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# ASEAN TAXONOMY FOR SUSTAINABLE FINANCE

## VERSION 2


ASEAN TAXONOMY BOARD

# FOREWORD

## Message from the Chair of the ASEAN Taxonomy Board (ATB)

The ATB is pleased to introduce the ASEAN Taxonomy for Sustainable Finance Version 2 (ASEAN Taxonomy Version 2), following the release of the ASEAN Taxonomy Version 1 (ASEAN Taxonomy Version 1) in November 2021. The ASEAN Taxonomy is science-based, while being inclusive to cater to the different development stages of Association of Southeast Asian Nations (ASEAN) Member States (AMS). Version 1 served to provide the overall framework of the ASEAN Taxonomy. The ASEAN Taxonomy is being developed progressively and will be periodically reviewed to keep abreast with the global sustainability agenda and technological advancements for continued relevance and effectiveness. Since the establishment of the ATB under the auspices of the ASEAN Finance Ministers' and Central Bank Governors' Meeting in March 2021, efforts to grow the sustainable finance ecosystem have accelerated commendably across AMS, with Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam having developed or in the process of developing their national taxonomies. These taxonomies are, or will be, consistent with the ASEAN Taxonomy, thus reinforcing the ASEAN Taxonomy's role as the common language for sustainable finance in the region as well as the importance of an inclusive, overarching guide for the region. At the same time, the transition imperative advocated by the ASEAN Taxonomy has gained significant traction globally, with several important upcoming taxonomies designed to support orderly and just transitions.

The ATB is cognisant of the need for the ASEAN Taxonomy to be the common ground for AMS national taxonomies, and the importance of ensuring interoperability with other widely used and relevant international taxonomies. Great care was taken to obtain and incorporate useful input from stakeholders in 2022, which contributed to the development of ASEAN Taxonomy Version 2. Input from stakeholders included how to address social aspects and the basis and reference for tier-setting in developing the Technical Screening Criteria (TSC) for the Plus Standard. The ASEAN Taxonomy's multi-tiered approach facilitates inclusion among AMS, allowing for different levels of adoption depending on individual AMS' readiness. The principles-based Foundation Framework has been expanded in ASEAN Taxonomy Version 2 by providing guiding questions, decision trees and use cases that address all environmental objectives (EOs) and essential criteria (EC) and allows any AMS to apply the framework to immediately commence its sustainability journey in a consistent and structured manner. ASEAN Taxonomy Version 2 also provides the methodology that will be applied in setting the TSC tiers in the Plus Standard and contains the TSC for all four EOs for the Energy[1] Sector, as well as the Carbon Capture, Utilisation and Storage (CCUS) enabling sector. The approach to setting the TSC addresses both the principles of credibility and inclusiveness. The "Green" tier is benchmarked to the 1.5°C Paris Agreement target and the "Amber" tiers promote inclusivity.

As ASEAN considers economic recovery and resilience, climate action and sustainability, the need to manage energy security through clean energy investments becomes more pressing. The ASEAN Centre for Energy, in its 7th ASEAN Energy Outlook report, projects that ASEAN will become a net importer of natural gas and coal in 2025 and 2039 respectively and assumes continuous utilisation of fossil fuels based on its baseline scenario (ASEAN Centre for Energy, 2022). During the November 2022 G20 Summit in Indonesia, the Just Energy Transition

[1] Referring to Activities under Electricity, Gas, Steam and Air Conditioning Supply in Annex 1 to the ASEAN Taxonomy.

Partnership (JETP), a USD20 Billion program to decarbonise Indonesia's power system, was launched. It aims to increase the renewable energy share in Indonesia's power generation mix by 2030 and place focus on the early retirement of coal-fired power plants. In ASEAN Taxonomy Version 2, the ATB has thoroughly considered how and where coal phase-outs (CPOs) can play a role in decarbonisation to support the Paris Agreement goals. Criteria such as emissions intensity, absolute emissions reduction, or the reduction in period of operations (i.e.: power plant age) have been considered. Given the benefits of reducing emissions from coal power generation in a managed phase out and the need for the ASEAN Taxonomy to respond to the diverse AMS circumstances to facilitate an orderly and just transition, the ATB has developed a TSC for CPO which aims to promote inclusivity without compromising credibility and interoperability. The ATB recognises that while the inclusion of CPO in the ASEAN Taxonomy is novel, when approached correctly, it provides a powerful tool for transition and looks forward to further dialogue with the international community and other stakeholders for effective implementation. Ultimately, the ATB hopes that the CPO criteria, a unique feature and a global first for a regional taxonomy, encourages early action to reduce the region's reliance on coal as a major energy source.

The ATB strives to address the multi-faceted concerns of stakeholders, where social aspects were deliberated at length. As a result, ASEAN Taxonomy Version 2 has also introduced a third EC, "Social Aspects" alongside the "Do No Significant Harm" (DNSH) and "Remedial Measures to Transition" (RMT) criteria. Three key social aspects, Respect Human Rights, Prevention of Forced and Child Labour and Impact on People Living Close to Investments, are to be considered as part of the assessment under both the Foundation Framework and the Plus Standard. In addition, the DNSH criteria has also been developed to provide comprehensive yet intuitive guidance to users on aspects that may cause harm during the assessment process.

The ATB is encouraged by the international and regional discussions on the ASEAN Taxonomy, including how it can provide a versatile model for addressing constituents with varying starting points and circumstances. The ATB also recognises that the development of an effective and credible taxonomy that serves to provide a common language across the ten AMS will require continued stakeholder consultations and input, scientific perspectives, innovative approaches and continuous review, underlining the need for the ASEAN Taxonomy to be developed in stages and nurtured as a living document. The ATB's mission continues as we consider regional and international advancements in the development of TSC for other focus and enabling sectors.

The ATB is grateful to the members of ASEAN Capital Markets Forum, the ASEAN Insurance Regulators Meeting, the ASEAN Senior Level Committee on Financial Integration, and the ASEAN Working Committee on Capital Market Development, other stakeholders and all who have contributed towards the development of ASEAN Taxonomy Version 2. We look forward to collaborating with stakeholders during the consultations following the release of Version 2 to ensure that the needs of financial institutions and the real economy continue to be considered. In so doing, the ATB aims to achieve our mandate of developing, maintaining and promoting an ASEAN taxonomy that meaningfully and effectively helps to orientate capital towards a sustainable ASEAN, and enables each AMS to commence its transition journey immediately, consistent with ASEAN's sustainability ambition.

Noorrafidah Sulaiman

Chair

ATB

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# ABBREVIATIONS AND DEFINITIONS

| Term | Abbreviation | Definition |
|---|---|---|
| Activity | - | An Activity which may be assessed for classification under the ASEAN Taxonomy. An Activity takes place when resources such as capital, goods, labour, manufacturing techniques or intermediary products are combined to produce specific goods or services. It is characterised by an input of resources, a production process and an output of products (goods or services). For the purposes of assessment, an Activity may be defined as an expansion or significant upgrade of an existing Activity. |
| Activity Code | AC | A code used by the ASEAN Taxonomy to define individual Activities within an ISIC Group. |
| ASEAN Capital Markets Forum | ACMF | A high-level grouping of capital market regulators from all 10 ASEAN jurisdictions. |
| ASEAN Finance and Central Bank Deputies' Meeting | AFCDM | Meeting of ASEAN Finance and Central Bank Deputies |
| ASEAN Finance Ministers and Central Bank Governors' Meeting | AFMGM | Meeting of ASEAN Finance Ministers and Central Bank Governors |
| ASEAN Insurance Regulators' Meeting | AIRM | Platform to strengthen the insurance cooperation in the developments of insurance regulatory and supervisory frameworks and research and capacity building. |
| ASEAN Member State | AMS | In reference to one or more of the 10 members of the Association of Southeast Asian Nations. |
| ASEAN Taxonomy Board | ATB | A body set up under the auspices of the AFMGM to develop, maintain and promote a multi-tiered ASEAN Taxonomy. |
| Assessor | | Person or organisation which assesses an Activity and assigns a classification on this basis. |
| Assessment | | Process by which the applicability of a classification to an Activity is ascertained. |
| Association of Southeast Asian Nations | ASEAN | Association of 10 member states in SE Asia, which promotes intergovernmental cooperation and facilitates economic, political, security, military, educational, and sociocultural integration between its members and countries in the Asia-Pacific. |

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| Carbon Capture, Utilisation and Storage | CCUS | The capture of CO2 from large point sources, such as power generation or industrial facilities. If not being used on-site, the CO2 is compressed and transported to be used in a range of applications or injected into deep geological formations. |
| Carbon lock-in | | Carbon lock-in occurs when transitioning to cleaner and more sustainable energy sources is more difficult due to the existing infrastructure and economic systems being built around the use of carbon-based fuels. |
| Classification | | Colour-coded system used in the ASEAN Taxonomy for identifying the degree to which an Activity is sustainable through its contribution to an EO. Classification levels are Green, Amber and Red. To be classified as Green or Amber, an Activity must:<br>1. Result in a positive benefit to one or more EOs; or<br>2. Creates some form of utility whilst displacing another provider of that utility which detracts from an EO or EOs.<br>A Red classification means that an Activity is not aligned with the ASEAN Taxonomy. |
| Climate Bonds Standard | CBS | Labelling scheme with criteria allowing certification of bonds and loans as consistent with a 2°C warming limit |
| Coal phase-out | CPO | An Activity whereby processes involving combustion of coal, such as coal powered generation of electricity', are shut down over time in line with aims to reduce GHG emissions. Coal phase-out is considered an Activity which may receive classification under the ASEAN Taxonomy. |
| Coal-fired Power Plant | CFPP | A power station which generates electricity from the combustion of coal. |
| Commencement | | Unless otherwise stated, 'Commencement' of an Activity refers to:<br>1. Where Activity requires significant infrastructure: the start of the on-site construction, upgrade or expansion of the facilities required to conduct the Activity. For a large construction project, Commencement shall normally mean the same as NTP; or<br>2. Where Activity does not require significant infrastructure: the start of operations and the provision of the utility intended by that Activity. |

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| | | For the purposes of assessment, Commencement may also be defined as an expansion or significant upgrade of an existing Activity. |
| Common Ground Taxonomy | CGT | A list of green and sustainable economic activities recognised bilaterally by China and the European Union (EU); the CGT shows how the two taxonomies map with each other. |
| Contribution | | Contribution made by an Activity towards achieving an EO. |
| Company | | In the context of ASEAN Taxonomy, the term 'Company' means the organisation seeking classification of an Activity. |
| Do No Significant Harm | DNSH | The principle by which Activities may not be classified as Green or Amber by the ASEAN Taxonomy if they have resulted in will result in unremedied significant harm which has been caused or will be caused to one or more of the EOs by an Activity, or any actions required to implement the Activity. |
| Economic Research Institute for ASEAN and East Asia | ERIA | International organisation established to conduct research activities and make policy recommendations for further economic integration in the East Asia. |
| Electric Vehicles | EV | A vehicle that uses electric motors for propulsion. |
| Environmental Impact Assessment / Environmental and Social Impact Assessment | EIA / ESIA | A comprehensive document of a project's potential environmental (and social risks) and impacts. |
| Environmental Objective | EO | Environmental Objectives which the ASEAN Taxonomy is intended to facilitate. |
| Environmental, Social and Governance | ESG | Factors that are considered in decision making that incorporate sustainability considerations. |
| Essential Criteria | EC | Minimum criteria which must be fulfilled when implementing an Activity. The EC are DNSH, RMT and SA. |
| European Commission | EC | Executive branch of the EU. |
| European Union | EU | Supranational political and economic union of 27 member states. |
| Foundation Framework | FF | Approach for assessing the contribution of Activities which is based on guiding principles. |

