Land Use Finance Impact Hub | Country Factsheet

Investor guide to environmental and social opportunities and risks

LOWER MEKONG REGION

The Lower Mekong Region fact sheet is the third in a series, following Indonesia and Brazil. It summarises the environmental and social challenges and opportunities associated with investing in the sustainable land use sector, and to a lesser extent, marine and freshwater use, and serves as a guide for private investors (e.g., impact investors, asset owners, asset managers, insurance companies…) interested in the region. The fact sheet spans across 4 impact areas as structured in the United Nations Environment Programme (UNEP) Land use Finance Impact Hub (climate, biodiversity and natural habitats, sustainable production, livelihood and gender) and 10 opportunity areas that are aligned with country priorities to attract private investment.

Figure 1: Map of Greater Mekong Subregion (Source: United Nations Geospatial. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations)

Introduction

The Lower Mekong Region, a transnational area of the Mekong River Basin, which runs for almost 4,763 km through China to Southeast Asia, is home to more than 100 million people.[1] Five countries in the region, Thailand, Viet Nam, Cambodia, Lao People's Democratic Republic, and Myanmar, have diverse geographical landscapes and seascapes. The Lower Mekong Basin, with approximately 180,000 km2 of wetlands in 2020, is recognized as a global biodiversity hotspot with one of the world's most diverse and prolific freshwater capture fisheries with an estimated 7.8 billion value creation annually. [2] The region's rich natural capital, including 87.7 million hectares of forest[3] and 915 km2 of mangrove forest[4] is the crucial backbone of the livelihoods and food security of the region's rural population.

Agriculture, forestry, and fishery sectors play crucial roles in the economy and livelihoods in the region, with the average contribution to the Gross Domestic Product (GDP) being 15.72 per cent, employing up to 70 per cent of the total workforce (Table 1). The region's socioeconomic development is heavily indebted to its abundant natural capital[5], accounting for up to 28 per cent of the total economic wealth, but many ecosystem services are declining due to over-exploitation and unsustainable management. As a result, the World Bank conservatively estimates that the region's economic output of agriculture, livestock, forestry, and fisheries will decline by up to -16 per cent of GDP by 2030. [6] To combat nature loss and accelerate climate mitigation and adaptation, Nature-based Solutions (NbS)[7]

1 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

2 Ibid

3 FAO STAT Forest Area 2020.

4 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version

5 UNEP and UNDP, 2021. Green Business Development: The Market for Green Business Opportunities in ASEAN

6 World Bank, 2021. The Economic Case for Nature.

7 NbS is defined as "actions to protect, conserve, restore, sustainably use and manage

are increasingly attracting the interest of both the public and private sectors. NbS generate tangible environmental and social benefits at US$20 for every US$1 invested,[8] while contributing to 37 per cent of climate change mitigation until 2030.[9] Table 1 and Box 1 summarize key economic indicators and the latest policy developments for sustainable agriculture and forestry in the Lower Mekong Region.

Table 1: Key Economic Indicators in the Lower Mekong Region

	Data Year	Thailand	Viet Nam	Cambodia	Lao PDR	Myanmar
Population (million)	2023	71.8	98.8	16.9	7.6	54.5
Surface Area (km2)	2021	513,120	331,690	181,035	236,800	676,578
GDP per Capita (United States of AmericaD)	2023	7,171	4,346	1,875	2,075	1,187
Value added (% of GDP), Agriculture, Forestry and Fishing	2023	8.6	12.0	21.5	16.1	20.4
Employment in Agriculture (% of Total Employment)	2022	30%	34%	37%	70%	46%
Contribution of Natural Capital to the Total Wealth	2018	8%	21%	26%	28%	n.a

Lao PDR: Lao People's Democratic Republic.
Source: World Bank Development Indicators, World Bank, 2021. The Changing Wealth of Nations 2021

Box 1 - Enabling policy environment to promote sustainable agriculture and Nature-based Solution

To promote sustainable and inclusive investments in food, agriculture, and forestry in the Association of Southeast Asian Nations (ASEAN) region, the ASEAN Guidelines on Promoting Responsible Investment in Food, Agriculture, and Forestry (ASEAN RAI) 2018 was adopted by the ASEAN Ministers of Agriculture and Forestry in 2018. This voluntary guideline consists of 10 environmental, social, and governance (ESG) principles to avoid risks and generate a positive impact in improving food security, natural resource management, gender inequality, and climate resilience. When investing in the agriculture and forestry sector in the region, Investors should try to align with the internationally accepted frameworks such as the ASEAN RAI at minimum, and beyond (IFC Performance Standards, GRI, TNFD, EUDR).

The European Union Deforestation Regulation (Regulation (European Union) 2023/1115), starting to apply in December 2024 (likely to be postponed) , and the European Union Corporate Sustainability Due Diligence Directive (Directive 2024/1760) are pressuring producing countries to increase sustainability efforts in key commodities, including soy, cocoa, coffee, palm oil, rubber, and beef. The European Union Deforestation Regulation (EUDR) requires suppliers to conduct extensive diligence on the value chain to ensure the goods do not result from recent (post 31 December 2020) deforestation. In response, Viet Nam's Ministry of Agriculture and Rural Development developed the National Action Plan to comply with the regulation, by strengthening commodity traceability, forest monitoring, and a national database of crop production areas.

natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits", by the Fifth Session of the United Nations Environment Assembly (UNEA-5) in 2022

8 Green Growth Knowledge Partnership (GGKP), 2024. Closing the Gap: Investing in natural capital to meet the SDGs. Geneva: Green Growth Knowledge Partnership.

9 IPBES 2019. Summary for Policymakers of the IPBES Global Assessment Report on Biodiversity and Ecosystem Services

In addition, governments have been implementing various policies and incentives to protect crucial ecosystems. For instance, Viet Nam's Payment for Forest Environmental Services (PFES) system, with the Government Decree, designed and implemented in 2008 with United States of America Agency for International Development (USAID) support, has generated more than US$1 billion since 2011. In 2017, PFES regulation was adopted into Forestry Law (No 16/2017/QH14). The system incentivizes about 500,000 rural households in mountainous watershed areas to protect their surrounding forests through payments from hydropower plants and water supply companies that benefit from securing cleaner and sufficient river water. Promoting sustainable forest certification (Viet Nam), providing incentives to organic rice farmers (Thailand), strategic development of the ecotourism sector and increasing community ownership of forests and Protected Areas (Cambodia) are other examples, which are further elaborated in below section.

