, palms and bamboos. Similarly, the word 'agriculture' is used inclusively to refer to a human activity carried out primarily to produce food, fibre and fuel by the deliberate and controlled use of plants, animals and aquatic species. Agroforestry has proven benefits in areas of food security and family nutrition, energy supply from fuel wood, climate-change adaptation and mitigation, watershed regulation, land restoration, and agri-biodiversity

improvement, among others. Agroforestry also helps farmers spread economic and environmental risks, providing important income sources for rural households, especially in the face of climate change. Farmers in Southeast Asia have for a long time practised agroforestry and the types of agroforestry can be distinguished by their origin in the region (Annex 2).

The importance of forests for the health of the planet is well acknowledged but trees outside forests also have a vital role to play in landscape restoration and in achieving ambitious international and national targets in areas dominated by agriculture. There are many ways to rehabilitate degraded landscapes but few can restore biodiversity and ecosystems while also delivering food and nutrition security, income and other ecosystem services through engaging and empowering local communities in the way that agroforestry does. When used as a tool for **forest and landscape restoration**, agroforestry can enhance physical, chemical and biological soil characteristics thereby increasing soil organic matter and fertility, enhancing nutrient cycling, controlling soil erosion and regulating water. The restoration of degraded landscapes with agroforestry can increase the resilience of communities to shocks, including drought and food shortages, and help adapt and mitigate climate change (FAO 2017).

Today, agroforestry is increasingly recognized as a means to achieve many international conventions, frameworks and targets that ASEAN Member States are all committed to (Annex 3). Among others, the Paris Agreement that came into force on 4 November 2016 provides a global framework for advancing agroforestry because trees in forests and on farms are central to climate-change mitigation and adaptation. Because of trees' capacity to sequester carbon, agroforestry can contribute to achieving ASEAN Member States' Nationally Determined Contributions. Agroforestry can also be instrumental in reaching the Sustainable Development Goals, helping to eradicate hunger, reduce poverty, support gender equity and social inclusion, provide affordable and cleaner energy, protect life on land, reverse land degradation and combat climate change (Annex 2).

CHAPTER 4

GUIDING PRINCIPLES

The guiding principles are interlinked, representing a broad philosophy that guides the development of agroforestry interventions (for example, policies, programs, projects and business investments) throughout ASEAN Member States, in all circumstances, irrespective of changes in their goals and strategies. This section provides key guidelines for each principle.

4.1. Institutional principles

Principle 1: Create an enabling environment

Considering the lack of clear institutional home for agroforestry in many countries in Southeast Asia, it is important to provide an enabling institutional and policy environment within which the development of agroforestry policies, programs and investments can be facilitated. In all circumstances, principles of good governance adopted by different sectors including FAO's responsible governance of tenure of land, fisheries and forests (transparency, equity,

accountability, inclusive)⁵ must be adhered to, at all levels of planning, decision-making and implementation of agroforestry interventions. The guidelines include, but are not limited to, the following.

Guideline 1.1. Abide with existing international and regional treaties, frameworks, agreements, strategies and programs when developing agroforestry programs, projects or policies.

Guideline 1.2. Examine national laws, regulations, strategies and programs with respect to agroforestry and formulate new, or amend existing, policies to ensure the development of agroforestry has clear policy and legal support.

Guideline 1.3. Establish an institutional 'home' for agroforestry. Assess existing

⁵ Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security: <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>

institutional structures and assign a suitable, or create a new, institution with relevant ministries in ASEAN Member States in charge of agroforestry development with duties, roles and responsibilities clearly defined.

Guideline 1.4. Develop national agroforestry programs, strategies or road maps and support development at sub-national and local levels.

Guideline 1.5. Provide enabling conditions and procedures that encourage and reward adoption of agroforestry, such as security of land tenure, enhanced market access and improved infrastructure.

Guideline 1.6. Explore different means to provide appropriate, and continuing funding to support agroforestry development.

Principle 2: Ensure effective organizational capacity

With reference to Principle 1, capacity development of the designated or newly created institution, agency or department with relevant ministries and their key partners is necessary to effectively share knowledge, transfer technologies, conduct research, provide support services and facilitate planning. Guidelines include, but are not limited to, the following.

Guideline 2.1. Strengthen the capacity of the institution in charge of agroforestry and its partners at national and sub-national levels to effectively deliver knowledge and skills, provide technical guidance, facilitate participatory planning and decision-making at various levels, and monitor results and impacts.

Guideline 2.2. Identify and mobilize individual and institutional experts to enhance technical capacity for agroforestry development at various levels.

Guideline 2.3. Enhance national research capacity to conduct participatory agroforestry research and link knowledge to policy through direct engagement in policy and planning processes.

Guideline 2.4. Enhance national extension capacities to facilitate knowledge and skills' transfer between, and amongst stakeholders, support dialogue, plan agroforestry programs and projects, and design agroforestry options for different contexts.

Guideline 2.5. Strengthen collaboration for research and outreach between national research and extension systems and international research and development organizations, including academe.

Guideline 2.6. Encourage agroforestry education by providing support to colleges and universities in developing agroforestry curricula through existing networks of higher education in the region.

Guideline 2.7. Identify specific needs of different stakeholders and provide tailored support services for the various needs of large landholders (concessionaires, corporate farms) and smallholders⁶.

Principle 3: Support effective cooperation and participatory decision-making

Taking into consideration the multifaceted nature of agroforestry, its evolving concepts and interfaces with agriculture, forestry and other land uses; its landscape-level interactions and links to other sectors (for example, livestock, energy, aquaculture, water, climate change, and rural livelihoods), a landscape approach to planning agroforestry interventions and inter-sectoral cooperation and integrated decision-making, as outlined in the ASEAN Multi-Sectoral Framework on Climate Change: Agriculture and Forestry towards Food Security, are needed for effective development of agroforestry. Guidelines include, but are not limited to, the following.

⁶ Support services could include training in various technical aspects of agroforestry, post-harvest techniques, marketing, credit and financing.

Guideline 3.1. Promote participatory approaches and participation of all stakeholders at appropriate levels of planning and decision-making for joint planning, targeting and implementation of agroforestry interventions, particularly, at smallholder level. Stakeholders could include policy-makers and planners from relevant sectors: private industry, investors, and concessionaires; researchers; non-government organizations; international donors and partners; farmers' organizations and cooperatives; indigenous peoples' or ethnic minority groups; and women's and producer groups (linked to Principle 8).

Guideline 3.2. Ensure that agroforestry interventions, and their products and services, are better understood and included in sectoral strategies.