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| Free and Prior Informed Consent | FPIC | Specific right that pertains to indigenous peoples which allows them to give or withhold consent to a project that may affect them or their territories |
| Grandfathering | | The basis of the classification of a financial instrument after the TSC has changed or the Activity Tier to which it applies has been sunset. |
| Greenhouse Gases | GHG | Gases that absorb and emit radiant energy within the thermal infrared range, causing the greenhouse effect. |
| Information and Communications Technology | ICT | Technology related to unified communications and the integration of telecommunications and computers, and necessary enterprise software, middleware, storage and audio-visual, that enable users to access, store, transmit, understand and manipulate information. |
| International Capital Market Association | ICMA | Self-regulatory organisation and trade association for participants in international capital markets. |
| International Standard Industrial Classification | ISIC | Standard United Nations Statistics Division (UNSD) classification of economic activities. |
| Island System | | A collection of grid-connected power generation, electrical distribution, storage, control assets and loads, which have the ability to operate together independently of a wider electrical network. Note than an Island System in this context does not need to be a literal island surrounded by water. |
| Life-cycle Emissions | | The total amount of emissions associated with a product, service, or activity over its entire lifecycle, from the extraction of raw materials to the disposal of waste. This could be associated with the construction, operation, and decommissioning of a specific development. More information can be referenced in in ISO 14067:2018. |
| Nationally Determined Contribution | NDC | National climate action plan to cut emissions and adapt to climate impacts. |
| Network of Central Banks and Supervisors for Greening the Financial System | NGFS | Network of 121 central banks and financial supervisors and 19 observers that aims to accelerate the scaling up of green finance and develop recommendations for central banks' role for climate change. |
| Nomenclature generale des Activities economiques dans | NACE | Statistical classification of economic activities in the European Community. |

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| les Communautes europeennes | | |
| Notice to Proceed | NTP | The point in time signalling the start of construction process for an infrastructure project. |
| Paris Agreement | | Paris Agreement under the United Nations Framework Convention on Climate Change. |
| Photovoltaic | PV | Conversion of light into electricity using semiconducting materials. |
| Plus Standard | PS | Approach for assessing the contribution of Activities which is based objective pre-defined TSC. |
| Remedial Measures to Transition | RMT | Measures taken to remediate or mitigate the impact of any significant harm resulting from an Activity, or any actions required to implement the Activity. |
| Senior Level Committee on Financial Integration | SLC | ASEAN Senior Level Committee on Financial Integration comprising ASEAN central bank deputies/senior officials and Chairs/Co-Chairs of the different ASEAN working committees on financial integration. |
| Social Aspects | SA | EC of the ASEAN Taxonomy which relates to an obligation for Activities to avoid causing social harm. |
| Steering Committee on Capacity Building | SCCB | ASEAN Steering Committee on Capacity Building. |
| Substantial Contribution | SC | Contribution required for an Activity to be assessed as Green. |
| Sunsetting | | The process by which a Tier may be closed for any given Activity; as a result, classification of that Activity at that Tier will no longer be possible. |
| Sustainable Development Goals | SDG | 17 UN objectives intended to serve as a "shared blueprint for peace and prosperity for people and the planet now and into the future”. |
| Technical Expert Group on Sustainable Finance | TEG | Group established by the European Commission to develop recommendations on topics related to the EUT, including technical screening criteria. |
| Technical Screening Criteria | TSC | Quantitative or qualitative criteria against which the classification of the Activity is assessed. |
| Threshold | | Defined numerical value for a quantitative TSC. |
| Tier | | A gradation of TSC setting for EOs. Tier 1 sets TSC which represent a higher level of contribution to an EO than Tiers 2 and 3. Tier 1 is aligned with a Green classification, whilst Tiers 2 and 3 represent transitional TSC and are aligned with the Amber classification. |

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| Technical Review Body | TRB | Body responsible for reviewing and proposing enhancements to TSC. |
| TSC Period | | Period during which a TSC is extant for the purposes of classification of an Activity. |
| TSC Review | | Process at the end of TSC Period by which a TSC may be adjusted. |
| United Nations | UN | Intergovernmental organisation intended to maintain international peace and security. |
| United Nations Economic and Social Commission for Asia and the Pacific | UNESCAP | One of the five regional commissions under the jurisdiction of the UN Economic and Social Council. |
| United Nations Environment Programme | UNEP | Institution responsible for coordinating responses to environmental issues within the UN system. |
| Working Committee on Capital Market Development | WC-CMD | Coordinating committee which monitors initiatives and progress of ASEAN members towards building the capacity and laying the infrastructure for development of ASEAN capital markets. |

# EXECUTIVE SUMMARY

Rapid industrialisation in the Association of Southeast Asian Nations (ASEAN) has led to social and environmental challenges, including climate change impacts, poor air quality, and waste management. The ASEAN Taxonomy Board (ATB) was established in March 2021 to develop, maintain, and promote an ASEAN Taxonomy to be science-based, inclusive method of classifying Activities according to their contribution to the environment in the region.

Version 1 of the ASEAN Taxonomy was published in November 2021. The ATB called for stakeholder consultations after publication of Version 1. Over 80% of respondents emphasised the need for a common language. The lack of standardised and credible data was seen as the greatest challenge to successful implementation. International investors want ASEAN to align with international green investment standards, but the process is complex and tailoring the ASEAN Taxonomy to individual countries could be beneficial. National taxonomies in ASEAN have also been developed. These national taxonomies have varying scopes and approaches, with some establishing defined criteria and others emphasising a principles-based approach.

The ASEAN Taxonomy is a guide designed to enable a just transition towards sustainable finance adoption by ASEAN Member States (AMS). It provides alignment on underlying principles and helps harmonise the classification of sustainable activities and assets across ASEAN. The taxonomy was conceived based on five principles and offers two assessment approaches - the Foundation Framework (FF) and Plus Standard (PS) - to cater to diverse potential users across the AMS. Six Focus Sectors and three Enabling Sectors have been identified as being particularly important in the ASEAN sustainability journey and are covered under the PS.

The ASEAN Taxonomy is based on four Environmental Objectives (EOs): Climate Change Mitigation, Climate Change Adaptation, Protection of Healthy Ecosystems and Biodiversity, and Resource Resilience and the Transition to a Circular Economy. To be classified under the ASEAN Taxonomy, any Activity must demonstrate that it contributes to at least one of these EOs and does not have any adverse effects to other EOs. EO1 focuses on decarbonisation pathways for Activities, requiring them to align with decarbonisation trajectories in line with the Paris Agreement. EO2 concentrates on reducing the negative effects of climate change and increasing resilience through implementing processes or actions. EO3 concentrates on protecting the natural ecosystem and biodiversity, promoting sustainable use of natural resources, and minimising adverse impacts on the environment. EO4 focuses on promoting resource resilience and the transition to a circular economy through principles such as minimising resource use, optimising resource yield, and closing resource loops through effective waste management, which can be achieved by adjusting business operations and implementing circular economy principles via adapted products, production, technologies, and processes.

The ASEAN Taxonomy requires any Activity to fulfil three Essential Criteria (EC) for classification: Do No Significant Harm (DNSH), Remedial Measures to Transition (RMT), and Social Aspects (SA). DNSH ensures that an Activity that contributes to one environmental objective does not cause significant harm to another objective. RMT ensures that any significant harm is either removed or rendered insignificant. SA focuses on social aspects that could be harmed by an Activity, such as human rights, labour rights, and impact on people living close to the investments.

ASEAN Taxonomy Version 2 centres around the classification of Activities. An Activity takes place when resources such as capital, goods, labour, manufacturing techniques or intermediary

products are combined to produce specific goods or services. An Activity is not the same as the facilities used to conduct the Activity.

Technical Screening Criteria (TSC) classify Activities based on their contributions to EOs using quantitative, qualitative, or nature of Activity-based criteria. Under the ASEAN Taxonomy, "classification" refers to an Activity's contribution to an EO, while “Tier" refers to the different levels of TSC. PS has Tiers 1-3 aligned with Green, Amber Tier 2, and Amber Tier 3 classifications, while the FF does not use the Tier system and only has Green and Amber classifications. In all cases, a Red classification means that an Activity is not aligned with the ASEAN Taxonomy.

The ATB is responsible for maintaining the ASEAN Taxonomy, including consultation with representatives from AMS, delegation of tasks, and approval of any changes to the ASEAN Taxonomy. The ATB also sets TSC for each Tier of each defined Activity in a manner that will allow flexibility for individual AMS while representing a decarbonisation framework for ASEAN that balances ambition for sustainability with economic and technical realities. AMS are responsible for setting policies for Activities that occur within their own territory and aligning themselves with Tiers that reflect their own transition policies within their own territory on an Activity-by-Activity basis.

The assessment methodology for Activities seeks to determine if the Activity meets the principles of at least one of the EOs, avoids significant harm to other EOs, remediates any harm caused, meets all social aspects criteria, and the appropriate assessment approach is selected based on AMS policy and country-level preference. The process for assessing an Activity using FF assessing the Activity using principles-based guiding questions and a decision tree which determine the fulfilment of EO and EC. To assess an Activity using the PS, evidence is also required of fulfilment of the EO and EC. However, in this case, specific criteria are laid out in Annexes.

The PS in future versions of the ASEAN Taxonomy will expand their coverage to a wider list of Activities across all focus sectors identified in Version 1, with subsequent versions incorporating qualitative process and/or practice-based criteria. ASEAN Taxonomy has diverse potential users including member states, regulators, banking institutions, users of capital, and rating agencies. Future versions will expand the coverage of Activities in all focus sectors and provide more qualitative process and/or practice-based criteria. Users may also assess entities and portfolios by aggregating Activity assessments, which will be discussed in the next version of the ASEAN Taxonomy along with applicable grandfathering rules. Financial instruments may make use of similar procedures as described in the ASEAN Green Bond Standards, and future versions of the ASEAN Taxonomy will provide a system for classifying entities and portfolios based on an aggregation of Activities.

# 1. INTRODUCTION

## 1.1. General Lead-in

In November 2021, Version 1 of the ASEAN Taxonomy was published to focus on climate change and act as a map to help guide capital towards activities that can promote the transition of the real economy onto a more sustainable footing. Version 1 was intended to provide a framework for discussions with stakeholders. It was designed to be credible and science-based, while being inclusive and catering to the different development stages of ASEAN Member States (AMS). It was also intended to be periodically reviewed to keep pace with global sustainability goals and technological advancements, thereby remaining relevant and effective.

The Association of Southeast Asian Nations (ASEAN) is an association comprising ten member states in Southeast Asia, with an eleventh member state (Timor-Leste) currently under discussion for inclusion (ASEAN, 2022). ASEAN presently has a population of approximately 680 million people covering roughly 4.5 million square-kilometres across 20,000 islands and landmasses. The region boasts significant diversity in every dimension with an immense range of populations, histories, languages, religions, and cultures. This diversity not only exists between the AMS, but also within the individual member states. The economic situations of the AMS also differ significantly, with varying stages of development and economic structures. The GDP per capita ranges from low- to middle-income developing states – which includes most of the AMS – to high-income developed states such as Brunei Darussalam and Singapore. The inherent diversity throughout the regions necessitates an inclusive approach to development, regional progress, and cooperation. The usability of the ASEAN Taxonomy also considers the range of financial sector maturity which exists across the region.

As of 2021, the ASEAN economy was the 5$^{th}$ largest in the world and 3$^{rd}$ largest in all of Asia, valued at USD $3.3 trillion (ASEANstats, 2022). The growing number of services-related (e.g., tourism, processing, transport) and industrial (e.g., oil and gas, mining, electronics) activities have supported AMS to grow, evolve and converge, while maintaining economic development as the region's foci and objectives (von Kameke, 2022).

This rapid growth in industrialisation in ASEAN has brought with it a range of social and environmental issues. Poor air quality, water pollution, inadequate waste management, over-extraction of natural resources, and poor sanitation are just some of the challenges that AMS are experiencing to varying degrees. ASEAN is increasingly a contributor to and is becoming a victim of the global environmental challenges of climate change. Climate change is projected to have disproportionate impacts on the AMS, with significant threats to welfare, livelihood, and economic activity.

Aside from GHG emissions, other environmental aspects such as urban air quality, waste management, and conservation of natural resources also impact the ASEAN region. Seven out of ten AMS are among the top 50 most PM2.5 polluted countries in the world (IQAir, 2022). Air pollution is endemic in the region. With growing populations and increasing urbanisation, the volume of waste in ASEAN has been increasing rapidly, reaching about 150 million tonnes in

2016. The volume of waste is estimated to double by 2030 (ASEAN, 2020). Although well-established traditions and informal work sectors are available for handling organic and recyclable waste, waste-dumping and burning are still common practices across most AMS. Considering all these challenges and vulnerabilities to climate change in the region, financing can play a key role in enabling ASEAN to advance its sustainability agenda.

The role of sustainable finance was recognised by the ASEAN Finance Ministers' and Central Bank Governors' Meeting (AFMGM) in 2019. This found that a common understanding of what is sustainable is essential for ASEAN to attract and orient capital towards sustainable investments and away from non-sustainable activities. For this reason, a credible regional sustainable finance taxonomy, which is interoperable with other regional and international taxonomies, is needed.