Climate Action

The Lower Mekong region has a tropical climate characterised by warm temperatures and distinct wet and dry seasons. The region experiences the Southwest monsoon with significant rainfall between June and September. Because of climate change, however, rising temperatures alter precipitation patterns, and more frequent extreme weather events are increasingly evident in the region. For instance, the Mekong Delta in Viet Nam, a region with nearly half of the country's rice production, experienced a 30 per cent annual increase in rainfall and shifting rainfall patterns, an average temperature increase of 0.5°C, and an average sea-level rise of 3 mm per year over the past three decades.[10] Thailand, one of the most flood-affected countries in the world[11], loses an estimated US$2.6 billion annually due to flooding.[12] The projected economic impact of climate change to the region is rather concerning with women and other vulnerable groups suffering the most.[13] The Asian Development Bank (ADB) estimates climate change-related impacts and the region's vulnerability could lead to 30 per cent GDP losses in Southeast Asia by 2100 under a high emissions scenario.[14]

Nationally Determined Contributions (NDCs)

In 2019, the agriculture sector and land-use change & forestry sector contributed the second and third largest GHG emissions, respectively, following the energy sector in the Lower Mekong Region.[15] Rice cultivation, enteric fermentation, and synthetic fertilizers are among the main drivers of agricultural emissions.[16]

At the same time, agriculture and land use can simultaneously offer tremendous opportunities for emissions reductions, with reducing deforestation as the highest cost-effective mitigation potential. For instance, reforestation, avoided forest conversion, and grasslands could contribute 37 per cent of the GHG reductions needed in 2030 to avoid a 2°C increase in global mean temperature with a high probability[17].

The Lower Mekong countries have updated their NDCs at least once, as summarised in Table 2. Except for Thailand, four countries set sectoral GHG emission reduction targets for agriculture and land use, while the Lao People's Democratic Republic specified a rice production reduction target. For land use, Thailand, Viet Nam, and the Lao People's Democratic Republic set quantitative targets to increase forest cover by varying degrees up to 70 per cent by 2030, while Cambodia and Myanmar aim to halve deforestation by 2030. Lao People's Democratic Republic, Viet Nam, and Myanmar prioritise NbS/Nature-based adaptation as a cost-effective approach to address climate-related disasters.[18] Thailand's NDC of 2021 includes ecosystem-based adaptation as a central principle to guide the formulation of the country's National Climate Adaptation Plan. Box 2 summarizes recent developments in carbon pricing policies in the region to accelerate decarbonisation.

Adaptation priorities

Responding to the region's urgent need for climate adaptation, all NDCs identified adaptation priorities in agriculture, forestry, and natural resource management, including technology development, Research and Development (R&D) in climate-resilient crops, and early warning systems. Recently, in 2023, Thailand and Viet Nam developed their National Adaptation Plan. Thailand National Adaptation Plan (2023) specifies priority areas such as integrating NbS and Ecosystem-based adaptation (EbA) in climate-resilient water resources management and sustainable community forest management practices. Viet Nam National Adaptation Plan (2022) promotes Nature-based and ecosystem-based adaptation action in agriculture and forestry through agroforestry, intercropping, integrated mangrove-shrimp systems, and

10 IPCC, 2022. Asia. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

11 World Bank Group and Asian Development Bank, 2021. Climate Risk Country Profile: Thailand

12 UNDRR, 2020. Disaster Risk Reduction in Thailand: Status Report 2020.

13 Explainer: How gender inequality and climate change are interconnected | UN Women – Headquarters

14 Asian Development Bank, 2023. Asia In the Global Transition to Net Zero.

15 The ASEAN Secretariat, 2023. Study on Decarbonising the ASEAN Agriculture and Forestry Sector.

16 Asian Development Bank, 2023. Asia's Transition to Net Zero: Opportunities and Challenges in Agriculture.

17 Griscom, B. W. et al. 2017. Natural Climate Solutions.

18 OECD, 2024. Nature-based solutions for flood-management in Asia and the Pacific.

other integrated farming models. Governments are working towards mobilising private finance to bridge the gap in adaptation finance, which is only 12 per cent (US$3.4 billion) of total climate finance received in Southeast Asia from 2018 to 2019. [19] Tremendous private capital mobilisation is essential. For instance, to shift investment to the climate-resilient agriculture sector, US$3.6 billion by 2050 in Cambodia and US$15.6 billion by 2040 in Viet Nam are required.[20]

Table 2: Climate Mitigation and Adaptation Target and Priorities

	Thailand	Viet Nam	Cambodia	Lao PDR	Myanmar
2030 Emission reduction target (Agriculture & FOLU/LULUCF)	No agriculture and land use specific target	Agriculture: -50.9 Mt CO2 reduction LULUCF: -46.6 Mt CO2 reduction (Conditional)	Agriculture: -23% below BAU FOLU: -50% (Conditionality not specified)	Rice cultivation: Annual 128 kt CO2 reduction during 2020-2030 LUCF: 45,000 ktCO2e/y average abatement between 2020 and 2030 (Conditional)	Agriculture: 10.40 MtCO2e during 2021-2030 FOLU: 123.62 MtCO2e by 2030 (Conditional)
Non-GHG targets related to agriculture and forestry	Increase forest cover of the country to achieve 55% of the total country area by 2037	Increase forest cover to 42 % by 2030; maintain a stable level to 2050	Halve the deforestation rate by 2030, in line with REDD+ strategy.	Increase forest cover to 70% of land area (ie. to 16.58 million hectares) by 2030	(i) Increase the Protected Areas Systems (PAS) to cover 10% of the total national land area by 2030 (vs 6.08% in 2021) (ii) Reduce deforestation by 50% by 2030
Adaptation priorities in agriculture and land use	Agriculture and food security, water resource and natural resources management	Early warning system, food security, water security, protecting forests	Technology development, R&D in climate-resilient crop, aquaculture, fisheries	Climate adaptation technologies and nature-based solutions in Agriculture & Water Resources. Climate resilient forestry production	Climate-smart agriculture, fisheries and livestock, sustainable management of natural resources, NbS to protect watersheds
Finance needs specified in NDCs	N/A	Conditional: mitigation of US$86.8 billion by 2030	Conditional: Mitigation of US$5.8 billion (2021- 2030) Adaptation: US$2 billion (2021-2030)	Conditional: Mitigation of US$4,762 million (2021-2030), mainly for increase in forest cover and renewable energy	Conditional: mitigation of the Agriculture Sector Target: US$224 million
Other Relevant Policies	National Adaptation Plan (2023); Climate Change Action Plan for the Agricultural Sector (CCAPA 2023-2027)	National Adaptation Plan (2023); National Action Plan on Transparent, Accountable and Sustainable Food Systems 2021-2030;	Climate Change Priority Action. Plan 2023-2030; LT-LEDS for the Agricultural Sector	National Adaptation Plan (2021); Strategy on Climate Change of the Lao PDR	Agricultural Development Strategy (2018-2023); 30-Year National Forestry Master Plan (2001 to 2030)

FOLU: Forest and Other Land Use Sector; Lao PDR: Lao People's Democratic Republic; LUCF: Land Use Change and Forestry; LULUCF: Land Use, Land-Use Change and Forestry.
Source: Thailand NDC (2022); Viet Nam NDC (2022); Cambodia NDC (2020); Lao People's Democratic RepublicNDC (2021); Myanmar NDC (2021

19 Asian Development Bank, 2023. Climate Finance Landscape of Asia and the Pacific.

20 World Bank, 2023. Cambodia Country Climate and Development Report; World Bank 2022. Viet Nam Country Climate and Development Report.