Guideline 3.3. Design agroforestry interventions in the context of a whole landscape and in relation to future changes in climatic regimes as well as economic and policy shifts to ensure that on- and off-site, short- and longer-term impacts are considered, managed and monitored in accordance with social, economic and environmental standards adopted by ASEAN Member States (linked to Principle 11).

Guideline 3.4. Include and reconcile often divergent goals, interests and accountabilities of diverse stakeholders in landscapes targeted for agroforestry, including smallholders, small- and large-scale producer groups, community-based forestry groups, large-scale concessions, and state entities (linked to principles 8, 9, 11).

Guideline 3.5. Use spatially-explicit tools to determine areas best suited for agroforestry in a landscape, according to environmental, social and economic suitability to ensure large-scale, beneficial impact (linked to Principle 11)⁷.

Guideline 3.6. Respect, utilize and/or combine traditional knowledge systems in scientific research, planning and decision-making (linked to Principle 8).

Guideline 3.7. Ensure the contribution of agroforestry to local goals and alignment with national goals,

ASEAN frameworks, strategies and action programs, as well as international conventions, treaties, agreements, goals and strategies.

4.2. Economic principles

Principle 4: Recognise the value of goods and ecosystem services

Agroforestry provides many benefits in the form of goods and ecosystem services for markets, households and the environment. Agroforestry is often a traditional practice in which farmers act as custodians of the land, for which they should be recognized, rewarded or compensated for their long-term investments, such as through direct income from agroforestry products and/or through rewards for ecosystem services' schemes. Guidelines include, but are not limited to, the following.

Guideline 4.1. Promote all types of agroforestry goods (for example, raw commodities and products for consumption and sale) with, for example, unique branding and/or certification, such as Fair Trade or 'green' commodities, and strengthen support for smallholders to aggregate and thereby achieve economy of scale in order to benefit more from agroforestry value-chains.

⁷ For example, FAO's Sustainable Forest Management Toolbox (<http://www.fao.org/sustainable-forest-management/toolbox/tools/en/>) and the World Agroforestry Centre's Toolkits (http://www.worldagroforestry.org/output?field_type_tid=756) and Land-use Planning for Multiple Environmental Benefits (LUMENS: <http://www.worldagroforestry.org/region/sea/publications/detail?pubID=3447>)

Guideline 4.2. Respect local knowledge in the use of agroforestry products for various purposes, including for food and nutrition security, bio-prospecting and commercialization, and ensure equitable sharing of benefits between stakeholders (linked to principles 8,9).

Guideline 4.3. Provide longer-term incentives, payments or rewards for the range of ecosystem services provided by agroforestry that are essential to watershed functions, land restoration, carbon sequestration and biodiversity enhancement, most of which are public goods (linked to Principle 6).

Guideline 4.5. Integrate agroforestry data into global, regional and national databases, for example, trees on farms, agroforestry typologies and carbon, disaster risk reduction potential, geographic distribution, productivity, profitability and adoption profiles.

Principle 5: Enable environments for agroforestry investments and markets

Creation by ASEAN Member States of enabling environments with direct and indirect incentives encourages

corporate and smallholding investors to make longer-term investments in agroforestry. Such investments can be oriented toward markets except in the case of subsistence production in areas in which access to markets and other factors, provide high barriers. New market mechanisms may be needed but can have contradictory social and economic effects, hence, the development of enabling environments for agroforestry investments must be consistent with the ASEAN Guidelines on Responsible Investment. Guidelines include, but are not limited to, the following.

Guideline 5.1. Identify and develop financing schemes, including pro-poor credit schemes (for example, with longer payback periods and lower interest rates) to support agroforestry business models for smallholders and small- and medium-sized enterprises.

Guideline 5.2. Provide policies that support longer-term but flexible investments and land-use planning at national and sub-national levels to provide confidence to financiers to invest in agroforestry.

Guideline 5.3. Provide technical and trade promotion support to develop agroforestry value chains and create market links (linked to Principle 4).

Guideline 5.4. Provide transparent and simple procedures for processing and marketing agroforestry products to stimulate small- and large-scale investments.

Guideline 5.5. Remove economic distortions emanating from other sectors that reduce the value of agroforestry products, or which limit opportunities for agroforestry investors, especially, smallholders.

Guideline 5.6. Provide a range of direct and indirect incentives for agroforestry interventions that benefit society (linked to Principle 4).

4.3. Environmental principles

Principle 6: Maintain and enhance ecosystem services at farm and landscape scales

Agroforestry farms are often located in landscapes that serve multiple purposes at the same time. In many cases, they are in critical upland and watershed areas. Thus, agroforestry practices will, in addition to producing goods, have an impact on the provision of multiple ecosystem services. Because of this, agroforestry development should ensure that ecosystem services emanating from

these landscapes are conserved, restored or improved. Careful planning and proper management of agroforestry should be promoted to achieve targeted ecological benefits without undermining economic and other benefits. Guidelines include, but are not limited to, the following.

Guideline 6.1. Ensure that agroforestry interventions are planned with the purpose of achieving multiple benefits simultaneously — economic, social and environmental — at various scales from farm through to landscape levels (linked to principles 3, 11).

Guideline 6.2. Recognise and assess positive impacts of agroforestry in the maintenance and enhancement of ecosystem services, including in the restoration of forest and landscape functions, rehabilitation of degraded land, abatement of soil erosion, mitigation of climate change, and combating of desertification (linked to principles 4, 11).

Guideline 6.3. Conduct environmental impact assessments before implementing large-scale agroforestry interventions, including establishing baselines by which to monitor effects on ecosystem services.

Guideline 6.4. Facilitate a comparable biodiversity gain to compensate for any losses or unavoidable damage caused by the development of agroforestry after having applied mitigation measures.

Guideline 6.5. Develop and implement standard operational field practices in the establishment and management of agroforestry interventions to ensure their contribution to ecosystem services (linked to principles 11, 12).

Principle 7: Understand and manage trade-offs

A trade-off is a balancing of benefits that are not attainable at the same time. Understanding and managing trade-offs is of particular importance when introducing agroforestry where trees, crops, fish and livestock are integrated on the same land unit. Trade-offs arise both spatially in regard to the arrangement of different components in agroforestry, and temporally, for example, the integration of trees as part of a farming system may result in a longer period between investment and return. To better understand and manage trade-offs, guidelines include, but are not limited to, the following.