The ASEAN Taxonomy Board (ATB) was established in March 2021 to develop, maintain, and promote the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy). Endorsed by the AFMGM, the four ASEAN financial sector workstreams - the ASEAN Capital Markets Forum (ACMF), the ASEAN Insurance Regulators Meeting (AIRM), the ASEAN Senior Level Committee on Financial Integration (SLC), and the ASEAN Working Committee on Capital Market Development (WC-CMD) came together drive this effort.

## 1.2. Update since ASEAN Taxonomy Version 1

### 1.2.1. Stakeholder Consultations

After publication of Version 1 of the ASEAN Taxonomy, the ATB called for comments from stakeholders through consultations. This was conducted through various methods between May to July 2022. Participants from all AMS, industries and organisation types were involved in the stakeholder consultations. Key findings from the consultation process included:

- More than 80% of the respondents commented on the importance of the ASEAN Taxonomy in providing a common language.
- Access to credible and standardised data for criteria setting, conducting assessments and reporting is a challenge for the ASEAN Taxonomy, as it has been with other taxonomies. Most stakeholders felt that availability, access, transparency and/or quality of data is regarded as the single greatest barrier to successful implementation of the ASEAN Taxonomy.
- Some stakeholders suggested that the term 'Sustainable Finance' implied the ASEAN Taxonomy should have 'social', as well as 'environmental' or 'green' objectives, although this was not a universal opinion. Others felt that Social Aspects should be seen as essential minimum criteria for environmental Activities but should not be seen as an explicit objective of the ASEAN Taxonomy.
- Some stakeholders shared feedback on the aspect of the ASEAN Taxonomy being linked to the European Taxonomy (EUT) and expressed a desire for less restrictive screening criteria thresholds to be set in ASEAN than might be the case in the EU. On the other hand, some stakeholders pointed out that a lack of similar and/or strict screening criteria

thresholds could result in investors seeking to invest in countries with the most lenient criteria, resulting in a 'race for the bottom'.

- 53% of the responses regarded simplicity and clarity in the design of the taxonomy assessment as the best way to convince their organisation to adopt or align their activities with the ASEAN Taxonomy.

Further details and information about the stakeholder consultations and results obtained from this Activity can be referenced in Appendix A.

### 1.2.2. National Taxonomy Development and Alignment

The ASEAN Taxonomy has drawn on learning from and intends to be interoperable with the EU Taxonomy, as well as other taxonomies (i.e., national taxonomies in ASEAN). These respective taxonomies have also been under development prior to and in parallel with development of ASEAN Taxonomy Version 2.

National AMS taxonomies vary in scope and approaches based on the different priorities, tolerances, and pathways in their own respective jurisdictions, but all also need to reflect the expectations of international investors.

Bank Negara Malaysia's Climate Change and Principle-based Taxonomy (BNM, 2021) utilises a principles-based approach and considers the state of economic development of the country and their nascent stage of climate risk management at which businesses and other economic agents operate. Although this Taxonomy mainly aims to address climate change, there are some biodiversity considerations that are also being integrated within the guiding principles. Malaysia's capital market regulator, the Securities Commission Malaysia, also developed the Sustainable and Responsible Investment (SRI) Taxonomy (SC, 2022), to enable capital market participants to identify economic activities that are aligned with the environment, social, and sustainability objectives. The intention of this is to facilitate a more informed and efficient decision-making for fundraising and investing.

The Indonesian Green Taxonomy edition 1.0/IGT (OJK, 2022) is structured around the Indonesia Standard Industrial Classification (KBLI). The focus sectors of the IGT are based on Indonesia's National Determined Contributions (NDC) and other relevant sectors. The IGT considers other international taxonomies in its development, such as the EU Taxonomy and China's Green Bond Endorsed Projects Catalogue, as well as the ASEAN Taxonomy. In the initial focus, the IGT has two (2) environmental objectives consisting of climate change mitigation and adaptation efforts. To identify the economic sector thresholds, the IGT follows established government policies. The IGT uses a traffic light system to categorise an activity into Green, Yellow, and Red.

The Green Finance Industry Taskforce (GFIT), Singapore's Taxonomy (MAS, n.d.), considers a wide range of sectors under a "traffic lights" classification, and adopts environmental objectives that propose activity-level criteria and thresholds for a few focus sectors (e.g., Energy, Transport, and Buildings) under Climate Change Mitigation. This taxonomy is intended to provide a common framework for the classification of economic activities, to enable stakeholders in gathering information related to green financing, funding, and investment; as well as to gain an understanding of risk management and promoting investments that meet robust sustainability

goals. Its classification systems strictly highlight that activities which are deemed to cause significant harm to other environmental objectives, should not be considered Green.

The Bank of Thailand (BOT) and the Securities Exchange Commission, Thailand (SEC) recently issued a consultation paper (BOT, 2022) on the first version of a sustainable finance taxonomy in the country. Similar to the ASEAN Taxonomy, it proposes to use a traffic light system to classify Activities. The objectives of the taxonomy are largely drawn from reference to the EUT. The taxonomy is currently in its consultation phase and is an extension of the work carried out by the Working Group on Sustainable Finance (WG-SF) of Thailand. The WG-SF's work culminated in the creation of the Sustainable Finance Initiatives which contain five key initiatives – one of which is the task of developing the Thailand Taxonomy.

### 1.2.3. Syndication Exercise

The usability of the ASEAN Taxonomy needs to take into consideration the diverse situations that each AMS face and the range of financial sector maturity levels that exist across the region. Therefore, the ASEAN Taxonomy needs to be aligned with AMS' national taxonomies, which have been developed or are in the process of being developed by Indonesia, Malaysia, the Philippines, Singapore, Thailand and Viet Nam. These national taxonomies are, or will be, consistent with the ASEAN Taxonomy, thus reinforcing the ASEAN Taxonomy's role as the common language for sustainable finance in the region as well as the importance of an inclusive, overarching guide for the region.

A syndication exercise was conducted during the development of Version 2 from September 2022 to January 2023 through country-level interviews and thereafter an online questionnaire was sent to participants of the syndication exercise containing TSC details for the Energy focus sector activities for country-level input. The objective of this syndication exercise was to review the ASEAN Taxonomy and national taxonomies' TSC and establish a neutral platform for knowledge sharing as well as to foster interoperability between the ASEAN Taxonomy and national taxonomies. They syndication exercise enabled AMS taxonomy developers to explore the range of TSC for specific focus sectors in a discreet and systematic manner whilst considering national priorities.

The responses received from the online questionnaire were compiled and the findings used in the development of the ASEAN Taxonomy TSC. As agreed in the terms of reference of the syndication exercise, the findings were consolidated without direct attribution to any individual country respondent.

The syndication exercise found that for a comparable set of activities, the ASEAN Taxonomy took a balanced position with respect to stringency of the TSC compared to national taxonomies. This is consistent with the ASEAN Taxonomy's inclusivity development principle to consider the diverse circumstances of AMS and the different starting points. In addition, whilst the list of activities for the energy focus sector was not fully comparable, there were significant overlaps. Additionally, the environmental objectives in the ASEAN Taxonomy and national taxonomies are highly comparable, giving rise to additional interoperability. Similar to ASEAN Taxonomy, two national taxonomies address the managed phase-out of coal plants as transition activities, however without providing the related TSC.

There were also several differences highlighted during the syndication exercise. There was a difference in the way coal phase-out is to be classified by the AMS, with a range of possible classifications from 'Green', 'Amber' to Activities which were not included. Unlike the ASEAN Taxonomy, Activities related to gas fired power generation and transmission and distribution of electricity were not included in any of the national AMS that were interviewed. Also, most AMS had not developed criteria for carbon capture and storage yet as at the conclusion of syndication exercise as of January 2023. The general outcomes of the syndication exercise indicated that the ASEAN Taxonomy and national taxonomies are generally aligned but additional data points need to be compared once the TSC of the remaining focus sectors were developed.

### 1.2.4. Interoperability with International Taxonomies

International investors have expressed a wish to see alignment with international standards to make green investment easier in ASEAN. However, alignment of the ASEAN Taxonomy with international standards is not straightforward and investors understand the benefit of the ASEAN Taxonomy being tailored to individual AMS. There is a view that if the objective of the ASEAN Taxonomy is to share and standardise best practices, alignment with the other international taxonomies would provide potential benefits for bridging between the AMS and international investors. The ASEAN Taxonomy has been developed in parallel with other taxonomies in other parts of the world, including but not limited to, taxonomies which have been developed by the European Union, Australia, Canada, and South Africa. All of these taxonomies are seeking to address similar environmental objectives as are the focus of the ASEAN Taxonomy. Due to the increasingly international nature of sustainable finance, all of these taxonomies have recognised the importance of interoperability across regions.

## 1.3. Coal phase-out

Greenhouse gas (GHG) emissions are set to peak in 2030, with some GHG projections expecting net zero by 2050 (IEA, 2022). ASEAN is set to realise net-zero GHG emissions as early as in the latter half of the 21st Century, committed through ambitious NDCs as well as national-level regulations to cut emissions from high-emitting sectors (such as energy generation, transportation, and manufacturing). Initiatives and work programs are being developed which aim to promote the phase out of coal-fired power plants (CFPP) in Asia, with proposed phase-outs already planned in ASEAN (ADB, 2022). These initiatives and work programs include, but are not limited to:

- The Energy Transition Mechanism (ETM), which is a scalable, collaborative initiative developed by the ADB and in partnership with developing member countries to leverage a market-based approach to accelerate the transition from fossil fuels to clean energy (ADB, n.d.). This initiative is focused on both public and private investments, geared towards financing the retirement of coal power assets on an earlier schedule than if they remained with their current owners.
- The Just Energy Transition Partnership (JETP) for Indonesia, which is a program recently launched by Indonesia with international partnerships, focused on increasing the share of renewables and transitioning away from coal power. International partners include the US, EU, Japan, and Canada. The program covers various key objectives under the concept of

just energy transitions; with two of these consisting of accelerated early retirement of coal-fired power plants and restricting the development of captive coal-fired power plants (Dezan Shira, 2023).

- The Managed Phaseout program, which was developed by the Glasgow Financial Alliance for Net Zero (GFANZ). GFANZ is a global coalition of financial institutions committed to accelerating the transition to a net-zero global economy. The Managed Phaseout program is a stakeholder-engaged, net-zero aligned strategy for the early retirement of high-emitting assets (GFANZ, 2022). Among these assets are coal-fired power plants, which are the largest emitters of GHG emissions and one of the key considerations to having a just transition for energy in the future. The intention of the program is to engage the financial institutions (i.e., stakeholders) into financing the early retirement of these high-emitting assets.

In addition to the initiatives developed by international stakeholders, reports have been developed referencing specific science-based targets for the early retirement of coal-fired power plants. A joint report by the Rocky Mountain Institute (RMI), Carbon Tracker, and Sierra Club presented an analysis of nearly 2,500 coal-fired power plants globally. The report primarily highlights accelerated retirement of CFPPs by encouraging government and public finance institutions to follow an integrated three-part approach, which are to (RMI, 2020):

- Refinance to fund coal transition and save customers money on day one;
- Reinvest funds into clean energy; and
- Provide transition financing for workers and communities.

In support of these initiatives and reports developed by various international stakeholders, the ASEAN Taxonomy has introduced coal phase-out as an Activity which may be classified as Green or Amber under the Plus Standard framework in ASEAN Taxonomy Version 2.

The approach to coal phase-out in the ASEAN Taxonomy can be referenced in Appendix B. The technical screening criteria for assessment and classification of coal phase-out can be found in Annex 1.

# 2. PRINCIPLES FOR THE ASEAN TAXONOMY

## 2.1. Scope and Application

The ASEAN taxonomy is the overarching guide and acts as a common building block to enable an orderly and just transition and foster sustainable finance adoption by AMS. It is designed to cater to the different ASEAN economies, financial systems, and transition paths. It provides alignment on underlying principles and serves to inform AMS policy makers and financial sector as well as real economy stakeholders. The ASEAN Taxonomy will help to harmonise the classification of sustainable activities and assets across ASEAN.

The ASEAN Taxonomy was conceived based on 5 Principles (Table 1), and it has been designed to be, as much as possible, interoperable with taxonomies used in other jurisdictions.