Box 2 - Carbon pricing and Carbon Market

The recent convergence of the voluntary and regulated carbon markets, especially in the field of Jurisdictional REDD+ (JREDD+) could increase demand for nature-based carbon initiatives..

Thailand and Viet Nam are expanding carbon pricing policies such as Emission Trading Systems (ETS) and carbon taxes. Since 2014, Thailand has implemented a pilot Voluntary Emissions Trading Scheme (Thailand V-ETS) to set an emission cap for 12 GHG-intensive sectors and allowed the trading of credit. Thailand's upcoming Climate Change Bill, drafted by the Department of Climate Change and Environment (DCCE) of the Ministry of National Resources and Environment, includes a comprehensive response to achieve its NDC, including an Emission Trading System, carbon tax and credit, mandatory GHG accounting, and establishment of a National Climate Change Fund.

Viet Nam approved the National Strategy for Addressing Climate Change through 2050. The following "Decree 06/2022/ND-CP" articulates the development of a National Crediting Mechanism (NCM) and a domestic ETS. The ETS will focus initially on the steel, cement, and thermal power sectors, with their emission cap to be reduced in line with the NDC. The pilot ETS is planned for 2027, while regulations and a trading platform will be in place by 2025.

When financing carbon NbS projects, investors should comply with the national rules and regulations and align with the highest integrity frameworks set by the Integrity Council for the Voluntary Carbon Market (IC-VCM) and the Voluntary Carbon Markets Integrity (VCMI), as well as the UN Internal Taskforce on Voluntary Carbon Markets.

Investors should seek to support the low-carbon transition in agriculture, forestry and other sustainable land use, given these sectors underpin whole economies in the region, and therefore investing in more sustainable management and production practices will contribute to longer-term economic growth and financial stability. Specific investment opportunities are elaborated in Section "Sustainable Production and Investing Opportunities". Positive impact indicators from the UNEP Land Use Finance Impact Hub[21] may be used to track progress on climate mitigation and adaptation.

Biodiversity and Natural Ecosystems

The Lower Mekong Region is one of the most highly biodiverse regions in the world, reflecting its geographical, landscape, geological, and climatic diversity.[22] The region has combined 279,000 km2 of terrestrial and inland waters protected area,[23] 14 Ramsar Wetlands, and 10 UNESCO World Heritage Sites (Table 3). According to the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), 30 per cent of all nature-based credits originate in Asia and the Pacific region.[24]

However, the region's biodiversity and ecosystems rapidly deteriorate due to extensive exploitation, unsustainable natural resource management, pollution, rapid urbanisation, and infrastructure development. [25] With business as usual, ASEAN region is estimated to lose 70-90 per cent of habitats and 13-42 per cent of species by 2100. [26] The five Lower Mekong countries have developed their National Biodiversity Strategy and Action Plans (NBSPAs), as recommended by the Kunming-Montreal Global Biodiversity Framework, and summarized in Table 3.

Forest

In 2020, the Asia-Pacific region contributed 37 per cent (250 Gt) of the global forest carbon stock (662 Gt).[27] In addition to the climate mitigation benefit, forests provide vital ecosystem services, including protecting watersheds, conserving biodiversity, and regulating water cycles. The forest sector directly contributes to the Lower Mekong region's economies, with wood product exports being a major source of revenue. Viet Nam, for example, is a major timber and wood product exports with its value contributing US$12.5 billion to its economy in 2020 despite traceability issues for investors.[28] [29]

21 KPI List - Land Use Impact Hub1

22 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

23 Calculated by World Database on Protected Areas (WDPA)

24 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), et al. 2023. 2023 Review of Climate Ambition in Asia and the Pacific: Just transition towards regional net-zero climate resilient development

25 Ibid

26 ASEAN Centre for Biodiversity, 2017. ASEAN Biodiversity Outlook 2

27 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), et al. 2023. 2023 Review of Climate Ambition in Asia and the Pacific: Just transition towards regional net-zero climate resilient development

28 Viet Nam Ministry of Industry and Trade, (Detail (moit.gov.vn))

29 Forest Trends Viet Nam Timber Legality Risk Dashboard

Table 3: Protected Areas and National Biodiversity Strategy and Action Plans (NBSPAs)

	Thailand	Viet Nam	Cambodia	Lao PDR	Myanmar
Protected Area Coverage (Terrestrial and Inland Waters)	95,026km2 (18.5%)	24,716km2 (7.6%)	72,090km2 (39.5%)	43,362 km2 (18.7%)	44,097 km2 (6.6%)
NBSAP Target	Reduce the rate of natural habitat loss, including forests and coastal ecosystems by 50% by 2020	Protect 9% of the land area and increase forest area to 45% by 2020	Advanced restoration of 10% of areas and conservation areas are by 2020	Increase forest cover by 65% the protected of total area by 2020	Conserve 17% of terrestrial and inland water areas and 10% of marine areas are by 2020
NBSAP	NBSAP 2016	NBSAP (2020)	NBSAP (2015-202)	NBSAP (2016-2025)	NBSAP 2015-2020

Lao PDR: Lao People's Democratic Republic.
Source: World Database on Protected Area; *NBSAPs* (Thailand; Viet Nam; Cambodia; Lao People's Democratic Republic; Myanmar)

The Lower Mekong region is a globally significant producer of commodities that may have presented a risk to forests in the past, including natural rubber, timber, pulp, and coffee. Between 1990 and 2020, the region lost about 9 million hectares of forest, negatively impacting various species and diverse ecosystems from primary forests. [30] This figure is primarily driven by deforestation in Cambodia and Myanmar (Figure 1)[31], due to illegal logging, mining, and the expansion of unsustainable agriculture and infrastructure.