Guideline 7.1. Use participatory methods to understand smallholders', medium- and

large-scale and corporate farmers' decision-making both for short- and sustainable long-term production, with consideration of the needs of different household members (especially, women and youth), industry and markets (linked to principles 3, 11, 12).

Guideline 7.2. Project the magnitude of potential trade-offs and support decision-making by quantifying the economic and environmental costs and benefits of agroforestry interventions. Costs are inputs such as land, labour and financial investments whilst benefits are outputs such as trees, crops, fish and livestock products and/or ecosystem services (linked to principles 4, 6).

Guideline 7.3. Consider foregone income of farmers and investors, especially during initial years of agroforestry establishment, and seek ways and means of reducing and managing trade-offs, for example, through longer-term credit, lower interest rates, tax holidays, insurance premiums, and incentives for the provision of ecosystem services (linked to principles 4, 5, 6).

4.4. Socio-cultural principles

Principle 8: Recognise and respect local knowledge, traditions and choices

Social norms, cultural value systems, and local/traditional knowledge systems should be taken into consideration in planning and implementing agroforestry interventions. Guidelines include, but are not limited to, the following.

Guideline 8.1. Recognise and respect local, traditional or customary value systems, including indigenous knowledge and practices, of communities targeted for agroforestry interventions (linked to principles 4, 10).

Guideline 8.2. Secure local stakeholders' buy-in to major agroforestry investments through a process of free, prior and informed consent (linked to Principle 10)⁸.

Guideline 8.3. Ensure that local knowledge and choices regarding agroforestry options

(for example, tree and crop species, livestock breeds and types), purpose and practices are taken into consideration when conducting research, and during planning and decision-making (linked to principles 3, 4, 10, 11, 12).

Guideline 8.4. Recognise and address local people's unique needs for training, technology, land and resource rights, physical infrastructure, and market information, especially for indigenous peoples and ethnic minorities (linked to Principle 3).

Guideline 8.5. Establish socio-economic-cultural baselines for monitoring progress and evaluating impact as well as for compliance with social-welfare laws and investment guidelines adopted by ASEAN Member States and applicable international laws.

Guideline 8.6. Prevent displacement or alienation of local communities by major agroforestry investments (linked to principles 3, 8, 9).

⁸ FAO's *Free, Prior and Informed Consent manual*: <https://www.un.org/development/desa/indigenouspeoples/publications/2016/10/free-prior-and-informed-consent-an-indigenous-peoples-right-and-a-good-practice-for-local-communities-fao/>

Principle 9: Support gender equity and social inclusion

Social inclusion and gender equity should be taken into account when crafting policies and when planning

and implementing agroforestry interventions. These must be accessible to all types of social groups, including marginalized groups, such as indigenous peoples and ethnic minorities, as well as youth. Gender differences should be considered and gender synergies promoted in agroforestry. Implementation of the guidelines to this principle should align with the ASEAN Guidelines on Gender. Guidelines include, but are not limited to, the following.

Guideline 9.1. Acknowledge the importance of gender equity and social inclusion in decision-making, design and implementation of agroforestry interventions.

Guideline 9.2. Ensure beneficial participation in agroforestry interventions by smallholders and socially-marginalized groups, such as indigenous peoples/customary people/ethnic groups, displaced residents.

Guideline 9.3. Ensure that socially-marginalized groups benefit from, or are not adversely affected by, large-scale or corporate agroforestry investments (linked to principles 8, 10).

Guideline 9.4. Ensure that agroforestry interventions reinforce gender equity by understanding differences in gender roles,

decision-making, constraints and opportunities, and seeking to improve women's access to agroforestry opportunities (including information, technologies, financing) and associated benefits.

Guideline 9.5. Ensure that introduced agroforestry options or technologies are gender sensitive especially when it comes to the labour required from women.

Guideline 9.6. Strengthen the capacity of national research and extension systems and non-governmental organizations to undertake socially- and gender-inclusive agroforestry interventions (linked to Principle 2).

Principle 10: Ensure safeguards and tenure rights

Agroforestry interventions will most likely create tensions amongst stakeholders in areas where rights to land and natural resources are unclear. Safeguarding tenure rights is, thus, important to ensure that agroforestry interventions do not jeopardize community rights or adversely impact the social fabric and livelihoods of local communities. Guidelines include, but are not limited to, the following.

Guideline 10.1. Understand tenure rights of stakeholders in areas targeted for major agroforestry

interventions, especially, those by corporate investments⁹.

Guideline 10.2. Engage stakeholders in dialogues when planning major agroforestry interventions, respect their aspirations and rights and ensure farmers engaged in agroforestry, are not threatened or involuntarily displaced by large-scale agroforestry investments (linked to principles 3, 7, 8, 9).

Guideline 10.3. Ensure security of land-tenure rights of stakeholders involved in, and/or impacted by, agroforestry interventions to avoid social conflict and secure beneficial returns on investments.

Guideline 10.4. Ensure free, prior and informed consent of rights holders who could be adversely or otherwise affected by major agroforestry interventions, and just compensation for any unavoidable damage inflicted (linked to principles 7, 8).

⁹ A myriad of tools and manuals is available for assessment of tenure rights. See FAO's *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*: <http://www.fao.org/docrep/016/i2801e/i2801e.pdf>.

4.5. Technical design principles

Principle 11: Design agroforestry options based on context

A variety of agroforestry systems and options exist, with their success being dependent on effective designs based on local contexts linked to sub-national, national and global conditions. Achieving economic, socio-cultural and environmental benefits simultaneously is the main goal of agroforestry. Trade-offs often exist but well-designed agroforestry can simultaneously provide multiple benefits and satisfy the needs of different stakeholders. To achieve optimal benefits in agroforestry, guidelines include, but are not limited to, the following.

Guideline 11.1. Provide user-friendly, decision-support tools for stakeholders to collectively assess information, identify opportunities and constraints, and make informed choices about agroforestry options. Decision support includes information and datasets of biophysical parameters — such as topography, land use, soil, temperature and rainfall — and socio-economic statistics including gender, market information, infrastructure issues and related policies.

Guideline 11.2. Ensure that agroforestry options are selected based on the specific needs, interests or purposes of individual (smallholders, large-holders, corporations) and public (government, non-governmental organizations) stakeholders, taking into account possible changes in future climatic regimes, economic conditions and policies (linked to principles 3, 7, 8, 9).

Guideline 11.3. Design agroforestry options based on local contexts in relation to biophysical, socio-economic (including labour availability and affordability), cultural, infrastructural, market and policy conditions (linked to guideline 12.2 and principles 3, 5, 9, 10), and considering temporal (for example, rotation of trees, crops, livestock, fish) and spatial (for example, spatial arrangement of the components in the system) dimensions of agroforestry.