**Table 1: Five Principles of the ASEAN Taxonomy**

| PRINCIPLE 1 |
| --- |
| *The ASEAN Taxonomy will be the overarching guide for all AMS, providing a common language and complementing their respective national sustainability initiatives.* |
| **PRINCIPLE 2** |
| *The ASEAN Taxonomy will take into consideration widely used taxonomies and other relevant taxonomies, as appropriate, and shall be contextualised to facilitate an orderly transition towards a sustainable ASEAN.* |
| **PRINCIPLE 3** |
| *The ASEAN Taxonomy shall be inclusive and beneficial to all AMS.* |
| **PRINCIPLE 4** |
| *The ASEAN Taxonomy shall provide a credible framework, including definitions, and where appropriate, be science-based.* |
| **PRINCIPLE 5** |
| *The ASEAN Taxonomy will be aligned with the sustainability initiatives taken by the capital market, banking, and insurance sectors, or at least not in conflict.* |

## 2.2. Rationale for ASEAN Taxonomy Design

The ASEAN Taxonomy offers two assessment approaches, which are the Foundation Framework (FF) and the Plus Standard (PS). These approaches are illustrated in Figure 1.

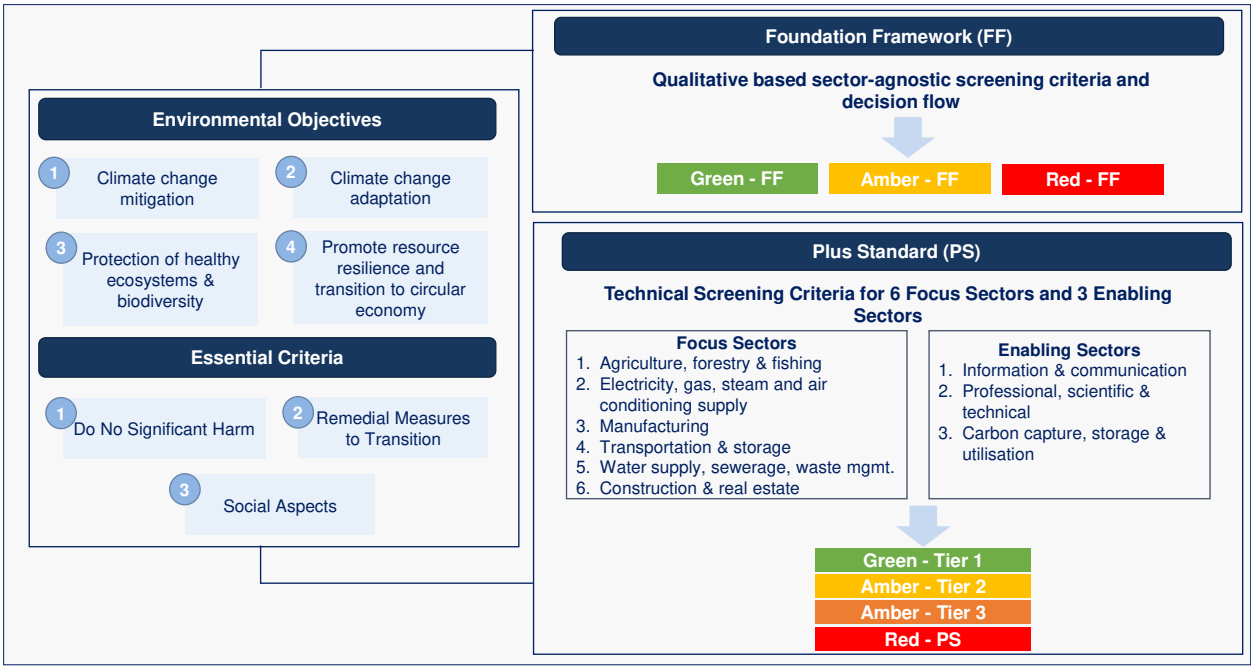



**Figure 1: Structure of the ASEAN Taxonomy**

This design recognises a diverse range of potential users (i.e., companies, investors, and governments) across the ten AMS. A 'one-size-fits-all' Taxonomy will not provide an inclusive solution for ASEAN. The FF and PS were developed to ensure the inclusive treatment of users from diverse economic backgrounds.

The FF was developed based on the principles of inclusivity and is intended as a 'starter' assessment approach for AMS. The principles-based assessment approaches of the FF allows Activities to be assessed and classified using qualitative guiding questions.

The PS was developed as an advanced form of assessment approach with defined TSC. The Tier concept (elaborated in Section 3.6) is developed to accommodate different levels of development and varied economic activities, which results in different starting points for AMS.

The ASEAN Taxonomy Version 2 provides direction on the classification at the Activity level and does not, at this juncture, provide any direction as to how to classify portfolios, entities, or financial instruments.

## 2.3. Selection of Focus Sectors for the PS

Six Focus Sectors and three Enabling Sectors (Figure 2) have been identified as being particularly important to the ASEAN sustainability journey given their significant contributions to both GHG emissions and the economy of Southeast Asia. These sectors are covered under the PS.


**Figure 2: Focus sectors and enabling sectors**

The importance of the focus sectors to ASEAN are illustrated in Figure 3 and Figure 4.

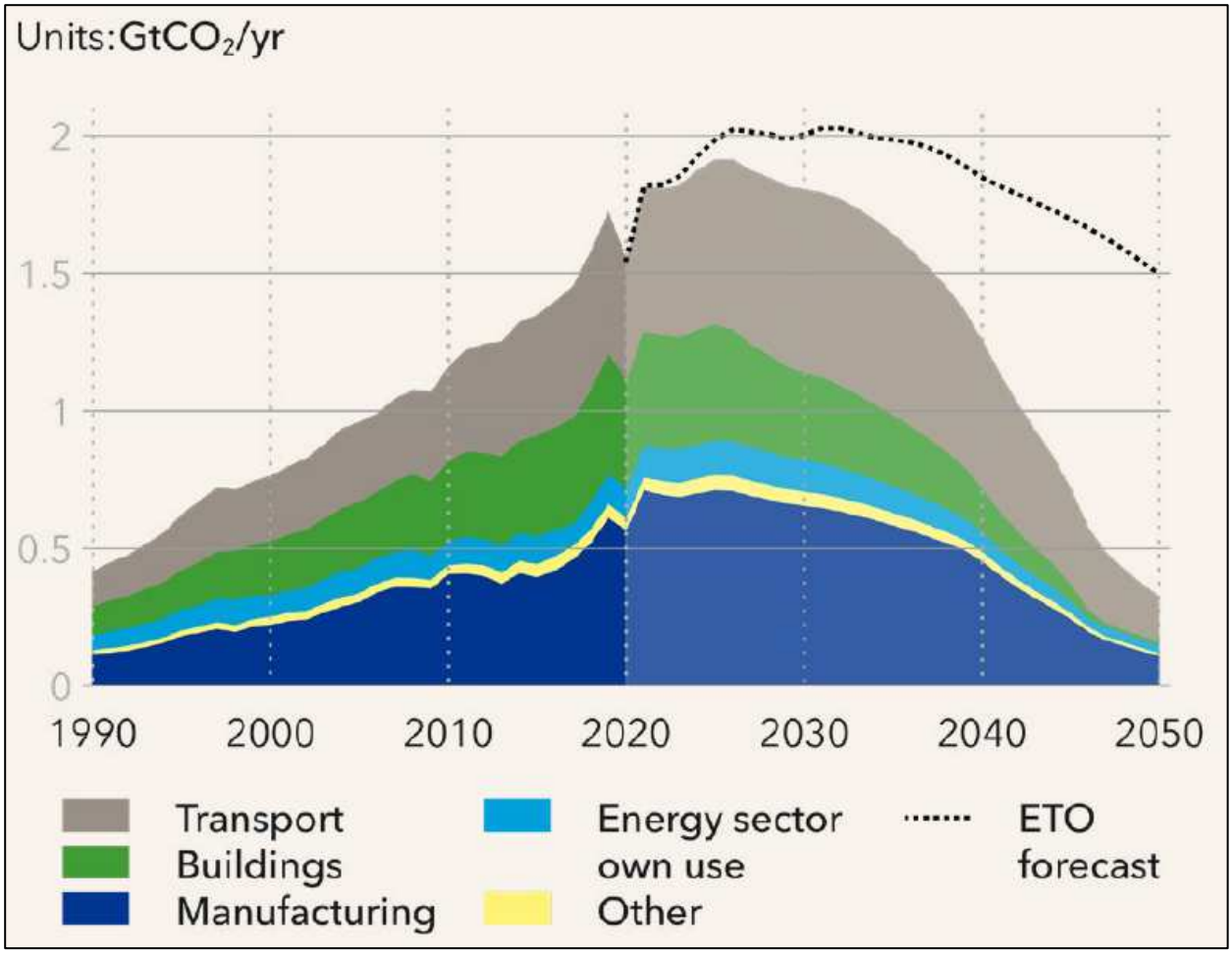



**Figure 3: Southeast Asia Energy Related Emissions by Sector** (DNV, 2022)[2] [3]

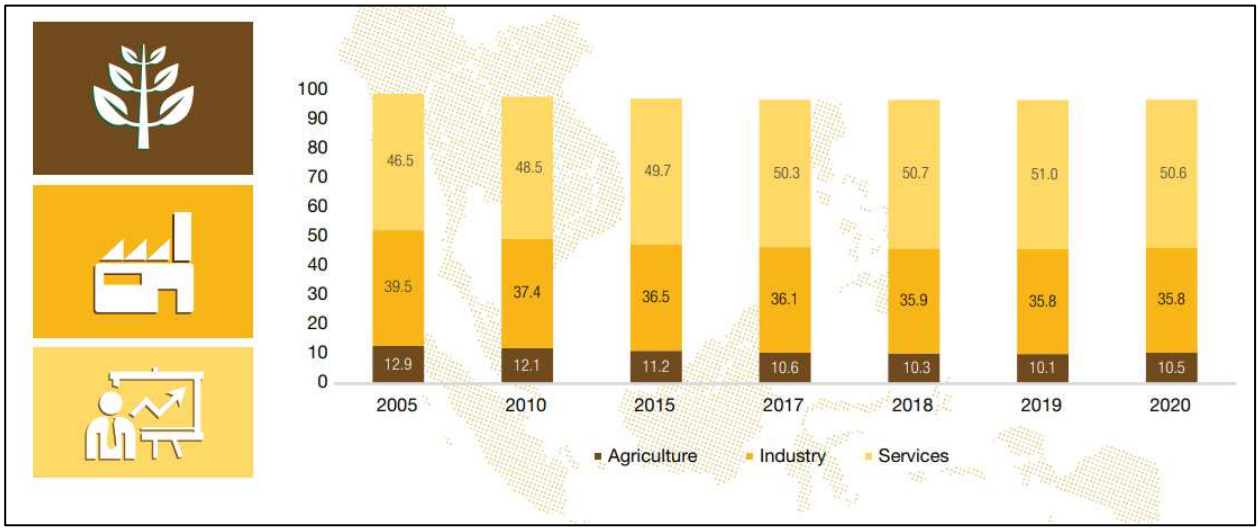



**Figure 4: Southeast Asia GDP % by Sector** (ASEANstats, 2021)

[2] Note that sectors other than 'Energy sector own-use' include energy consumed by those sectors
[3] Does not include emissions resulting from agricultural practices, which represents up to 16% of total SE Asian GHG emissions

# 3. ASEAN TAXONOMY CONCEPTS AND ELEMENTS

## 3.1. Environmental Objectives

The ASEAN Taxonomy was created to facilitate four Environmental Objectives (EOs):

- EO1: Climate Change Mitigation
- EO2: Climate Change Adaptation
- EO3: Protection of Healthy Ecosystems and Biodiversity
- EO4: Resource Resilience and the Transition to a Circular Economy

Any Activity seeking classification under the ASEAN Taxonomy must demonstrate that it is contributing to a least one of these EOs. The Activity may also not detract from the EO to which it is intended to contribute due to direct or indirect effects caused by the Activity to that EO.

The EOs are explained in more detail in the following sections.

### 3.1.1. EO1: Climate Change Mitigation


Climate Change Mitigation focuses on decarbonisation pathways for Activities.

Under this EO, Activities must be in alignment with decarbonisation trajectories that aims to meet the 1.5ºC target under the Paris Agreement which were ratified by all AMS in 2017.