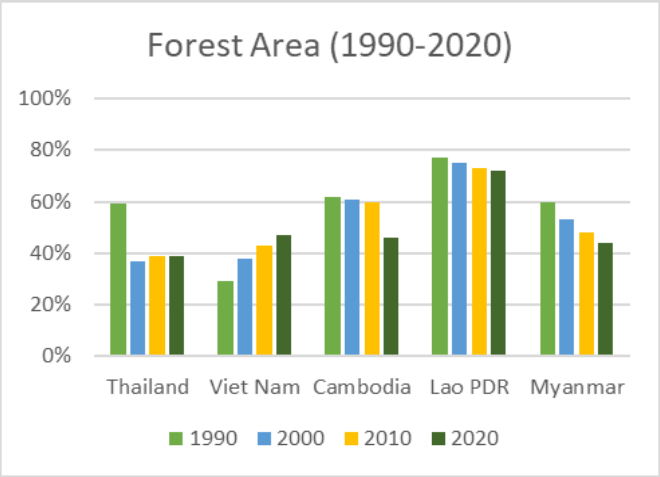

Figure 1 Forest Area Trend in the Lower Mekong Region
Source: FAO STAT, Land Area and Forestland

However, there has been significant improvements in sustainable forest management in the region. Viet Nam ranked fifth among the top ten countries in terms of average annual net gain in forest area from 2010 to 2020.[32] It witnessed stable forest area expansion since 1990, with a ban on logging in natural forests introduced in 2014. The government encouraged sustainable forest management, and the country has the highest area of Forest Stewardship Council Sustainable Forest Management (FSC-SFM) certified forest in the Lower Mekong Region (355,994 ha in August 2024), followed by Thailand (175,015 ha in August 2024). Viet Nam's Forestry Development Strategy 2021-2030 aims to increase the certified sustainable forest management area to one million hectares (ha) in the period of 2026-2036 and achieve a forest coverage rate of 42-43 per cent by 2030.[33]

Similarly, Thailand and Lao People's Democratic Republic have also set the forest cover area expansion to 55 per cent by 2037 and 70 per cent by 2030, respectively. Hence, the Lower Mekong Region presents a compelling case for forest carbon investment, including natural forest restoration, afforestation, and reforestation.

When investing in forestry, investors should establish a deforestation-conversion-free policy, including aligning cut-off dates with national and international frameworks (whichever most conversative), respecting Human Rights and acknowledging Indigenous Peoples and Local Communities' specific role as gatekeepers of nature forests, and enforcing a thorough risk management system to identify, monitor and manage forest-related risks. Best practice guidance and case studies on deforestation-free finance and banking are available with UNEP and partners.[34]

30 FAO STAT, Land Area and Forestland; United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), et al. 2023,2023 Review of Climate Ambition in Asia and the Pacific: Just transition towards regional net-zero climate resilient development

31 FAO STAT, Land Area and Forestland; FAO. 2020. Global Forest Resources Assessment 2020: Main report.

32 FAO. 2020. Global Forest Resources Assessment 2020: Main report.

33 Viet Nam Ministry of Agriculture and Rural Development

34 Home – Deforestation-Free Finance (globalcanopy.org) / Deforestation risks for banks – United Nations Environment – Finance Initiative (unepfi.org)

Wetlands

The Lower Mekong Delta supports the world's most productive inland fisheries, with a gross economic value of around US$17 billion in 2020[35], including aquaculture. There are approximately 178,260 km2 of wetlands in the Lower Mekong River Basin in 2020 (excluding Myanmar)[36]. From 2010 to 2020, the region's aquaculture gross value expanded twofold to US$8.2 billion and 4.0 million tons in production, while Viet Nam accounted for 85 per cent of the output. Driven by infrastructure development, conversion to agricultural land and irrigation, and climate change events such as drought and flood, the wetlands of the Mekong River Basin are declining.[37]

Nearly 40 per cent of the global mangroves are in Southeast Asia.[38] They provide essential ecosystem services, including fish habitat, carbon storage, salinity regulation, and buffering coastal areas affected by sea-level rise and typhoon-induced storm surge.[39] However, between 2010 and 2020, aquaculture, such as shrimp farming, and conversion to agricultural land resulted in the loss of 30 per cent of the mangrove forest in the Mekong River Delta. [40]

With growing recognition of mangrove's carbon sequestration contribution, investments in mangrove restoration have increased considerably since 2018 in the region, with mixed levels of success.[41] These projects focus on replanting mangrove trees, raising awareness, and protecting mangrove forests from threats.[42] However, poor site selection, inadequate species matching, lack of maintenance, and insufficient community involvement result in unsustainable mangrove restoration.

Given Southeast Asia's highest global potential for mangrove and other wetland restoration [43] , investors should carefully design the project by assessing the present natural vegetation and choosing appropriate species to ensure the long-term viability and quality of the ecosystem restoration and avoid short-term impact views. Investors should also consider involving local communities in the design, implementation and monitoring of wetlands restoration projects, as they are the gatekeepers of local knowledge in habitat management. For further guidance on best practices for wetlands, consider UNEP and partners' work.[44]

Livelihoods and Gender

Divergent economic development levels exist in the Lower Mekong Region, with Thailand and Viet Nam being upper-middle-income countries and Cambodia, Lao People's Democratic Republic, and Myanmar being lower-middle-income countries. [45] The GDP per capita in 2023 ranges from US$1,187 (Lao People's Democratic Republic) to US$7,171 (Thailand). Since the early 2000s, the ASEAN region has experienced rapid economic growth[46], fueled by regional integration and trade expansion, increased foreign direct investment (FDI), a booming tourism sector, and productivity improvement in the agriculture, forestry, and fishery sectors.[47] In parallel, livelihoods significantly improved, as indicated by an average improvement of 19 per cent of the Human Development Index (HDI)[48] during 1990 and 2022, at a higher rate than the global progress. [49] Still, poverty is a pressing challenge, particularly in Myanmar, Lao People's Democratic Republic, and Cambodia, with respective ratios below the national poverty line of 24.8 per cent (2017), 18.3 per cent (2018), and 17.7 per cent (2012). [50]

Gender inequality and financial inclusion

Women constitute a substantial proportion of the agricultural workforce in the Lower Mekong Region. For instance, women in Cambodia and Lao People's Democratic Republic represent 74 per cent and 54 per cent of the agricultural workforce, respectively.[51] Traditionally, women play a crucial role in agriculture as stewards of natural resources, engaging extensively in crop production and preparing household meals. In contrast, women have limited access to essential resources and opportunities, such as financial credit, land ownership, and crucial farm equipment, which is crucial to economic empowerment, and often with lower levels of formal education, including agricultural vocational training, which marginalize women.[52] In addition, women are traditionally underrepresented in decision-making bodies and governance structures, limiting the voice of women.[53] Gender inequality is prevalent beyond the agriculture sector, as indicated by the region's low Gender Inequality Index (GII).