Guidelines 11.4. Aim for optimal benefits by ensuring agroforestry options are designed to provide economic benefits simultaneously with socio-cultural and environmental benefits, taking into consideration local contexts,

including socio-cultural conditions (linked to principles 2, 9) and the land-tenure status of direct stakeholders (linked to Principle 10).

Guideline 11.5. Ensure that selected agroforestry options are implemented in combination with applicable conservation and climate-smart agricultural technologies¹⁰, such as contour ploughing (especially on steeply sloping land), cover-cropping, mulching, ridge or zero tillage, drought-resistant varieties, and water-saving technologies.

Guideline 11.6. Provide technical guidance to ensure proper management of selected agroforestry options through training and extension material to support continuous education and lifelong learning (linked to principles 2, 6).

¹⁰ See ASEAN Regional Guidelines for Promoting Climate-smart Agricultural Practices for examples and framework of cooperation: <http://www.asean.org/wp-content/uploads/images/2015/October/ASEAN-Regional-Guidelines-on-Promoting-CSA-Practices/ASEAN%20Regional%20Guidelines%20on%20Promoting%20CSA%20Practices-endorsed%2037th%20AMAF.pdf>

Principle 12: Select agroforestry components in a participatory manner

Selecting and deciding on tree, crop, livestock and fish/aquatic components with respect to the spatial and temporal dimensions of agroforestry is crucial to success. Depending on the goals (short to medium or long term) of small-, large-holding and corporate farmers, their productive resources (land size, labour, capital) and other considerations, such as tenure and markets, the careful selection of components in agroforestry should be based on the concept: ‘The right species of trees, crops, livestock and/or fish in the right place for the right purpose’. Guidelines include, but are not limited to, the following.

Guideline 12.1. Identify plant, livestock and/or aquatic species and varieties that match the biophysical conditions (temperature, rainfall, elevation and soils) of areas targeted for agroforestry by noting their existence in the areas and at similar sites (linked to principle 11)¹¹. Consider future changes in

climatic regimes when selecting species, varieties and breeds included in agroforestry systems. It is best to accompany this process with a market survey of the species and varieties to identify their markets and better design strategies for marketing the agroforestry products (linked to principle 11).

Guideline 12.2. Conduct a survey or workshop with local stakeholders to identify their preferential uses (goods and services) of trees, crops, livestock, fish and the specific species they want to cultivate, ensuring that the process is inclusive and equitable. When necessary, organize separate survey groups for men, women, youth and marginalised groups to ensure all can provide input (linked to principles 8, 9, 10, 11).

Guideline 12.3. Examine and apply existing technical guidelines adopted by ASEAN Member States concerning germplasm selection, quality, sourcing, distribution and management as well as those concerning selection of livestock and aquatic species and breeds. Ensure native plant, livestock and aquatic species and/or breeds are not adversely affected by introduced

¹¹Online and other databases of suitable species that suit the local biophysical conditions and stakeholders’ preferences can be accessed for increased options. For example: Tree Functional and Ecological Databases (<http://www.worldagroforestry.org/output/tree-functional-and-ecological-databases>).

exotic species and/or breeds in the agroforestry systems.

Guideline 12.4. Ensure active participation of key stakeholders, particularly farmers, investors, extension workers and government agencies in decision-making with regard to the components in agroforestry systems.

4.6. Communication and scaling principles

Principle 13: Effectively communicate agroforestry knowledge

Taking into consideration a general lack of detailed knowledge about the development and management of agroforestry among ASEAN Member States and the varied and complex nature of agroforestry practices, managing knowledge and communicating it is critically important for policy makers, farmers, investors and market actors, to encourage widespread adoption, and continuous development, of agroforestry. Guidelines include, but are not limited to, the following.

Guideline 13.1. Identify knowledge and communication needs and gaps of all stakeholders — including farmers, extension and advisory agencies, local and

national governments, market actors, investors — through participatory methods to provide tailored support as required.

Guideline 13.2 Communicate clearly between all stakeholders in a landscape and/or value chain in preferred languages and formats — including, but not limited to, written and audio-visual material, large and small meetings, skills' workshops, field training and demonstration plots — to better understand the issues facing adoption of agroforestry.

Guideline 13.3. Strengthen the knowledge management and communication capacity of institutions in charge of, and those already involved in, agroforestry, including their partners at national and sub-national levels, so as to more effectively create and share knowledge and skills, provide technical guidance, facilitate planning and decision-making at different levels, monitor results and impact, promote methods, results and achievements specifically and widely, and support financial mobilization for research and development of agroforestry.

Guideline 13.4. Adequately provide resource knowledge management and communication to ensure all stakeholders are informed, can engage in discussion, are able to increase their knowledge and skills and can continuously adapt and improve.

Principle 14: Plan for effective scaling up and sustainability

In consideration of the context-specificity of agroforestry interventions, scaling-up agroforestry must be carefully planned and take into account universal and contextual perspectives. The requirements for scaling-up agroforestry to achieve lasting impact must be thoroughly determined. Guidelines include, but are not limited to, the following.

Guideline 14.1. Engage stakeholders and sectors in planning for scaling agroforestry interventions (linked to principle 3).

Guideline 14.2. Understand the highest potential for, and limits to, scaling agroforestry by examining internal and external opportunities, including biophysical, social, cultural, labour and market conditions, as well as the strategies and plans of related sectors that may have an impact on the proposed scaling up.

Guideline 14.3. Ensure that the requirements for scaling are understood by stakeholders and are wholly or partially addressed at targeted sites.

Guideline 14.4. Understand the focus of scaling, which could be either the technical or institutional aspects of agroforestry or both. Technical aspects include selection of trees, crops, livestock and/or aquatic species' system components, design and management practices, and expected farm- and landscape-scale impact. Institutional aspects include organizing smallholders, building partnerships, training approaches and funding mechanisms.

Guideline 14.5. Agree on appropriate modalities for scaling in particular contexts, including the key actors to be involved, for example, local governments, private companies, producer groups, extension agencies.

Guideline 14.6. Review scaling approaches, processes and achievements periodically to address gaps, issues and opportunities or devise recourse measures.

CHAPTER 5

IMPLEMENTATION CONSIDERATIONS

These principles and guidelines form a framework that can facilitate discussions about the formulation of agroforestry policies, strategies, programs and projects by ASEAN Member States. They also provide guidance for agroforestry investments by the private sector. For implementation purposes, technical guidelines relevant to agroforestry that are tailored to specific ecological and socio-cultural zones in ASEAN Member States should be followed. Some considerations for implementation are discussed below.