Decarbonisation pathways vary across AMS due to different economic structure and dependencies. These are reflected under their respective NDCs and Long-term Low Emission Development Strategies. Activities implemented may vary due to industrial, political, or cost barriers (e.g., availability and affordability of feasible low carbon technologies).

An Activity shall be considered as fulfilling the objective of Climate Change Mitigation if it contributes in one or more of the following:

1. Avoids GHG emissions;
2. Reduces GHG emissions; or
3. Enables others to avoid or reduce GHG emissions.

Common climate change mitigation Activities include, but are not limited to; renewable energy generation, rehabilitation, retrofitting and/or replacement of energy-inefficient technology, production of energy-efficient technologies, as well as maintenance and strengthening of land-based carbon stock and sinks, above and below ground.

**Table 2: General principles EO1 Criteria**

| General principles for EO1 criteria |
| --- |
| 1. Activity is in line with limiting global temperature rise to no more than 1.5°C in alignment with the Paris Agreement; or<br>2. Activity which is not already low- or zero-emissions may be required to demonstrate the capability of avoiding or reducing GHG emissions in line with relevant best practices compared to the baseline scenario without the mitigating action. |

### 3.1.2. EO2: Climate Change Adaptation


Climate Change Adaptation focuses on managing expected negative effects of climate change, through identifying evidence and relevant information with regards to the impacts of climate change.

The objective of this EO is to lower the negative effects caused by climate change and increase resilience to withstand adverse physical impact of current and future climate change, through implementation of processes or actions.

Activities must demonstrate resilience to identified negative impacts, and must also not adversely affect the adaptation efforts, or increase the physical risk, of other stakeholders. Under the context of climate change adaptation, implementation of an Activity can positively promote resilience in the face of changing climates. Resilience is defined as the ability of the Activity to provide utility over time in the face of potential climate disruption.

**Table 3: General principles EO2 Criteria**

| General principles for EO2 criteria |
| --- |
| 1. Activity shall positively contribute to a reduction in material physical climate risk and/or shall reasonably reduce material physical risk from current and future climate change. This can include obvious physical risks, such as flooding, but also less immediately visible effects, such as impact on health from higher temperatures.<br>2. Impact assessments under a broad range of climate scenarios shall be conducted to provide better understanding and insights on the effectiveness and benefits of the Activity.<br>3. Activity that enables adaptation of other Activities should reduce the impact of material physical risk from other Activities and/or reduce barriers to adaptation through technology, services or products.<br>4. Activity must not adversely affect the adaptation efforts, or increase the physical risk, of other stakeholders. |

### 3.1.3. EO3: Protection of Healthy Ecosystems and Biodiversity


Protection of Healthy Ecosystems and Biodiversity focuses on the incorporation of conservation, restoration, and protection mechanisms of the natural ecosystem and biodiversity. This is location and context specific, and typically relevant for Activities related to agriculture, forestry and fishing, real estate, and industry.

The objective of this EO is to promote positive effects and to minimise or eliminate negative effects on the natural ecosystem and biodiversity.

Activities must promote or enable restoration, conservation, and facilitate protection mechanisms of the ecosystem and biodiversity, and promote the sustainable use and protection of water and marine resources (see Annex 2).

**Table 4: General principles EO3 Criteria**

| General principles for EO3 criteria |
|---|
| An Activity intended to promote EO3 shall conform with several or all the principles shown below:<br>1. Enable ecosystem restoration and/or facilitate protection of ecosystems.<br>2. Implement necessary measures to protect ecosystems and biodiversity.<br>3. Prevent soil erosion and run-off into watercourse.<br>4. Enforce and empower existing policies related to the protection of natural areas.<br>5. Adopt sustainable logging practices and ensure timber products are sourced from sustainably managed forests.<br>6. Meet the goals set by the Convention on Biological Diversity 1992 (CBD, 2022).<br>7. Take into consideration the equitable use of biodiversity and ecosystem services.<br>8. Avoid or minimise adverse impacts on the environment by implementing pollution control mechanisms.<br>9. Avoid or minimise emissions of short and long-lived climate pollutants.<br>10. Avoid or minimise generation of hazardous and non-hazardous waste.<br>11. Minimise and manage the risks and impacts associated with pesticide use. |

### 3.1.4. EO4: Resource Resilience and the Transition to a Circular Economy


Resource Resilience and the Transition to a Circular Economy focuses on the materiality of Activities, and their impacts to business operations, through adoption of the following principles of circularity:

1. Minimising resource use;
2. Optimising resource yield; and
3. Closing resource loops through effective waste management.

An Activity may be considered as meeting this EO through one or both of the following:

1. Adjusting business operations to conserve raw materials, energy, water, and other natural resources; or
2. Implementing circular economy principles via adapted products, production, technologies, and processes.

**Table 5: General principles EO4 Criteria**

| General principles for EO4 criteria |
|---|
| An Activity intended to promote EO4 shall fulfil some or all the principles:<br>**Strategy & Operations, Adjusting Business Models:**<br>1. Uses renewable energy, bio-based resources, or other recovered materials to reduce rate of resource extraction.<br>2. Uses future-proof, sustainable considerations and specifications to design and produce products, assets or process technologies that enable circular economy strategies through:<br>a. Designing for longevity, resource efficiency, durability, functionality, modularity, upgradability, easy disassembly, and repair;<br>b. Using recyclable or biodegradable materials.<br>3. Prevents or reduces waste generation, including the generation of waste from the extraction of minerals and waste from the construction and demolition of buildings.<br>4. Optimises resource use and/or extends product use, including through:<br>a. Replacement of virgin materials with secondary raw materials or by-products, either fully or partially;<br>b. Repair, reuse, donation, resale, upcycling activities or on-site composting;<br>c. Repurposing, refurbishing, remanufacturing, disassembling, upgrading and repairing, and sharing of products.<br>5. Offers product as a service based on, inter alia, leasing, pay-per-use, subscription, or deposit return schemes to reduce the demand for new products and their embedded raw materials.<br>6. Minimises the incineration of waste and avoids the disposal of waste, including landfilling, in accordance with the principles of the waste hierarchy.<br>**Enablers: Facilitating the Transition** |

1. Develops and/or improves resource optimisation / waste management infrastructure needed for re-use and recycling to increase resource efficiency and ensure recovered materials are recycled as high-quality secondary raw material.
2. Invests in the creation of a research and development (R&D) and knowledge sharing platform to increase expertise in circular economy and/or execute circular economy-related pilot projects.

Note that recycling and the informal sector are among the largest contributors to EO4 in ASEAN. Activities within these sectors can be classified under EO4 if they meet the principles of the ASEAN Taxonomy.

ASEAN has published a Framework for Circular Economy for the ASEAN Economic Community (ASEAN, 2021). This document stated five strategic priorities, three strategic goals and six guiding principles which are shown in Table 6. Activities intended to be classified under EO4 should be aligned with these priorities, goals and principles.

**Table 6: Strategic priorities, strategic goals and guiding principles for ASEAN**

| Strategic priorities | Strategic goals | Guiding principles |
|---|---|---|
| 1. Standard Harmonisation and Mutual Recognition of Circular Products and Services<br>2. Trade Openness and Trade Facilitation in Circular Goods and Services<br>3. Enhanced Role of Innovation, Digitalisation, and Emerging/Green Technologies<br>4. Competitive Sustainable Finance and Innovative ESG Investments<br>5. Efficient Use of Energy and Other Resources | 1. Resilient Economy<br>2. Resource Efficiency<br>3. Sustainable and Inclusive Growth | 1. Promote ASEAN integration and the development of regional value chains.<br>2. Take into consideration the broader impact on the economy, sectors, and society.<br>3. Recognise the unique circumstances of each AMS whilst supporting long-term growth prospects of the region.<br>4. Encourage ASEAN-wide coordination on knowledge, technology transfer, and capacity building.<br>5. Evaluate financial and institutional feasibility and sustainability, including practical applications, prior to implementation.<br>6. Function within the reality of international production networks and linkages. |

## 3.2. Essential Criteria

Any Activity which is to be classified under the ASEAN Taxonomy must also fulfil the minimum requirements of three Essential Criteria (EC), as follows:

- EC1: Do No Significant Harm (DNSH)
- EC2: Remedial Measures to Transition (RMT)
- EC3: Social Aspects (SA)

### 3.2.1. EC1: Do No Significant Harm

DNSH refers to the principle that an Activity which contributes to one EO, shall also not significantly harm any other EOs.

An Activity interacts directly or indirectly with the surrounding environment. While the Activity may contribute towards EOs, it may cause unintended significant harm to the broader environment.

Assessment of DNSH to other EOs forms part of the classification assessment of an Activity and is undertaken after ascertaining the contribution of an Activity against EO-specific objectives.

Note that, although DNSH relates to significant harm to EOs other than that for which the Activity is intended to make a contribution, an Activity may also be rejected for Green or Amber classification if it causes some direct or indirect effect which detracts from the contribution to the intended EO itself.

For Activities to be assessed under the PS, criteria for significant harm are described in Annex 2.

### 3.2.2. EC2: Remedial Measures to Transition

Remedial Measures to Transition (RMT) are measures which ensure that any actual or potential significant harm is removed or rendered not significant.

If it has been assessed that an Activity may cause significant harm to an EO, RMT must be put in place. Implementation of RMT needs to be planned which will effectively remove all significant harm within 5 years from the assessment date. Comprehensive and realistic plans for RMT must be presented as part of the assessment. If significant harm is occurring or will occur, and RMT is not planned to be completed within the specified timeframe (i.e., within 5 years), the Activity is automatically classified as Red.

In both the FF and the PS, if an assessment shows that an Activity is causing or may cause significant harm, the classification will be downgraded to Amber (FF) or Amber Tier 3 (PS) pending effective remediation, as described in Section 3.6.3.

### 3.2.3. EC3: Social Aspects

Social Aspects (SA) relates to social conditions which could potentially be harmed by an Activity.

An Activity may contribute to EOs, but during its lifecycle, may result in negative impacts towards its employees or the surrounding communities. Therefore, it is important that taxonomy-alignment also involves the adherence of the Activity to the ASEAN Taxonomy social aspects. Within the ASEAN Taxonomy, there are three key Social Aspects (Table 7). Assessment of Social Aspects

is undertaken at the Company level, as opposed to at an Activity level, as social policies are usually crafted at the Company level.

**Table 7: Key Social Aspects**

| Social Aspects | Definition |
|---|---|
|  Promotion and Protection of Human Rights | Promotion of human rights and fundamental freedoms, in line with the ASEAN Human Rights Declaration (AHRD) and the Phnom Penh Statement on the Adoption of the AHRD (ASEAN, 2012). |
|  Prevention of Forced Labour and Protection of Children's Rights | Promotion of labour rights and prohibition of forced labour, including but not limited to exploitation, trafficking in persons, violence and abuse, in line with the ASEAN Declaration on the Protection of the Rights of Migrant Workers and the ASEAN Consensus on the Protection and Promotion of Rights of Migrant Workers (ASEAN, 2012). |
|  Impact on People living Close to Investments | Management of investment-related impacts to people (including children) living in at-risk areas by encouraging inclusive and targeted measures to reduce the impact of investments on vulnerable populations and strengthen institutional capacity to address the needs of people affected, in line with the ASEAN Declaration on Strengthening Social Protection (ASEAN, 2013). |

Other Social Aspects, including but not limited to poverty reduction, job creation, and human capital development, will be considered in future versions of the ASEAN Taxonomy.

An Activity intended to achieve an EO shall not inflict harm on Social Aspects. Activities should be assessed for appropriate avoidance and mitigation of potentially exploitative practices. As a minimum, Companies carrying out the Activities and any subsidiaries or branches required for the conduct of those Activities, must meet the legal social requirements of the AMS in which they are located, with due consideration of any locally specific nuances (see Annex 5).

For example, in terms of respecting labour rights; in Viet Nam, there is a legal provision that specifically recognises the right of senior employees who are in their final year prior to retirement to reduce the number of working hours in a day or to request casual or part-time employment (Socialist Republic of Viet Nam, 1994). There are also specific legislations and regulations that cater to the employment of industrial homeworkers in Thailand (Government of Thailand, 2010) and the Philippines (DOLE, 1974).

In terms of prevention of forced and child labour, Companies must set out measures against confiscation of identity documents (e.g., passports) of their migrant workers. These measures are implied in the legislations and regulations of Cambodia, Myanmar and the Philippines while explicitly stated in other AMS (ASEAN, 2020).