35 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

36 Ibid.

37 Ibid.

38 ASEAN Secretariat (2022), "ASEAN strides to achieve post-2020 biodiversity framework", News, https://asean.org/asean-strides-to-achieve-post-2020-biodiversity-framework/

39 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), et al. 2023. 2023 Review of Climate Ambition in Asia and the Pacific: Just transition towards regional net-zero climate resilient development

40 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

41 United Nations, Economic and Social Commission for Asia and the Pacific (ESCAP), et al. 2023.2023 Review of Climate Ambition in Asia and the Pacific: Just transition towards regional net-zero climate resilient development

42 Ibid.

43 United Nations Environment Programme, 2023. Decades of mangrove forest change: what does it mean for nature, people and the climate?

44 Nature-based solutions | UNEP - UN Environment Programme ; FAO. 2023. The world's mangroves 2000–2020.

45 World Bank Income Classification

46 OECD, 2024. Towards Greener and More Inclusive Societies in Southeast Asia.

47 Asian Development Bank, 2024. Transforming ASEAN Strategies for Achieving of Ams of laive Growth.

48 HDI measures human development in income, education, and life expectancy.

49 Specific country data | Human Development Reports

50 World Bank Development Indicators

51 ADB, 2021. Cambodia Agriculture, Natural Resources, And Rural Development Sector Assessment, Strategy, And Road Map; ADB, 2018. Agriculture, Natural Resources, and Rural Development Sector Assessment, Strategy, and Road Map

52 Ibid.

53 Asian Development Bank, 2022. Agriculture, Natural Resources and Rural Development Sector Assessment, Strategy and Road Map - Viet Nam 2021–2025

The GII measures gender inequality across reproductive health, political empowerment, and labour market participation, with a lower GII value indicating high gender inequality. Cambodia, Myanmar, and Lao People's Democratic Republic underperform the global average, while Thailand and Viet Nam outperform.[54] To achieve gender equality at the regional level, ASEAN published ASEAN Committee on Women Work Plan 2021–2025 to advance gender equality and women's empowerment.

While Southeast Asia has made strides in financial inclusion, access to financial services remains uneven, particularly challenging to women and rural residents.[55] Digitalization, especially via mobile phones, is playing a transformative role in advancing financial inclusion. Southeast Asia has high smartphone penetration rates, which has facilitated the adoption of mobile banking, digital payments, and other FinTech solutions, that could empower women in the land use sector.

To bridge the gender gap, Investors should include women as co-designers of solutions, and target beneficiaries by aligning with the gender-mainstreaming standard 2X Challenge, at minimum, as referenced in the UNEP Positive Impact Indicators Directory. Additional case studies prepared by FAO are available.

Land tenure

In the Mekong region, many forest-dependent communities manage land under customary tenure arrangements, which often lack formal legal recognition.[56] The lack of protection of these customary lands and resource rights sometimes leads to population displacement, limiting or prohibiting access to natural resources for food and income, which could in turn lead to illegal activities linked to deforestation.[57]

Since the late 1990s, countries in the Lower Mekong Region, except Thailand, have granted large-scale land concessions to attract investments, particularly for agriculture and tree plantations. In 2019, 4.1 million hectares of land concessions were provided to companies, which often resulted in marginalizing smaller holders from those lands[58], despite recent moratorium. Addressing this issue requires a shift towards recognizing and securing customary land rights, promoting equitable land distribution, ensuring transparent governance of land concessions, and involving communities in decisions regarding forest management.

In Viet Nam, Land Law No. 31/2024/QH15 will become effective in January 2025 to replace Land Law No. 45/2013/QH13 [59], expanding the limit for transferring individuals' agricultural land use rights to households and individuals, and placing strict conditions for transferring land use rights in the real estate business.

Investors should familiarise themselves with the latest regulations[60], including land rights, and/or carbon rights when available, and with extra due diligence needed in the case of carbon investments. When selecting a project site, careful regional analysis on land tenure-related regulation, current challenges, and assessing environmental and social aspect is critical to avoid unintended consequences.

Indigenous People and Local Communities

The Lower Mekong Region is home to more than 100 distinct ethnic groups, representing up to 70 per cent and 40 per cent of the population in Lao People's Democratic Republic and Myanmar, respectively.[61] The Indigenous People and Local Communities (IPs and LCs) inhabit areas with high levels of biodiversity, such as tropical rainforests to high mountain areas, low-lying coasts, and floodplains, being essential custodians of these valuable areas. IPs and LCs, however, face various challenges related to human rights, land and resource rights, livelihoods, and the sustainability of their traditional practices. Some bottlenecks include a lack of formal legal recognition of customary tenure arrangements, weak legal frameworks, limited government capacity to implement, and limited participation of the IPs and LCs in the decision-making process. Initiatives like Cambodia's Community Protected Areas and Community Forests, where IPs and LCs are granted land management rights [62] , and Thailand's Community Forest Act 2019, which grants local communities to manage and protect forest resources, are emerging.

When land use investments are involving surrounding IPs and LCs, investors should ensure an effective stakeholder management process, following a meaningful and participative Free, Prior and Informed Consent (FPIC) when necessary, and establish grievance mechanisms to safeguard the rights of IPs and LCs. UN REDD Cancun safeguards are a good starting point to identify, monitor, and manage human rights-related risks from REDD+ projects. Numerous best practices and case studies on Benefit Sharing from REDD+ revenues[63], the business case for meaningful public participation in Environmental Impact Assessments (EIA)[64] and its guidelines[65], and community forestry models[66] in the Mekong Region are also available

54 Gender Inequality Index | Human Development Reports

55 Center for Impact Investing and Practices (CIIP), 2024. Financial Inclusion in Post-COVID Southeast Asia: Accelerating Impact Beyond Access.