5.1. Institutional roles and arrangements

Governments and agencies at different levels of ASEAN Member States, non-governmental organizations, farmers' associations and cooperatives, community-based organizations, the private sector (small- or large holders, small- and medium-sized enterprises, corporations) and others all have different roles to play. Concerted effort is needed in creating an enabling environment,

enhancing organizational capacities and participatory inter-sectoral collaboration and decision-making (principles 1, 2, 3). Identifying key stakeholders and understanding their roles, needs and aspirations is a necessary first step toward an enabling environment for agroforestry.

Successful agroforestry interventions require government support through policies and funded programs, given competing interests from commercial monoculture agricultural production. As elaborated in Principle 1, ASEAN Member States should identify a dedicated institution responsible for agroforestry development in their respective countries. Social Forestry is amongst many national programs and mechanisms in which agroforestry can be implemented with policy backing and funding support. Many ASEAN Member States have social forestry programs with plans and targets to improve forest peoples' livelihoods while protecting and sustainably managing forest; agroforestry plays a critical role in achieving these goals.

Private-sector investors play crucial roles in agroforestry development,

particularly, agri-industrial companies with an interest in sustainable production that are aiming for certification that will enable them to brand their products as 'environmentally friendly'.

National research and academic institutions need to be engaged in agroforestry research, training and education to 1) continuously generate agroforestry knowledge and evidence needed for adjusting and/or refining technical and policy recommendations; 2) develop tools and methods for knowledge generation, monitoring and impact evaluation; and 3) support continuous learning, education and knowledge dissemination. Basic and applied research in agroforestry should be carried out in a participatory manner (principles 3, 8, 9).

The forestry and agricultural extension or rural advisory services in ASEAN Member States also play crucial roles in sharing knowledge and experience, training and building cadres of extension workers with the right skills to facilitate agroforestry planning, implementation, monitoring and evaluation.

Farmers' associations and cooperatives and community-based organizations are also vitally important in the co-production of agroforestry knowledge, farmer-to-farmer sharing of knowledge and experience, adoption of agroforestry

options best suited to their own contexts in relation to biophysical, socio-economic, cultural, market and policy conditions, consolidation of the aspirations, concerns and products of the farmers, and fostering dialogue amongst stakeholders, including policy makers and investors.

Members of the CGIAR, a global partnership for a food-secure future, also play a role by aligning their research programs with ASEAN Member States' agroforestry agendas and/or directly conducting research together with regional and national partners.

Finally, United Nations' organizations, particularly FAO, play crucial roles in providing technical assistance, policy advice and, where possible, funding toward the implementation of these guidelines.

5.2. Planning and financing

Since agroforestry is not explicitly in the hands of either agriculture or forestry, ASEAN Member States aspiring to develop a national agroforestry program should, first, consider the institutional infrastructure required to make a national program successful (principle 1). Headed by designated institutions within relevant ministries, a special multi-sectoral committee or taskforce could be created to facilitate planning. This approach aligns with

the ASEAN Multi-Sectoral Framework on Climate Change: Agriculture, Fisheries and Forestry towards Food Security, which provides a mechanism for coordinated actions.

Planning for an agroforestry vision and road map by ASEAN Member States is desirable to show the way forward. There are many ways to drive agroforestry development in the region, including creating a favourable investment environment with supportive policies that stimulate market openings for agroforestry products and mainstreaming agroforestry in existing strategies, plans and targets, for example, sustainable or low-emissions development plans, national REDD+ action plans, rural development plans, land restoration programs, land-use planning, and Nationally Determined Contributions.

International development and bilateral partners of ASEAN Member States can be sought to align their development programs with, or directly provide funding support, to Member States' agroforestry programs.

Planning for agroforestry programs or projects at national and sub-national levels requires scoping and situation analyses to identify issues, challenges, gaps and opportunities. If positive signals give potential investors (smallholders, large-holders, corporations) the confidence to invest in agroforestry, financial feasibility studies and long-term strategic

and medium-term management planning needs to be undertaken. Planning at the local community, farm or field level should be facilitated by extension agents trained in agroforestry (Principle 2) and include selection of a number of agroforestry options best suited for specific contexts, considering their specific environmental, social, cultural, market and policy conditions (principle 12).

5.3. Research and continuous learning

Continuous learning and research is needed for the co-production of agroforestry knowledge not only to underpin efforts to scale best practices but also to enable adjustments of existing agroforestry technologies and practices to address changes in local contexts, including future changes in climate regimes and influences from external factors (principles 3, 12). Documenting and taking stock of success and failures of past and existing agroforestry models is a good start to prioritize research in various aspects of agroforestry. Research should be action oriented and carried out in a shared-learning and participatory mode with stakeholders. Part of the planning process could be to identify research and academic institutions involved, or wanting to be, in agroforestry research and rally their support to undertake coordinated efforts to ensure complementarity

rather than duplication of research efforts. Development of agroforestry curricula should be supported to ensure agroforestry is taught in institutes of higher education, building upon the work of the Southeast Asian Network for Agroforestry Education that was established by the World Agroforestry Centre in the late 1990s with funding from the Swedish International Development Agency, as well as other higher education networks existing in the region. Such efforts should also be aligned with the broad goals of the Southeast Asian Ministers of Education Organization's Southeast Asian Regional Center for Graduate Study and Research in Agriculture.

5.4. Monitoring and evaluation

In view of agroforestry's potentially large addition to Nationally Determined Contributions, Land Degradation Neutrality targets, food security and other goals, targets and strategies where agroforestry potentially contributes, ASEAN Member States can include agroforestry in their monitoring, reporting and verification schemes. Any monitoring process should ensure that the following principles are addressed by agroforestry programs:

1) Continuous learning: the program should embrace an iterative

process of gaining feedback and informing stakeholders. The program should be adaptive in accepting feedback to improve its activities.

- 2) Participatory and user-friendly monitoring: the development of monitoring tools is best done in a participatory manner to ensure friendliness for users.
- 3) Strengthened stakeholder capacity: effective participation requires technical, social and financial skills and abilities. Strengthening these capacities can increase stakeholders' involvement in monitoring, especially with farmers' organizations and cooperatives, and forest user groups

At ASEAN level, monitoring the uptake of this framework by Member States should be coordinated by the ASEAN Food, Agriculture and Forestry sector using applicable monitoring instruments already adopted by ASEAN, such as the ASEAN monitoring on food security, environment and climate change. The ASEAN Multi-Sectoral Framework on Climate Change: Agriculture, Fisheries and Forestry towards Food Security can also be used for monitoring and assessing the uptake of the guidelines by Member States, particularly in regard to multi-sectoral cooperation within Member States.