In managing the impact to people living close to their Activities, Companies in the Philippines carrying out Activities within ancestral domains/lands are required to undergo a free and prior

informed consent (FPIC) process with indigenous cultural communities/indigenous peoples as part of the meaningful stakeholder consultation requirements (FAO, 2006).

It is the assessor's responsibility to account for these nuances to uphold a complete assessment of Social Aspects across AMS. Guidance on the assessment of Social Aspects is further explored in Section 5.5.

## 3.3. Assessment Approaches

The approaches for assessment under the ASEAN Taxonomy are the principles-based Foundation Framework (FF) that allows for a qualitative assessment on Activities, and the Plus Standard (PS) which uses Technical Screening Criteria (TSC) to classify Activities as either Green or Amber.

### 3.3.1. Foundation Framework

The FF uses a principles-based assessment of Activities, assisted by guiding questions. An illustrative example of assessments under the ASEAN Taxonomy is provided in Section 5.3. The principle-based nature of FF allows for assessment and classification of Activities to be performed despite challenges in availability and accessibility of data.

### 3.3.2. Plus Standard

The Plus Standard (PS) approach was designed to be more robust, using both threshold-based (quantitative) and process- or practice-based (qualitative) TSC. The TSC, as relevant, allow for the classification of Activities into three Tiers, which represent the respective Green policies of different AMS and consider the current state of technology and development across ASEAN. An illustrative example of assessments using the PS approach is provided in Appendix F.

## 3.4. Activities

As stated in Section 2.2, ASEAN Taxonomy Version 2 does not provide specific instructions on the classification of entities, portfolios, or financial instruments, as this document is intended to focus on the classification of Activities.

An Activity is defined in the ASEAN Taxonomy as an action and not as the assets used to perform that action. If the assets are also used for another purpose which does not meet the relevant TSC, the Activity may not receive that classification. For instance, for power generation; the Activity is the generation of electricity and not the equipment/assets installed to generate the electricity. Similarly, classification is based on achievement of TSC which considers the output of the power generation facility. For an Activity to be classified under the ASEAN Taxonomy, it must be demonstrated that the assets are used only for an Activity which meets the TSC of the intended classification.

A list of all Activities for which Tiers and TSC have been defined for assessment under the PS is shown in Annex 1. Any Activity can be assessed under the FF, even if it is not listed in Annex 1.

## 3.5. Technical Screening Criteria

Technical Screening Criteria (TSC) are used in the PS to assess and classify Activities as Green or Amber based on their contributions to EOs. The ASEAN Taxonomy has defined TSC for a range of Activities.

The Activities and their associated TSC are set out in Annex 1. Annex 1 is not exhaustive and will be expanded with new Activities over time as the ATB continues to develop TSC for Activities in other focus sectors.

There are three main methods by which TSC are defined (Table 8).

**Table 8: Details on the different methods of defining TSC for Activities**

| Method | Description / Definition |
|---|---|
| Quantitative | • Impact based: minimum requirements for the impact (effect) on the environment of carrying out the Activity (e.g., GHG emissions savings)<br>• Performance in relation with the environmental target: minimum threshold for the environmental performance of the Activity (e.g., a level of GHG emissions per unit of Activity aligned with a climate neutral economy)<br>• Best in class performance: minimum threshold (best in class) for the environmental performance of the Activity (e.g., a level of GHG emissions per unit of activity that only the best 10% markets players achieve)<br>• Relative improvement: minimum improvement threshold for the environmental performance of the Activity (e.g., reduction of GHG emissions per unit of Activity)<br>• Note that, in the ASEAN Taxonomy, 'Threshold' relates to quantitative TSC only |
| Qualitative | • Practice Based: a set of practices (best practice) for the Activity (e.g., compliance with a set of qualitative criteria, code of conduct etc.)<br>• Process based: a set of process-based steps (e.g., a set of actions or points of focus that need to be addressed) |
| Nature of the Activity | • An Activity that is automatically considered to be aligned with the respective classification due to the proven contribution of that Activity (e.g., Activity that would always meet TSC, such as solar and wind energy) |

The method for TSC setting may vary across Activities and EOs and certain Activities may be more naturally suited to certain types of TSC.

## 3.6. Classification System

The terms 'classification' and 'Tier' have different meanings under the ASEAN Taxonomy:

- 'Classification' relates to an Activity; where the classification of an Activity is an indication of its contribution to an EO;

- ‘Tiers’ relates to the different levels of Technical Screening Criteria (TSC) defined by the PS (Tiers are not used in the FF).

However, the concepts are closely linked under the PS in that:

- An Activity which meets Tier 1 TSC may be classified Green under the PS; and
- An Activity which meets Tier 2 or Tier 3 TSC may be classified Amber under the PS (referred to as either Amber Tier 2 or Amber Tier 3, respectively).

### 3.6.1. Classification for the FF and PS

The FF and the PS both use colour-coded classification systems that represent different levels of contribution to an EO by an Activity. Classifications are divided into Green, Amber, and Red.

A Green classification means that the Activity is making a substantial contribution to the EO.

The Amber classification is present in both approaches. In the PS, it is used to denote ‘transitional’ activities. Amber Activities, while not meeting Green classification criteria, represent a progressive movement on the path to a more sustainable ASEAN with due consideration to the practicalities of implementing sustainable activities. AMS may opt to begin with lower Tiers (2 or 3) for a limited period before progressing to Tier 1. Therefore, ‘transitional’ tiers i.e., Tiers 2 and 3 encourage continued progression towards a sustainable future.

In both the PS and FF, an Amber classification may also be used to temporarily classify an Activity for which some remediation of harm is outstanding (see Section 3.6.3.).

A Red classification means that the Activity is not aligned to any of the EOs or causing significant harm to any of the EOs. There is no Tier aligned with Red classification under the PS.

A summary of classification options is shown in Table 9.

**Table 9: Summary of Classification**

| For the FF |
|---|
| • There are no defined Tiers or TSC<br>• An Activity may be assessed as Green in line with principles-based guiding questions<br>• An Activity which cannot be assessed as Green must be classified as Red<br>• An Activity which meets the principles for Green classification may be temporarily classified as Amber if there is outstanding un-remediated harm |
| **For the PS** |
| • TSC for Tier 1 are aligned with the Green classification<br>• TSC for Tier 2 and Tier 3 are aligned with the Amber classification; this effectively results in two levels of Amber classification: Amber Tier 2 and Amber Tier 3<br>• Any Activity which does not meet any of the Tier’s TSC, is assessed as Red<br>• An Activity which meets the TSC for Green or Amber classification may be temporarily classified as Amber Tier 3 if there is outstanding un-remediated harm |

### 3.6.2. Tiers for the PS

Note that the ASEAN Taxonomy does not necessarily set TSC for all three Tiers for every Activity. If TSC are not defined for an Activity Tier, that Activity cannot be classified in alignment with that Tier under the PS. For example, if TSC has been defined for Tier 1 of an Activity, but not for Tier 2 and Tier 3, that Activity can be classified as Green, but not as Amber.

It is foreseen that Tiers 2 and 3 will be gradually sunset over time for all Activities, and that the aim of the ASEAN Taxonomy is to migrate all Activities to Tier 1. Guidelines related to the sunsetting of Activity Tiers are described in Section 4.2.

General guidelines for Tier setting and detailed TSC for each Activity within each Tier can be found in Annex 1.

### 3.6.3. Impact of DNSH and RMT on Classification status

Classification of Activities can also be affected by the DNSH and RMT status of the proposed Activities. This applies to both the FF and the PS.

An Activity will be classified as Amber (or Amber Tier 3 in the case of the PS) if the Activity is the Activity is causing or may cause significant harm. Comprehensive and realistic plans showing how the harm will be effectively remediated within 5 years must be presented. If no such plans are available, the Activity will be classified as Red. In this case, the Activity will remain classified as Amber (Amber Tier 3 in PS) until the significant harm has been effectively remediated, or 5 years have passed from the assessment date. If the significant harm has not been effectively remediated within 5 years of assessment, the Activity will be re-classified as Red.

# 4. GUIDELINES FOR THE MAINTENANCE OF THE ASEAN TAXONOMY

## 4.1. General Concepts

### 4.1.1. Actions by the ASEAN Taxonomy Board

The ASEAN Taxonomy Board (ATB) is responsible for ensuring proper maintenance of the ASEAN Taxonomy, including:

- Consultation with representative bodies and relevant stakeholders from the AMS;
- Delegation of tasks as appropriate to competent bodies; and
- Approval of any changes to the ASEAN Taxonomy or any of its parts

The ATB is the ultimate approval body for Activities, Tiers, TSC, and TSC Review.

TSC will be adjusted over time, in line with technological developments within AMS. This is particularly the case for Amber Tiers (Tier 2 and Tier 3), as it is expected that the TSC of these Tiers will progressively become more stringent and will ultimately be phased out. The phasing out of Tiers in this context is referred to as 'sunsetting'.

Figure 5 shows an example of Tier setting for a representative Activity in which TSC for Tiers 2 and 3 are tightened over time and eventually sunset. This Figure is for example purposes only; refer to Annex 1 for planned TSC by Activity.

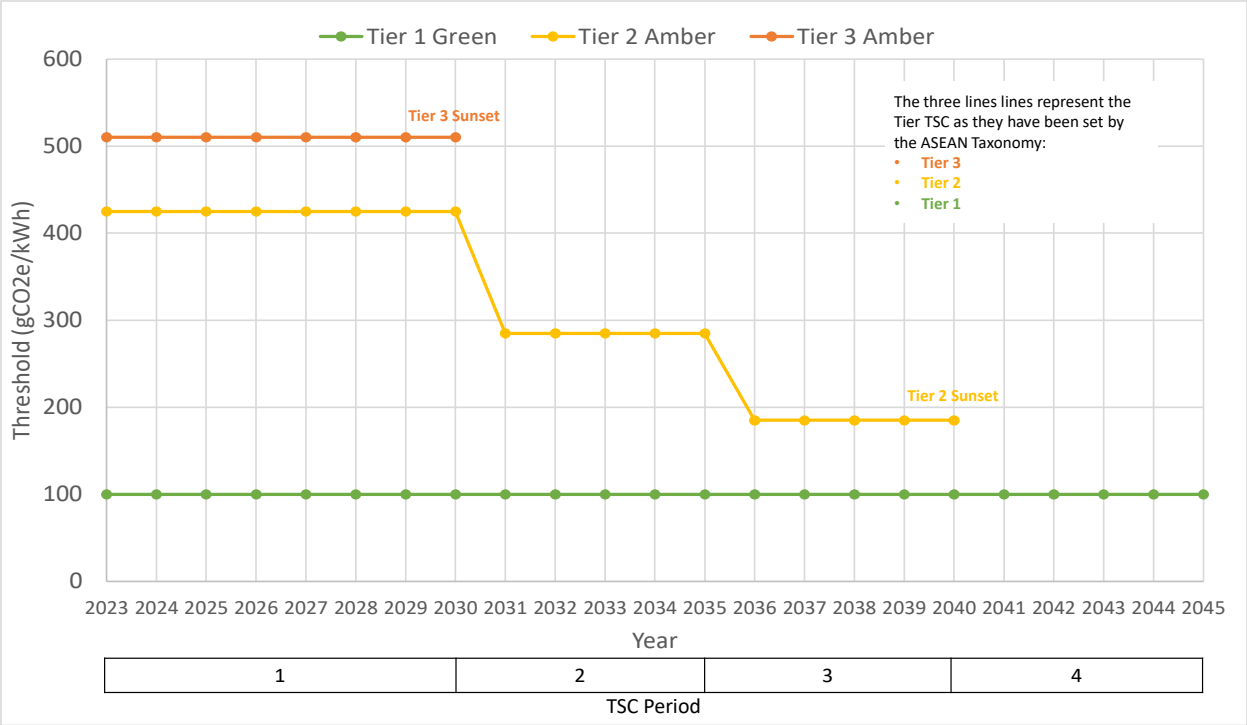



**Figure 5: TSC Setting for each Activity Tier[4]**

### 4.1.2. Actions by the ASEAN Member States

Whilst the setting of TSC for each Activity Tier is the responsibility of the ATB (see Section 4.1.1), AMS can set the following policies for Activities conducted within their jurisdictions:

1. The applicable assessment methodologies (either the FF or PS, or both) for specific Activities;
2. For the PS, an AMS needs to decide which Tier(s) may be used as a basis for classification; and
3. Where an AMS has discontinued the use of the FF and moved to the PS, the AMS to clearly outline the treatment of residual classifications which were previously made under the FF.