56 International Labour Organisation, 2017. The rights of indigenous peoples in Asia.

57 Ibid

58 Centre for Development and Environment, 2018. State of land in the Mekong Region.

59 FAOLEX Database (Land Law No. 31/2024/QH15. | FAOLEX)

60 Land Law No. 31/2024/QH15 (Viet Nam); Land Development Act (No. 2), B.E. 2558 (2015) (Thailand); Land Law 2021 (Cambodia); Land Law (No. 04/NA); Decree No. 88 (2008); Law No. 14/NA on Investment Promotion. (Lao People's Democratic Republic); Vacant, Fallow and Virgin Lands Management Rules, Notification No. 1/2012 (Myanmar)

61 International Labour Organisation, 2017. The rights of indigenous peoples in Asia.

62 Ibid

63 Benefit Sharing case studies from REDD+ revenues

64 Making the Case: Effective Public Participation is Good for Business in the Mekong Region | Pact (pactworld.org)

65 Mekong Partnership for the Environment, 2017. Guidelines on Public Participation in Environmental Impact Assessment in the Mekong Region.

66 Social and Environmental issues in Community Forestry in Myanmar and Experiences in applying Safeguards in Myanmar https://www.un-redd.org/document-library/

online.

Sustainable Production

Agriculture, forestry, and fishery are the foundation of the livelihoods of the region's 100 million smallholder farmers, accounting for 15.7 per cent of the GDP on average and employing up to 70 per cent of the workforce (Table 4).

Rice is a key-produced commodity in the region, with Thailand and Viet Nam as the second and third largest exporters after China.

The region's other crucial exports include wood products, natural rubber, cassava, coffee, fishery, fruits, and seafood.

Increased input use and productivity improvement have led to a remarkable increase in agricultural production value (30 per cent increase from 2011 to 2021)[67] in Southeast Asia. However, this came at the cost of environmental degradation, including freshwater depletion, soil degradation, and air pollution (greenhouse gas emissions and smoke haze), which exacerbated the region's rich biodiversity.[68]

Therefore, shifting to a sustainable and low-carbon agriculture sector is a priority for the region, and it has been incorporated into its agricultural development plans, with varying degrees, as summarised in Table 4.[69]

Table 4: Key figures and policies for the agriculture sector in the Lower Mekong region

	Thailand	Viet Nam	Cambodia	Lao PDR	Myanmar
Value added (% of GDP), Agriculture, Forestry and Fishing (2023)	8.6%	12.0%	21.5%	16.1%	20.4%
Employment in agriculture (% of total employment) (2023)	30%	34%	37%	70%	46%
Main Agroforestry Exports	Rice, sugar, rubber, Rice, coffee, cassava, seafood, canned pineapple	Rice, coffee, pepper, cashew nuts, timber products, fisheries	Rice, cassava, rubber	Rice, maize, banana, citrus	Rice, pulses
Organic Shares of Total Agricultural Land (2021)	0.8% (167'985 ha)	0.6% (74'540 ha)	0.4% (21'112 ha)	0.3% (7'993 ha)	0.08% (10'143 ha)
Policy on Sustainable Agriculture	The Thirteenth National Economic and Social Development Plan (2023-2027); Organic Agriculture Action Plan 2023-2027	Decree 109/2018 ND-CP on Organic Agriculture (2018); e National Organic Agriculture Development Program in 2020; Plan on restructuring of agriculture in 2021-2025; Decision 1748/QD-TT	Five-Year Strategic Plan for Agriculture Sector (2019-2023); Organic Agriculture Regulation (2019)	Green and Sustainable Agriculture Framework for Lao PDR to 2030; National Green Growth Strategy of the Lao PDR till 2030	Myanmar Agriculture Development Strategy and Investment Plan (2018-2023)
Organic Agriculture Target	Increase organic agriculture areas to approximately 320,000 ha; Expand Good Agricultural Practices (GAP)-certified agriculture areas to approximately 400,000 ha by 2027	Increase land area n.a. meeting VietGAP. standards by 10- 15 per cent a year; organic farming area to account for 1 per cent of the total cultivation land by 2030	n.a.	n.a.	n.a.

Lao PDR: Lao People's Democratic Republic.
Source: Various data base and policy reports

social-and-environmental-issues-community-f-orestry-myanmar-and-experiences

67 OECD and FAO, 2022. OECD-FAO Agricultural Outlook 2022-2031.

68 OECD, 2024. Towards Greener and More Inclusive Societies in Southeast Asia.

69 World Bank Development Indicator (value added and employment rate of agriculture, forestry, and fisheries) FiBL & IFOAM, 2023. The World of Organic Agriculture Statistics and Emerging Trends 2023. ; OECD, 2024. Towards Greener and More Inclusive

Organic Farming

Organic farming, an alternative to conventional agriculture that requires different types of inputs (e.g., fertilisers, and pesticides) and techniques (e.g., crop diversification, and cross-crop cultivation), is known to have less environmental impact than conventional agriculture.[70] Organic farming is still nascent in the region, with less than 1 per cent of total land converted per country (Table 4). Still, Thailand and Viet Nam can potentially increase such practices, with a time-bound commitment to expand the organic farming area. Historically, Thailand provided financial incentives and subsidies for organic rice cultivation[71], while Viet Nam implemented a Participatory Guarantee System (PGS), which provides a low-cost quality assurance mechanism[72], as an alternative to more costly third-party certification.

Rice

Rice is one of the primary agricultural production commodities in the region and contributes largely to GHG emissions from the agriculture sector. Therefore, there is an urgent need to shift to low-carbon rice farming practices, such as Alternative Wetting and Drying (AWD) and organic rice farming.[73] AWD involves intermittently irrigating rice fields instead of keeping them continuously flooded, thereby reducing methane production. There is also a growing demand for organic products globally and within Southeast Asia[74], presenting a potential market opportunity for organic rice farmers.

To achieve a sustainable rice sector, the world's first voluntary sustainability standard for rice cultivation, the Sustainable Rice Platform (SRP)[75], a global multi-stakeholder alliance, provides an assurance scheme to promote resource efficiency and sustainability in trade flows, production and consumption operations, and supply chains in the rice sector.

Timber

Mekong's timber production grew over the last decade, fueled by end-market growth in European Union, the United Kingdom of Great Britain and Northern Ireland, and the United States of America for wood furniture. Viet Nam and Thailand are wood processing and export hubs, and Lao People's Democratic Republic, Myanmar, and Cambodia are transitioning to sustainable forest plantation.[76] Viet Nam has become a significant exporter of wood and timber products, with export value contributing US$12.5 billion in 2020[77] and with wood products ranging from wooden furniture, seats, and wood chips to wood-based panels.

In some parts of the region, illegal logging is still prevalent, driven by the surging timber demand from India and China, which is leading to deforestation.[78] Viet Nam's major wood and wood product importers, the United States of America, Australia, Republic of Korea, Japan, and the European Union, are increasingly demanding transparency in the supply chain and compliance with international sustainability standards.

Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) are major sustainability certification schemes for wood products, widely used in the region. The recent EUDR is imposing even stricter requirements for exported timber (as explained in Box1).

Natural Rubber

The region has successively transformed into a global hub for natural rubber production, accounting for over half of the worldwide output[79], with a total 7.6 million hectares of rubber plantation.[80] Thailand is the world's largest rubber producer, accounting for roughly a third of the global production, mainly from smallholders.[81] On the other hand, industrial-scale plantations have proliferated in Cambodia and Lao People's Democratic Republic.

In the last 15 years, a few economic land concessions for rubber plantations have caused negative environmental and social impacts, including deforestation, a decline in biodiversity fueled by monoculture plantations, soil erosion, hazardous waste and pollution, population displacement, and human rights abuse.

Traceability of the supply chain is key, and emerging initiatives such as the Global Platform for Sustainable Natural Rubber (GPSNR), is addressing environmental and social risks in a sectorial, pre-competitive and collaborative manner.

Freshwater Fishery

Fisheries represent an important sector for food security and livelihood for millions of people in the Mekong River Basin. The Mekong River

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Societies in Southeast Asia.; Cambodia Agriculture, Natural Resources, And Rural Development Sector Assessment, Strategy, And Road Map; Asian Development Bank, 2022. Agriculture, Natural Resources and Rural Development Sector Assessment, Strategy and Road Map - Viet Nam 2021–2025; ADB, 2018. Agriculture, Natural Resources, and Rural Development Sector Assessment, Strategy, and Road Map World Bank Group, 2022. Thailand Rural Income Diagnostic: Challenges and opportunities for Rural farmers. World Bank Group, 2022 Myanmar: Food Security and Agriculture Monitoring Brief; Thailand Thirteenth National Economic and Social Development Plan (2023-2027)

70 FiBL & IFOAM, 2023. The World of Organic Agriculture Statistics and Emerging Trends 2023.

71 Ibid

72 OECD, 2024. Towards Greener and More Inclusive Societies in Southeast Asia.

73 Asian Development Bank, 2023. Asia's Transition to Net Zero: Opportunities and Challenges in Agriculture.

74 OECD, 2024. Towards Greener and More Inclusive Societies in Southeast Asia.

75 Originally co-convened in 2011 by the International Rice Research Institute (IRRI), the United Nations Environment Programme (UNEP) and private partners.

76 UNREDD Programme: Lower Mekong in transition: unpacking the trends of forest trade

77 Viet Nam Ministry of Industry and Trade, (Detail (moit.gov.vn))

78 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

79 Centre for Development and Environment, 2018. State of land in the Mekong Region.

80 Ibid.

81 ASEAN, 2021. Investing in Sustainable Natural Capital in ASEAN

Commission estimates the economic value of the basin's fisheries to be around US$17 billion in 2020. Aquaculture production also grew significantly to 4 million tons in 2020 from 2.3 million tons in 2010, led by Viet Nam's fish and aquaculture output growth. This nearly doubled production in a decade is posing environmental pressure to crucial ecosystems such as mangroves[82], that have been converted to shrimp farming and rice fields at a rate of nearly 30 per cent decline from 2010 to 2020.[83]

Sustainable certificates, such as the Aquaculture Stewardship Council (ASC), MSC Fisheries Standard, and Asian Seafood Improvement Collaborative (ASIC), are increasingly crucial to promote sustainable fishing practices.

NTFPs and Other Agroforestry Products (Coffee and Palm Oil)

Various Non-timber forest products (NTFPs), such as bamboo, rattan, medicinal plants, honey, fruit, and nuts, are important income sources for the rural population. Bamboo and Rattan are essential for the economic development of mountainous regions in Viet Nam, contributing to the country's export earnings[84], reaching US$474 million in 2019.[85] After Brazil, Viet Nam is the second-largest coffee exporter globally, dominating the Robusta coffee market[86], with most of its production centred in the Central Highlands. Thailand is the third-largest palm oil exporter, after Indonesia and Malaysia, with most plantations located in the southern region. Thailand's palm oil production has consistently grown, with an annual increase rate of 5.64 per cent from 2012 to 2023.[87] Roundtable on Sustainable Palm Oil is a sustainability certificate for palm oil. Numerous international certification schemes, such as Sustainable Agriculture Initiative (SAI), Rainforest Alliance, Fairtrade International, can be used to ensure products meet environmentally and socially responsible agricultural practices. More recently, national certification schemes have emerged, such as IGP (Indication Géographique Protégée) for the world-renowned Kampot pepper, Kampong European Union Palm Sugar and Koh Trong Pomelo in Cambodia.

When investing in forestry and agriculture value chains, investors should conduct rigorous due diligence to avoid contributing to deforestation, habitat conversion or human rights abuse, including social inequalities, population displacement and gender gap. Because of the complexity of certain value chains, investors may consider leveraging technical assistance facilities from donors to support investee's shift to more sutainable production (sustainability certificates, regenerative agriculture and organic farming, outgrower schemes, FPIC, gender balance…). Examples are listed in section 5. KPIs from the UNEP Land Use Impact Hub (PRO 01-02-03-04-05-06) can be used to track positive impacts.

Investing Opportunities

According to a recent Green Growth Knowledge Partnership (GGKP) study, the benefit of investing in natural capital is clear. There are tangible environmental and social benefits, at the magnitude of US$20 for every US$1 invested.[88] With its abundant natural resources, the Lower Mekong Region offers multiple NbS investing opportunities, generating positive impacts for climate mitigation, adaptation, ecosystem restoration, livelihood improvement and gender balance, on top of financial benefits.

Below is a nonexclusive list of investing opportunities exemplified by innovative finance stakeholders in the Lower Mekong Region.

Conservation and Protection of natural resources

- **Pre-finance carbon emission reduction activities, related to avoided deforestation and forest degradation, and generate revenues from REDD+ carbon credits. Investors should select REDD+ projects that come with strong co-benefits for nature and people and follow integrity principles from the IC-VCM.**
    - An example is the Keo Seima REDD+ Project in Cambodia[89], that has reduced 21 M tCO2eq covering 166,000 ha of protected forest, and ensuring that local communities benefit fully and fairly, with real and durable improvements to their daily lives.