FAO may also consider monitoring and assessing progress of implementation of these Guidelines by ASEAN Member States, in view of its global database on tree cover and trees outside forests.

5.5. Knowledge management

One of the many issues raised in the development of agroforestry is a lack of information and knowledge sources in ASEAN Member States. This is linked not only to the lack of institutional home for agroforestry research and development in many ASEAN Member States but also because agroforestry knowledge is often available only as scientific articles, which are not readily accessible to policy makers and planners. In relation to Principle 13, agroforestry knowledge must be communicated effectively but it

cannot be effectively managed and communicated unless responsibility is delegated to appropriate bodies. It is thus important for ASEAN Member States to create a facility for managing agroforestry knowledge effectively, and ensure such knowledge is readily accessible to a broad range of users. The tasks of this facility would be to collect and categorise agroforestry knowledge, establish a knowledge-oriented technology infrastructure, such as web portals, and monitor use (linked to monitoring and evaluation in Section 5.4). Knowledge management of agroforestry is a task that can be delivered by the designated or newly-created institution referred to in Principle 1. This task can be shared with many knowledge owners and brokers, such as research institutions and academe, as well as non-governmental organizations.

ANNEX 1. DEVELOPMENT OF THE GUIDELINES

The idea to develop the ASEAN guidelines for agroforestry development emerged from numerous discussions since 2015 between partners in the ASEAN-Swiss Partnership for Social Forestry and Climate Change, ASEAN Working Group on Social Forestry and the ASEAN Secretariat's Food, Agriculture and Forestry Division that coincided, and were prompted by, the adoption of the Vision and Strategic Plan for ASEAN Cooperation in Food, Agriculture and Forestry 2016–2025. Specifically, the Plan identifies agroforestry as one of the action programs to achieve food security in the face of climate change. While the role and contribution of agroforestry in these areas is increasingly visible in national strategies and action plans related to food and nutrition security, climate change, 'green' growth and sustainable development, implementation posed a challenge because agroforestry did not yet have an institutional home of its own. Many studies have suggested that beyond farmers' decision-making and farm-level challenges, the main barrier has been a lack of clear policy

support and delivery mechanism in ASEAN Member States. To address this issue, an authoritative, ASEAN-level guidance for agroforestry was considered necessary to establish the principles and guidelines that could support the more rapid development of agroforestry policies, programs and investments.


At the first stakeholder workshop held in Chiang Mai, Thailand in June 2016, it was agreed that guidelines be developed as inclusively as possible, encompassing researchers, trainers, educators, planners, practitioners and policy makers. Furthermore, it was agreed that the guidelines should be authoritative and active in language and style but without too much detail to allow for creativity and innovation during implementation. Since June 2017, the multi-stakeholder process has included key activities, listed below.

- 1) Stakeholder consultation with approximately 245 participants from ASEAN Member States, including policy makers, farmers' groups and cooperatives, community-based

- forest management groups, practitioners and researchers at the 7th ASEAN Working Group on Social Forestry conference held in Chiang Mai, Thailand, 12–14 June 2017. The consultation focused on the purpose and general contents of the guidelines.
- 2) Presentation and acceptance of the concept note for developing the guidelines at the 11th ASEAN Working Group on Social Forestry annual meeting held in Chiang Mai, Thailand, 15 June 2017.
 - 3) Submission of the work plan for developing the guidelines to the ASEAN Working Group on Social Forestry Secretariat in June 2017.
 - 4) Preparation of the ‘zero draft’ outline of the guidelines by ICRAF and FAO from June to August 2017.
 - 5) Preparation of the first draft from August to December 2017.
 - 6) Peer review of the first draft by ASEAN-Swiss Partnership for Social Forestry and Climate Change partners, ASEAN Secretariat and FAO from December 2017 to January 2018.
 - 7) Review of the first draft by agroforestry experts, including Mekong Expert Group on Agroforestry for Food and Nutrition Security, Sustainable Agriculture and Land Restoration and the ASEAN Working Group on Social Forestry focal points, within and outside the region on 26 January 2018.
 - 8) Preparation of the second draft, January–February 2018.
 - 9) Review of the second draft by ASEAN sectoral working groups, February–March 2018.
 - 10) Review of the second draft by ASEAN Working Group on Social Forestry focal points in February–April 2018.
 - 11) Finalization of the second draft, April–May 2018.
 - 12) Discussion and finalisation at the 12th ASEAN Working Group on Social Forestry meeting in Da Nang City, Viet Nam, June 2018.

ANNEX 2. WHITE PAPER:

Agroforestry: contribution to food security and climate change adaptation and mitigation in Southeast Asia¹²

Agroforestry: contribution to food security and climate change adaptation and mitigation in Southeast Asia

WHITE PAPER

Authors: Delia Catacutan, Meine van Noordwijk, Tien Hai Nguyen, Ingrid Öborn, Agustin R Mercado

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Southeast Asia is going through an economic boom with a 5.7% average growth rate in GDP and has reportedly achieved the Millennium

¹²The Agroforestry white paper highlights the evolving concepts of agroforestry, agroforestry practices adopted in Southeast Asia, contributions to food security, income, water regulation, climate change adaptation and mitigation, issues and challenges, policy challenges, and a call for action by ASEAN Member States.

Development Goal of reducing by half the number of hungry people. While this is a laudable achievement, 60 million people (>10% of total population) remain food insecure. Rapid population growth, coupled with land and forest degradation, may cause many countries in the region to fail to feed their projected populations in the future.

Climate change is an additional threat to the 'supply' dimension of food security. According to the Intergovernmental Panel on Climate Change's Fourth Assessment Report, Southeast Asia is expected to be seriously affected by the adverse impacts of climate change since most economies rely on agriculture and natural resources.

Agroforestry, the practice of using trees on farms, and the integration of forestry and agriculture as part of multifunctional landscapes, can provide multiple economic, social and environmental benefits. In a global comparison, Southeast Asia had the highest biomass carbon stock (per hectare) on agricultural land of all regions, with an increasing trend (60 tonnes of carbon per hectare in 2000 and 65 tonnes per hectare in 2010).