With respect to item (1), whilst the choice to allow continued use of the FF for each Activity lies with the AMS, the ATB encourages adoption of the PS for each Activity where feasible.

Item (2) above is a particularly significant policy choice as it effectively represents the pace of transition of individual AMS. AMS should align themselves with Tiers which reflect their national goals and/or transition policies on an Activity-by-Activity basis. Once AMS have selected the PS Tier as a baseline, Activities may no longer be classified under Tier(s) lower[5] than the Tier selected by the AMS. This exclusion applies even before the lower Tiers were sunset by the ATB.

[4] Figure shown is for example purposes only – refer to Annex 1 for planned TSC by Activity
[5] In the ASEAN Taxonomy, Tier 1 is the highest Tier and Tier 3 is the lowest Tier.

For example, if an AMS has selected Tier 2 as baseline for a specific Activity, that Activity may be classified based on the Tier 1 or Tier 2 TSC, but not on the Tier 3 TSC.

Detailed explanation of item (3.) can be found in Section 4.3.2.

Details of policies of each AMS will be published in Annex 4.

## 4.2. Maintenance of Tiers and TSC

### 4.2.1. TSC Review and Adjustment

In order to promote continued sustainability enhancement across ASEAN, Activities and their respective TSC may undergo periods of review and adjustment to ensure they remain relevant in their contribution toward sustainability. As technologies enabling the enhanced sustainability of an Activity develop, TSC for that Activity may become more restrictive.

The ATB may establish TSC Review bodies (TRB), which may propose setting, review, adjustment and sunsetting of TSC. The TRB will normally simultaneously review the TSC for Activities within the same ISIC industry group.

### 4.2.2. Establishment and Role of TSC Review Bodies

The TRB are responsible for reviewing and proposing enhancements to TSC. The TRB are set up based on industry sectors and will typically conduct TSC Reviews for a number of Activities within the same ISIC industry group. The establishment of the TRB will be in accordance with the timeline shown in Section 4.2.4 to allow adequate time for the TSC requirements to be reviewed by each AMS.

The TRB should aim to ensure a high level of expertise and geographical balance, as well as a balanced representation of relevant know-how, taking into account specific tasks of the TRB. The TRB should consist of representatives from public and private sectors. Additionally, they should include experts from civil society, such as experts in the fields of environment, society, and labour.

The ATB is responsible for ensuring that any conflicts of interest are evaluated and resolved when establishing TRB.

### 4.2.3. Tiers and TSC Maintenance Tasks

A summary of the tasks for the maintenance of TSC is shown in Table 10.

**Table 10: Summary of Setting, Review, Adjustment and Sunsetting of TSC**

| Type | Description / Definition |
|---|---|
| TSC Setting | • TSC will be set for each Tier applicable to an Activity.<br>• Future TSC for subsequent TSC Periods will also be set until the Tier is sunset for that Activity.<br>• The extant TSC at the time of assessment must be used as the basis of classification of an Activity under the PS.<br>• TSC are considered extant until an adjusted TSC has been approved and published by the ATB. |
| TSC Period | • The TSC Period is the period between the setting of an TSC and the subsequent adjustment of that TSC.<br>• A TSC Period of 5-years is recommended as standard but may vary by Activity at the discretion of the ATB, in line with expected developments in technology in the coming years.<br>• The TSC for all Tiers of the same Activity may be adjusted at the end of each TSC Period, normally in line with future TSC.<br>• The TSC Period ends when an adjusted TSC come into force.<br>• At this point, a new TSC Period commences, except when the Tier is sunset (see below). |
| Sunsetting | • Sunset date must be confirmed 12 months before sunset, after which time no change may be made to the sunset date.<br>• The sunsetting recommendation must be approved by the ATB and the decision published.<br>• When a Tier has been sunset, all TSC related to that Tier can no longer be used as the basis for classification of Activities. |

### 4.2.4. Tiers and TSC Maintenance Cycle

With respect to the tasks described in Table 10 of Section 4.2.3, the maintenance of Tiers and TSC shall follow a standard cycle. The cycle may be adjusted with the approval of the ATB where warranted.

The cycle shown in Table 11 will only apply where the ATB decides to make changes to proposed future TSC. Where no such adjustments are made, TSC shall follow the originally proposed future TSC.

It is expected that, assuming the ATB requests such a review, the TRB will be engaged to review an entire industry group. In this context, the term ‘Activity’ in Table 11 may relate to all Activities within that industry group.

**Table 11: Tier and TSC Maintenance Cycle for an Activity**

| # | Task Cycle | Description | Time |
|---|---|---|---|
| 1 | TSC1 Set | The first TSC are established for Activity and become applicable. At this time, the duration of the first TSC Period (TSC1 Period) is set. Future TSC will be set for each Activity Tier until sunset date. | Start of Tier / TSC |
| 2 | Start of TSC2 Review | The TRB commences review of TSC | 30-36 months before end of TSC1 Period |
| 3 | TSC2 published for comments | TRB proposes adjustments to TSC1 (i.e., the proposed TSC2). With ATB approval, the proposed adjustments are published for stakeholder consultations. | 24 months before end of TSC1 Period |
| 4 | TSC2 final version published | TSC2 are published following ATB approval. | 12 months before end of TSC1 Period |
| 5 | TSC2 becomes extant | TSC1 is no longer extant and has been replaced by TSC2 | Normally 5 years (i.e., the TSC Period) after the date at which TSC1 became extant. |
| 6 | For subsequent TSC periods, repeat steps 2 – 5 | | |

Figure 6 illustrates the Setting, Review and Sunsetting cycle for an Activity.

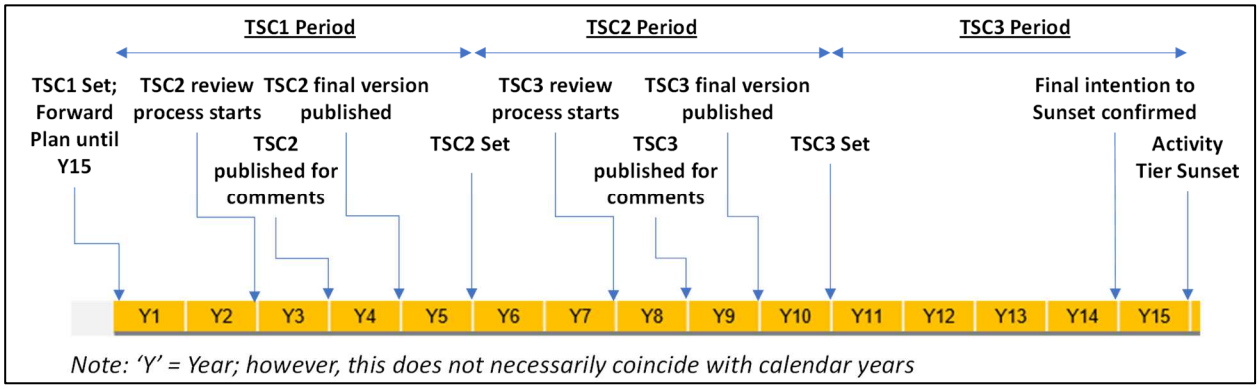



**Figure 6: Setting, Review and Sunsetting cycle for an Activity**

Note that Figure 6 is for illustration purposes only. The number of TSC Review Periods may vary from Activity to Activity at the discretion of the ATB.

Any deviation from proposed future TSC must be published at the start of the relevant TSC Period. Any adjusted TSC will be published for stakeholder comments and the finalised TSC will be adopted and published within the timeline shown in Figure 6.

### 4.2.5. Considerations in TSC Setting

The principles behind the setting of Tiers are described below with more details in Annex 1.

When reviewing and setting TSC, the following items will be considered:

1. Existing environmental indicators and assessment frameworks;
2. Specificities of the infrastructure sector; and
3. Environmental, social, and economic externalities.

Setting of TSC must also consider whether the establishment of those TSC would:

1. Give rise to stranded assets, and lock-ins; or
2. Would result in inconsistent incentives; or
3. Would have any other adverse impact on financial markets.

TSC should ensure that relevant Activities within a specific sector can demonstrate that they are making a contribution to at least one EO. To avoid overly burdensome compliance costs on users, TSC should be clear, practical, and easy to apply. Compliance can be verified within reasonable cost-of-compliance boundaries.

### 4.2.6. Sunsetting

The ASEAN Taxonomy assumes that Tiers 2 and 3 (Amber Tiers) will be gradually phased-out over time and that all Activities in all AMS which are assessed under the PS will eventually use the Tier 1 (i.e., Green) TSC. The process of phasing out a Tier for an Activity, and therefore the TSC associated with that Tier, is known as 'sunsetting'.

The decision to sunset a Tier must also be approved, adopted, and published by the ATB and will normally occur at the end of a TSC Period, which will effectively become the last TSC Period for that TSC.

Sunsetting of an Activity Tier does not necessarily mean that all Tiers for that Activity must be sunset; e.g., sunsetting Tier 3 for an Activity does not necessarily mean that Tier 2 will be sunset at the same time. Also, sunsetting of a Tier for one Activity does not necessarily have an impact on the same Tier for a different Activity. For example, sunsetting of a Tier 3 for a power generation Activity does not mean that Tier 3 could not exist for a transportation Activity.

### 4.2.7. Future pathway of the Tiers within TSC Activities

When each Activity Tier is initially established by the ASEAN Taxonomy, TSC become applicable. Future TSC will also be set for each Activity Tier. Future TSC represent proposed changes in TSC for that Activity by Tier until sunset date and intended to be indicative. It may change depending on technical advancement.

Whilst it is possible that qualitative TSC may change over time, it is not possible to provide future indications for such changes. It is assumed that Activities will adapt to any changes to qualitative TSC over time. For avoidance of doubt, an Activity classified according to its nature (e.g., wind and solar power generation) will continue to be classified in this way in the future.

## 4.3. Process and Maintenance of other Components

### 4.3.1. Review and Updating of Components

The ATB will review other components of the ASEAN Taxonomy over time. The timeline and period of review will be streamlined with the schedule for reviewing and updating the TSC for Activities under the PS.

Components that will be subjected for review may also include, but are not limited to the following:

- EO and EC guiding questions: Improve the guiding questions in response to future feedback and changes (e.g., technological advancements that affect the way Activities meet the EOs), to provide better guidance to future users;
- Social Aspects: Review the extent and scope of assessments in line with developments at the regional and international level.

### 4.3.2. Migration from FF to PS

Migration of an Activity from FF to PS can be determined by individual AMS in line with their respective national policies and other strategic priorities. AMS may require Activities being conducted to be assessed using TSC of PS. The migration of an Activity from FF to PS can be determined by individual AMS in line with their respective national policies and other strategic priorities.

AMS may choose to allow an Activity previously classified under the FF to retain its classification when the AMS has changed its policy such that this Activity must now be classified under PS.

Upon determining the effective date of migration of Activities from FF to PS, the AMS should consider establishing the following precedents:

1. New Activities need to be assessed according to the PS.
2. Activities that have been previously assessed according to the FF:
    a. Can retain their classification according to FF until the point when the Activities need to be reassessed, of which Activities will then be assessed by the PS; or
    b. Need to be assessed according to the PS.

The ATB recommends that Companies may be allowed to continue to use FF in cases where its continued use can be justified in specific circumstances (see Section 5.1.2). However, as stated in Section 5.1.3, the AMS holds ultimate decision-making authority regarding policies concerning the application of the ASEAN Taxonomy to Activities conducted on their own territories.

# 5. GUIDANCE FOR THE ASSESSMENT OF ACTIVITIES

## 5.1. Assessment Approach

### 5.1.1. Generic Assessment of an Activity

The FF and the PS assessment approaches seek to address the following questions:

- Does the Activity meet the principles of at least one of the EOs?
- Does the Activity avoid actual or potential significant harm to any of the other EOs?
- Where the Activity causes or may cause significant harm, was the harm remediated?
- If the harm has not yet been remediated, will it be remediated within a defined period?
- Will the Activity meet all the criteria under Social Aspects?

### 5.1.2. Selecting Assessment Approaches

The ATB does not provide direction as to which approach should be used for assessment. However, if an Activity does not have TSC defined under the PS, that Activity can by default only be assessed under the FF.

For Activities where there are TSC defined in the PS, the Company needs to decide on the appropriate assessment approach with due consideration of country-level preference.