- **Invest in ecotourism and nature-based tourism operations to generate financial revenues for Protected Areas and ecosystems, activating Protected Area trust funds, village funds or Payment for Ecosystem Services (PES) funds.**
    - Both Cambodia and Lao People's Democratic Republic identify ecotourism/nature-based tourism as a green growth priority, with successful sites such as Chambok (Kirirom National Park) and Cardamom Tented Cam in Cambodia.[90] In 2023, the World Bank-supported Cambodia Sustainable Landscape and Ecotourism Project[91] (CSLEP), seeking US$55 million for Public Private Partnership for ecotourism operation.[92]

    - Viet Nam's Payment for Forest Ecosystem Services, where

82 Mekong River Commission, 2024. 2023 Mekong State of the Basin Report (Final Technical Version).

83 Ibid

84 World Bank, 2019. Viet Nam Country Forest Note.

85 Viet Nam, General Department of Forestry. Viet Nam Handicraft Exporter Association (vietcraft.org.vn)

86 UNEP, 2020. Addressing smallholder resilience in coffee production in the Central Highlands, Viet Nam

87 RSPO article Thailand's Sustainable Pathway: Key Findings of Study on Thai Palm Oil Sector - Roundtable on Sustainable Palm Oil (RSPO)

88 Green Growth Knowledge Partnership (GGKP), 2024. . Closing the Gap: Investing in natural capital to meet the SDGs. Geneva: Green Growth Knowledge Partnership.

89 Keo Seima REDD+ (wcs.org)

90 World Bank, 2020. Enabling Ecotourism Development in Cambodia.

91 Development Projects : Cambodia Sustainable Landscape and Ecotourism Project - P165344 (worldbank.org)

92 Cambodia Ministry of Finance. Ministry of Tourism, Cambodia - Official Website - Holidays (tourismcambodia.org)

water supply companies and hydropower plants purchase forest ecosystem services from local communities, for forest protection, is often considered a successful case.

Sustainable Agriculture and Forestry

- **Invest in sustainable value chain improvements and diversification through equity and concessional loans linked to positive impact performance.This may translate into diversification of revenue sources (wood sub-products, beyond timber), climate mitigation co-benefits (on-site transformation of forestry products), and livelihood improvements (often through outgrower schemes).**
    - An example is an equity investment and additional loan provided to Mekong Timber Plantations (MTP), the largest forestry plantation company in Lao People's Democratic Republic, FSC certified. New Forest, a private equity firm specializing in sustainable forestry, and FMO, a Dutch development finance institution, support MTP in expanding its sustainable forest plantation, including building a wood processing mill to produce diverse products.

- **Provide debt to producers to create a shift to more sustainable production and organic farming in key commodities such as rice, timber, natural rubber, freshwater fisheries, and NTFPs. The ASEAN Guidelines on Promoting Responsible Investment in Food, Agriculture, and Forestry (ASEAN RAI) can help ensure responsible investment.**
    - A debt loan provided to Amru Rice, a private company and one of the leading rice exporters in Cambodia, was made possible by the syndication of banks. With this funding, Amru Rice is shifting to organic rice production with organic certification standards and tapping into more lucrative export markets. [93]

    - The &Green Fund's US$20 million debt investment in Mercon B.V., Viet Nam's coffee producer, to transit to a climate-resilient, deforestation-free coffee production landscape.[94]

- **Unlock grants for innovative blended finance vehicles that target climate resilience, landscape restoration, and improving people's lives.**
    - *I*n 2021, as part of a blended finance partnership, the Dutch Fund for Climate and Development (DFCD) approved a €350,000 grant for Minh Phu Seafood Corporation, Viet Nam largest shrimp producer, to lead the implementation of the newly developed farming model integrating rice and shrimp in Southern Viet Nam, a model that will improve farmers' income and resilience.[95]

- **Improve smallholder farmers' access to finance, especially women groups, by extending credit lines and appropriate financial instruments linked to sustainable agricultural practices and climate resilience.**
    - The IDH Farmfit Fund's US$1 million loan to ACOM, Viet Nam's fifth largest coffee exporter, to grow business with more than 3,000 coffee farmers across Viet Nam, allowing farmers to finance the input purchase.[96]

    - In Bali, Indonesia, PT KKI (Coffee Trading Cooperative) improved sustainable and climate-resilient coffee production while involving more women and people with disabilities in all stages of production, processing, and packaging, by leveraging a grant from the UNEP-managed Tropical Landscapes Grant Fund. Through expanding this Geographical Indication (GI) Kintamani Coffee production, PT KKI is in the process of securing additional debt financing from development finance institutions and domestic investor.

Restoring Nature

- **Invest in wetland restoration to enhance ecosystem services like carbon sequestration, water filtration, and biodiversity conservation and to increase the region's climate resilience.**
    - The New Forests's Tropical Asia Forest Fund 2 investment in Thailand's Kuan Kreng Landscape Peatland Conservation and Restoration Project.[97] The project will closely work with the Thai government and local community groups. This project was supported by UNEP's Restoration Seed Capital Facility, which assists impact-driven fund managers and investors in sustainable land use for their pipeline and project development.

- **Invest in green, social and sustainability bonds for wetlands and forest restoration projects.**
    - A recent deal was signed between AXA IM Alts and Forest Carbon, a restoration project developer in Southeast Asia, to restore wetlands and forests in Indonesia, with a plan to issue green bonds.[98] USAID's Green Invest Asia supports this deal.[99]

- **Invest in innovative startups that promote regenerative agriculture through biofertilizers and crop protection products that improve yield and soil health.**
    - Mekong Enterprise Fund's investment in HUSK[100], a pioneering biochar and biofertilizer company committed to regenerative agriculture practices in Southeast Asia.

93 Grow Asia website

94 &Green website

95 SNV Press Release

96 IDH Press Release

97 New Forest Press Release

98 Forest Carbon Press Release

99 USAID Green Invest Asia website

100 Mekong Capital Press Release

Measurement, reporting, and verification (MRV) innovation technologies

- **Invest in innovative MRV systems based on new technologies and tools that improve accurate measurement, reporting, and verification of carbon removal, biodiversity enhancement, and avoided deforestation. The startup ecosystem is booming in Southeast Asia.**
    - The SMART tool, developed by leading conversation organizations, has been used globally, including in the Lower Mekong region. It enables users to collect, store, and analyse wildlife and biodiversity data for critical areas, including Protected Areas. The Government of Cambodia officially has adopted SMART.

    - To develop transboundary early warning systems (EWS), the Mekong River Commission (MRC) developed the Mekong Flood Forecasting and Early Warning System (MFFS) by integrating satellite data and the water levels forecasting platform (Delft-FEWS) in Cambodia and Lao People's Democratic Republic, through USAID-supported SERVIR SEA project. This real-time monitoring with advanced forecasting technologies contributes to disaster risk reduction.

    - Drip irrigation is an alternative rice farming method with more efficient water resource management. Various technology and digital tools to support sustainable agricultural production are emerging in the region.

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