Farmers in different parts of the region have been adopting diverse agroforestry systems and practices,

increasing the productivity of farmlands, and helping to secure food, income and other basic needs. At the same time, the significant amount of carbon sequestered by trees in agroforestry systems is contributing to climate-change mitigation, while forests and trees are 'air conditioners' cooling their surroundings by bringing water back into the atmosphere. Yet, wide-scale agroforestry adoption remains limited due to many obstacles and challenges, notably, the lack of institutional home and specific policy support for agroforestry. To realize the potential of agroforestry in achieving food security and climate-change adaptation and mitigation in Southeast Asia, specific agroforestry policies and effective delivery mechanisms are necessary.

ANNEX 3. INTERNATIONAL CONTEXT OF THE GUIDELINES

The guidelines adhere to all legally- and non-legally-binding international conventions, agreements and treaties as well as global programs and frameworks that ASEAN Member States have committed to. These include, but are not limited to, the following:

- 17 Sustainable Development Goals were adopted by world leaders in September 2015. Built on the success of the Millennium Development Goals, the Goals are mobilizing efforts to end all forms of poverty, fight inequalities and tackle climate change while ensuring that ‘no one is left behind’.
- United Nations Framework Convention on Climate Change (UNFCCC) aims to stabilize greenhouse-gas concentrations in the atmosphere to prevent dangerous interference to the climate system, without any binding greenhouse-gas limits or enforcement mechanisms for countries. The framework outlines how specific international treaties (called protocols or agreements) may be negotiated to specify further action towards the objective of the UNFCCC.
- The Paris Agreement came out of UNFCCC negotiations, and aims to bolster global efforts to lower the projected temperature increase to 1.5 °C above pre-industrial levels, increase the ability to adapt, foster climate resilience and low-emissions development without threatening food production, and create financial flows that support these aims. Through Intended Nationally Determined Contributions, countries create actions consistent with their own national circumstances, capabilities and priorities.
- Convention on Biological Diversity (CBD) outlines the principles governing the conservation of biological diversity, sustainable use of components and fair and

equitable sharing of benefits arising from the use of genetic resources.

- United Nations Convention to Combat Desertification (UNCCD) is a 10-year strategy (2008–2018) with the goal of forging a global partnership to reverse, and prevent, desertification and land degradation and to mitigate the effects of drought to support poverty reduction and environmental sustainability. The UNCCD collaborates closely with the CBD and the UNFCCC to meet the complex challenges, with an integrated approach and the ‘best possible use’ of natural resources.
- The Bonn Challenge is a global effort to restore 150 million hectares of the world’s deforested and degraded land by 2020 and 350 million hectares by 2030 to realize existing international commitments, including the CBD Aichi Target 15, UNFCCC REDD+, and the Rio+20 land degradation neutrality goal.
- Ramsar Convention on Wetlands is an intergovernmental treaty providing a framework for national action and cooperation in the conservation and utilization of wetlands and their resources.
- Rio Declaration on Environment and Development details principles that guide countries in balancing environmental and developmental considerations in policies and actions.
- Code of Conduct of Germplasm Collection and Transfer is a global voluntary framework that provides for the rational collection and sustainable use of genetic resources.
- International Panel on Forests proposes actions for sustainable forest management.
- Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources is a voluntary global framework that provides for the conservation and sustainable use of plant genetic resources for food and agriculture.
- Millennium Declaration and Millennium Development Goals aimed to uphold human dignity and equity, eradicate poverty, protect the common environment, support human rights and democracy, promote gender equality and good governance and form a global partnership for development.
- Sendai Framework for Disaster Risk Reduction (2015–2030) aims to achieve substantial reduction of disaster risks and loss of lives, livelihoods and health. The Framework was adopted at the Third United Nations World Conference on Disaster Risk

Reduction in Sendai, Japan on 18 March 2015.

- United Nation strategic plan for forests (2017-2030) (UNSPF) serves as a reference for the forest-related work of the UN system and for fostering enhanced coherence, collaboration and

synergies among UN bodies and partners towards the following vision and mission, as well as a framework to enhance the coherence of and guide and focus the work of the International Arrangement on Forests (IAF) and its components.

ANNEX 4.

RECOMMENDED READING

- Burke L, Ranganathan J, Winterbottom R, eds. 2015. *Revaluating ecosystems: pathways for scaling up the inclusion of ecosystem value in decision making*. Washington DC, USA: World Resources Institute.
- Catacutan D, McGaw E, Llanza MA, eds. 2014. *In equal measure: a user guide to gender analysis in agroforestry*. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.
- Colfer CJP, Achdiawan R, Roshetko JM, Mulyoutami E, Yuliani EL, Mulyana A, Moeliono M, Adnan H, Erni. 2015. The balance of power in household decision-making: encouraging news on gender in Southern Sulawesi. *World Development* 76:147–164.
- Coe R, Sinclair F, Barrios E. 2014. Scaling up agroforestry requires research ‘in’ rather than ‘for’ development. *Current Opinion in Environmental Sustainability* 6:1877–3435. <https://doi.org/10.1016/j>
- Delaney M, Roshetko JM. 1999. Field test of carbon monitoring methods for home gardens in Indonesia. In: *Field tests of carbon monitoring methods in forestry projects*. Arlington VA, USA: Winrock International. pp231–245. <http://www.worldagroforestry.org/region/sea/publications/detail?pubID=4214>.
- [FAO] Food and Agriculture Organization of the United Nations. 2017. *Agroforestry for landscape restoration: Exploring the potential of agroforestry to enhance the sustainability and resilience of degraded landscapes*. Rome, Italy: Food and Agriculture Organization of the United Nations.
- [FAO] Food and Agriculture Organization of the United Nations. 2013. *Advancing agroforestry on the policy agenda: a guide for decision-makers*. Agroforestry Working Paper No.1. Rome, Italy: Food and Agriculture Organization of the United Nations.
- [FAO] Food and Agriculture Organization of the United Nations. 2011. *Payments for ecosystem services and food security*. Rome, Italy: Food and Agriculture Organization of the United Nations.
- Klapwijk CJ, van Wijk MT, Rosenstock TS, van Asten PJA, Thornton PK, Giller KE. 2014. Analysis of trade-offs in agricultural systems: current status and way forward. *Current Opinion in Environmental Sustainability* 6:110–115. <https://www.sciencedirect.com/science/article/pii/S1877343513001607>.
- Kuyah S, Öborn I, Jonsson M, Dahlin AS, Barrios E, Muthuri C, Malmer A, Nyaga J, Magaju C, Namirembe A, Nyberg Y, Sinclair FL. 2016. Trees in

- agricultural landscapes enhance provision of ecosystem services in Sub-Saharan Africa. *International Journal of Biodiversity Science, Ecosystem Services & Management* 12:4:255–273. <http://www.tandfonline.com/doi/full/10.1080/21513732.2016.1214178>.
- Martini E, Roshetko JM, Purnomosidhi P, Tarigan J, Idris N, Zulfadhli T. 2013. Fruit germplasm resources and demands for small-scale farmer's post-tsunami and conflicts in Aceh, Indonesia. *Acta Horticultura (ISHS)* 975:657–664. http://www.actahort.org/books/975/975_82.htm.
- Manurung GE, Roshetko JM, Budidarsono S, Kurniawan I. 2008. Dudukuhan tree farming systems in West Java: how to mobilize self-strengthening of community-based forest management? In: Snelder DJ, Lasco R, eds. *Smallholder tree growing for rural development and environmental services. Lessons from Asia*. Advances in Agroforestry vol. 5. Dordrecht, Netherlands: Springer.
- Mead DJ. 2004. Agroforestry. In: *Forests and forest plants*. Vol. 1. *Encyclopedia of life science systems*. Oxford, UK: EOLSS Publishers. pp 324–55.
- Millennium Ecosystem Assessment. 2005. *Ecosystems and human well-being: synthesis*. Washington DC, USA: Island Press.
- Minang PA, van Noordwijk M, Freeman OE, Mbow C, de Leeuw J, Catacutan D, eds. *Climate-smart landscapes: multifunctionality in practice*. Nairobi, Kenya: World Agroforestry Centre (ICRAF).
- Nair PVR, Garrity DPN. 2012. *Agroforestry: the future of global land use*. Dordrecht, Netherlands: Springer.
- Namirembe S, Leimona B, van Noordwijk M, Minang P, eds. 2017. *Co-investment in ecosystem services: global lessons from payment and incentive schemes*. Nairobi, Kenya: World Agroforestry Centre (ICRAF). <http://www.worldagroforestry.org/sd/environmental-services/PES>.
- Neyra-Cabatac NM, Pulhin JM, Cabanilla DB. 2012. Indigenous agroforestry in a changing context: the case of the Erumanen ne Menuvu in Southern Philippines. *Forest Policy & Economics* 22:18–27.
- [OECD] Organization for Economic Cooperation and Development. 2011. *Towards green growth: a summary for policy makers*. Paris, France: Organization for Economic Cooperation and Development.
- Orwa C, Mutua A, Kindt R, Jamnadass R, Simons A. 2009. *Agroforestry Database: a tree reference and selection guide. Version 4.0*. Nairobi, Kenya: World Agroforestry Centre (ICRAF). <http://www.worldagroforestry.org/output/agroforestry-database>.
- Perdana A, Budidarsono S, Kurniawan I, Roshetko JM. 2013. Rapid Market Appraisal (RMA). In: van Noordwijk M, Lusiana B, Leimona B, Dewi S, Wulandari D, eds. *Negotiation-support toolkit for learning landscapes*. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. pp 52–54. <http://www.worldagroforestry.org/downloads/Publications/PDFS/B17645.pdf>.
- Roshetko JM, Snelder DJ, Lasco RD, van Noordwijk M. 2008. Future challenge: a paradigm shift in the forestry sector. In: Snelder DJ, Lasco R, eds. *Smallholder tree growing for rural development and*

- environmental services. Lessons from Asia. Advances in Agroforestry* vol. 5. Dordrecht, Netherlands: Springer. pp 453–485.
- Roshetko JM, Rohadi D, Perdana A, Sabastian G, Nuryartono N, Pramono AA, Widyani N, Manalu P, Fauzi MA, Sumardamto P, Kusumowardhani N. 2013. Teak agroforestry systems for livelihood enhancement, industrial timber production, and environmental rehabilitation. *Forests, Trees, and Livelihoods* 22 (4):241–256. DOI: 10.1080/14728028.2013.855150.
- Van der Wolf J, Gram G, Bukomeko H, Mukasa D, Giller O, Kirabo E, Angebault C, Vaast P, Asare R, Jassogne L. 2017. *The shade tree advice tool*. CCAFS Info Note. Copenhagen, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security. <https://ccafs.cgiar.org/publications/shade-tree-advice-tool#.WjjWDjcxXD4>. Tool: <http://shadetreadvice.org/>.
- Van der Wolf J, Jassogne L, Gram G, Vaast P. 2016. Turning local knowledge on agroforestry into an online decision-support tool for tree selection in smallholders' farms. *Experimental Agriculture* 1–17. <http://dx.doi.org/10.1017/S001447971600017X>.
- Van Noordwijk M. 2005. *RUPES typology of environmental service worthy of reward*. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. <http://www.worldagroforestry.org/downloads/Publications/PDFS/wp13952.pdf>
- Van Noordwijk M, Coe R, Sinclair F. 2016. *Central hypotheses for the third agroforestry paradigm within a common definition*. Working paper 233. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. DOI: <http://dx.doi.org/10.5716/WP16079.PDF>.
- Van Noordwijk M, Mbow C, Minang PA. 2015. *Trees as nexus for Sustainable Development Goals (SDG's): agroforestry for integrated options*. Policy Brief 50. Nairobi, Kenya: ASB Partnership for the Tropical Forest Margins.
- Van Noordwijk M, Tata HL, Xu J, Dewi S, Minang PA. 2012. Segregate or integrate for multifunctionality and sustained change through rubber-based agroforestry in Indonesia and China. In: Nair PVR, Garrity DPN. *Agroforestry: the future of global land use*. Dordrecht, Netherlands: Springer. pp 69–104.
- Visco R. 2011. *National case study on agroforestry policy in the Philippines*. Final report. Rome, Italy: Food and Agriculture Organization of the United Nations.
- Wangpakapattanawong P, Finlayson R, Öborn I, Roshetko JM, Sinclair F, Shono K, Borelli S, Hillbrand A, Conigliaro M. 2017. *Agroforestry in rice-production landscapes in Southeast Asia: a practical manual*. Bangkok, Thailand: Food and Agriculture Organization of the United Nations Regional Office for Asia and the Pacific, Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program.
- Zomer RJ, Neufeldt H, Xu J, Ahrends A, Bossio D, Trabucco A, van Noordwijk M, Wang M. 2016. Global tree cover and biomass carbon on agricultural land: the contribution of agroforestry to global and national carbon budgets. *Scientific Reports* 6:1–12.





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