Each AMS may state or establish as policy its preference for the PS to be used as the primary assessment approach (which will be published in Annex 4). AMS Policy shall be set by the AMS in which the Activity will take place. Where the Activity takes place in more than one AMS, the AMS with the more restrictive policy will apply, e.g., where one AMS has stated it prefers to use the PS, but another AMS has not, the PS will normally be used.

A recommended process is illustrated in Figure 7.

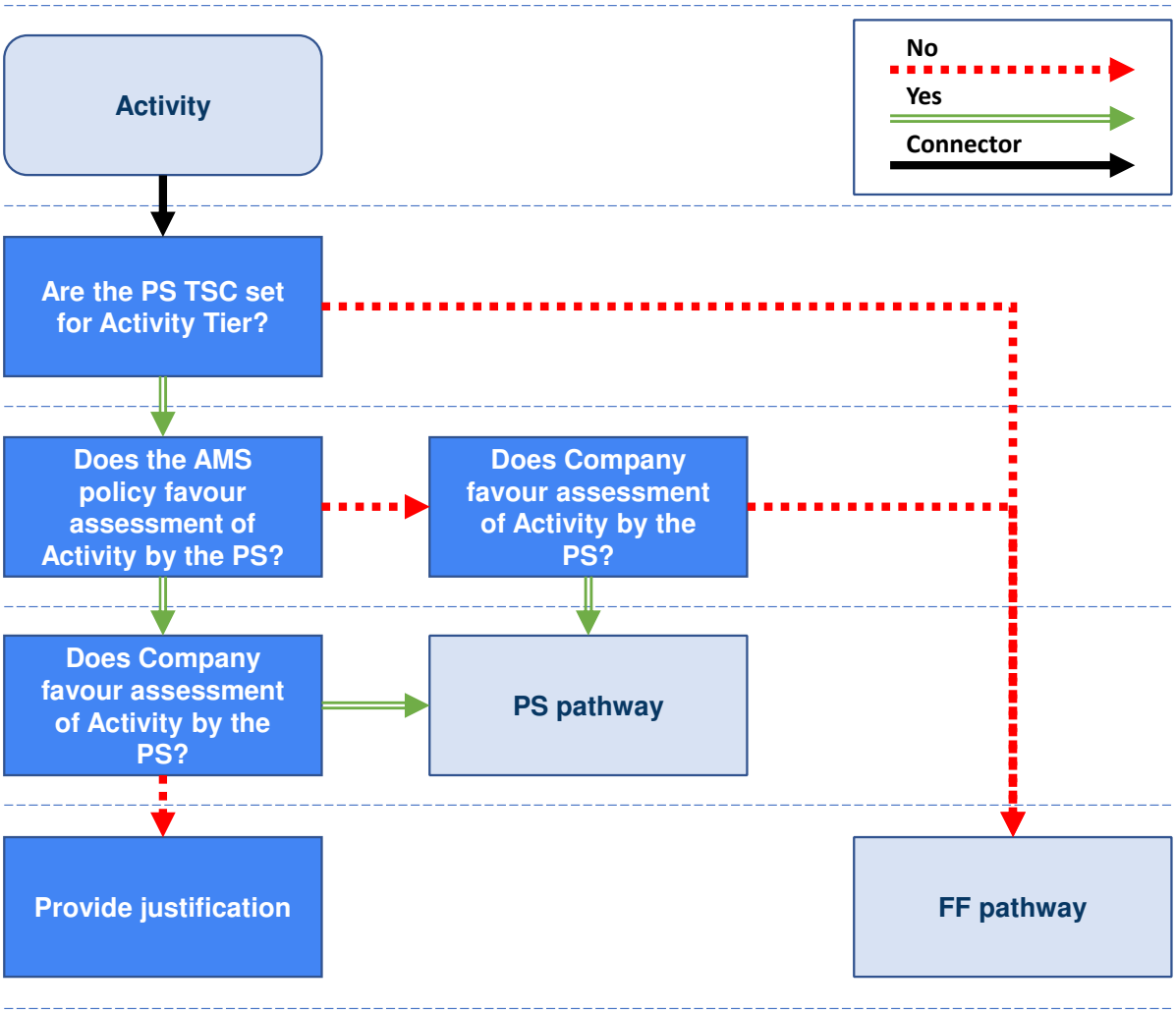



**Figure 7: Recommended process for Choice of FF or PS**

If the AMS policy has established the PS as the primary assessment approach, assessment of Activities may only be conducted using the FF in exceptional circumstances and where an assessment using the PS would be effectively impossible. In this case, the Company must present justification for using the FF to assess the Activity, which must include one of the following:

- The data required to perform an assessment under the PS cannot be obtained in the respective AMS after all reasonable attempts are made to secure such data.
- The data to perform an assessment under the PS cannot be verified or certified in accordance with regional and/or international standards.

In these circumstances, the assessor will take a position as to whether the justifications provided by the Company for using the FF, are legitimate and proceed accordingly.

### 5.1.3. Primacy of AMS in Setting of Policy

The ATB recognises the primacy of AMS in the setting of policy which affect their own territories. Notwithstanding all of the above, it is incumbent on the Company to ensure that any proposed Activity to be conducted in ASEAN is aligned with the strategic interests of the AMS in which the

Activity takes place, as well as considering any technical, permitting and other requirements. Annex 4 will contain any information available to the ATB with respect to the expectations and requirements of the respective AMS in relation to the application of the ASEAN Taxonomy.

## 5.2. User Entry Point

Some Activities may in principle be aligned with more than one EO. In such cases, the assessment may cite all applicable EOs. However, one EO must be stated as the primary EO against which the Activity is assessed. The Company should state which EO is to be regarded as primary at the time of assessment with due consideration to the recommendation of the assessor.

In determining the primary EO, Companies may consider various viewpoints such as alignment of the Activity with the Company as well as with national priorities. Companies should also consider the strategic priorities of other user groups of the Taxonomy.

Table 12 outlines three common viewpoints accompanied with relevant guiding questions to support the identification of the most relevant EO. Companies may use one or more of the viewpoints and consider one or more EO according to their strategic priority.

**Table 12: User Viewpoints**

| 1. Activity Relevance and Strategic Alignment | 2. Investors / Financial Institutions' Priority | 3. Government and Industry Guidance |
|---|---|---|
| • Which EO is most relevant to the nature of the Activity?<br>• What is the strategic focus of the Company?<br>• Which EO(s) is most aligned to the Company's strategic focus? | • What is the investors' priority and investment strategy?<br>• Which EO(s) is most aligned to the investors' priority and strategy? | • Has the government issued any guidance (including policies, roadmaps and guidelines) which indicates that this Activity contributes to a specific EO under their NDC or national plan?<br>• Is there guidance (including policies, roadmaps and guidelines) from the sectoral bodies which indicates that this Activity contributes to a specific EO under their sectoral plan? |
| • Companies should use their judgement, given the responses to the questions, to determine which EO is the most relevant to the Activity being assessed.<br>• Companies can refer to the guiding questions and narrative for each EO to better understand its relevance. | | |

Illustrative examples of applying the guiding questions for user entry point can be referenced under Appendix C.

## 5.3. Assessment using the FF

### 5.3.1. Illustrative end-to-end process assessment of an Activity using FF

Based on the primary EO identified at the user entry point (see Section 5.2), the Company can identify the corresponding decision tree (of the primary EO) to proceed with assessment of Activities.

In total, there are four decision trees, and each decision tree is developed based on specific criteria of the EO elaborated in Sections 3.1.1 to 3.1.4.

The Company assesses the Activity beginning with Question 1A and with reference to respective guiding questions, which serve to guide the Company. Details of the individual decision trees along with guiding questions are in Sections 5.3.2 to 5.3.5.

Refer to Appendix D for examples of assessment of Activities using the FF.

### 5.3.2. EO1 Assessment under the FF

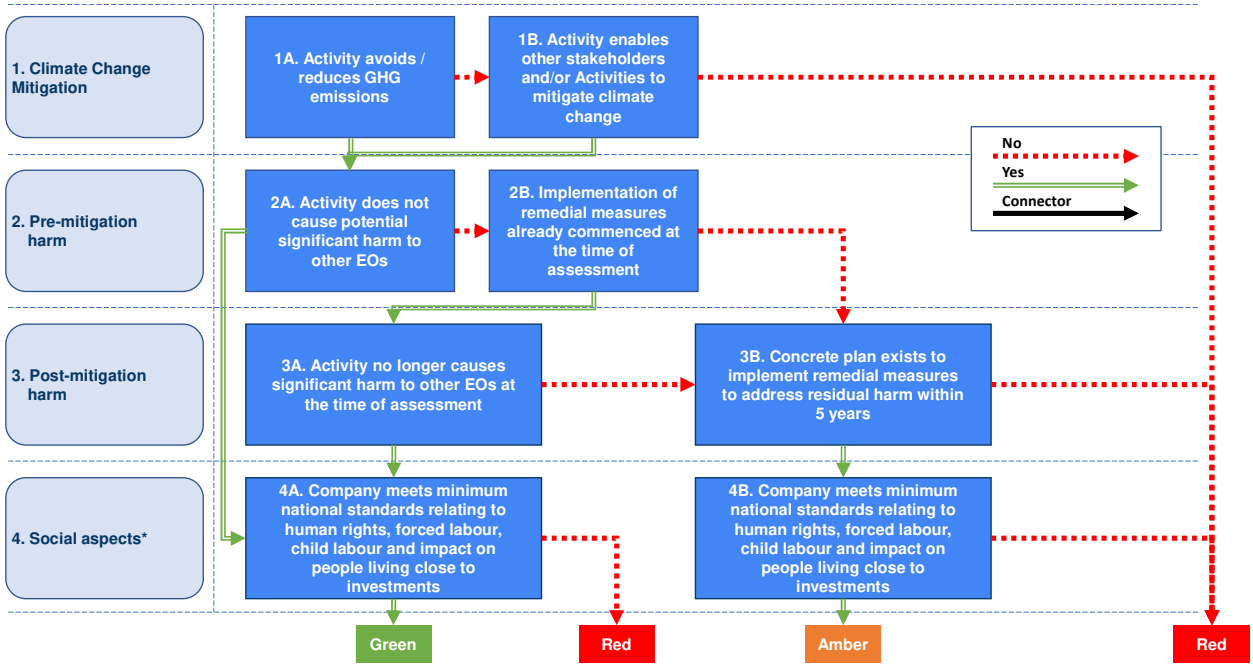



**Figure 8: The EO1 Decision Tree**[6]

[6] Social Aspects (4.) assessment is done at Company-level, while all other assessments (1. – 3.) are conducted at Activity level

**Table 13: Guiding Questions for EO1**

| S/N | Guiding questions - EO1 (Climate Change Mitigation) |
|---|---|
| 1A | Does the Activity avoid / reduce GHG emissions?<br>1. How does the Activity avoid or help reduce emissions? (e.g., generation of electricity through renewables)<br>○ Does the Activity avoid locking in high-carbon activity? (i.e., delaying or preventing the transition towards low carbon alternatives)<br>○ Does the Activity avoid leading to significant GHG emissions, incl. CO2, CH4, N2O, SF6, NF3 and/or HFCs?<br>○ Does the Activity avoid leading to or causing extensive deforestation practices?<br>2. Do the Company's policies and business strategy generally avoid contradicting or impeding alignment with the specified EO1 principles?<br>3. Where applicable and relevant, is a 3rd party certification or verification of alignment of Activity with EO1 available?<br>4. Does the Activity fulfil relevant environmental law(s) applicable to EO1?<br>5. Are the effects of climate change mitigation efforts measurable and observable? (e.g., data on amount of carbon emissions avoided) |
| 1B | Does the Activity enable other stakeholders and/or other Activities to mitigate climate change?<br>1. Does the Activity help other stakeholders (including the community) to mitigate climate change? (e.g., construction of a building that facilitates urban planting)<br>○ Does the Activity avoid impeding upstream and/or downstream stakeholders from reducing their GHG emissions?<br>2. Does the Activity promote intersectoral collaborations for climate change mitigation without negatively affecting other sectors?<br>3. How does the Activity enable other Activities to mitigate climate change? (e.g., operation of power transmission and distribution equipment that enables the incorporation of solar power)<br>4. Are the effects of climate change mitigation efforts by the enabled Activity measurable and observable? (e.g., data on amount of carbon emissions avoided) |
| • | Once evaluation is complete, proceed to Section 5.3.6 to evaluate the Activity under Do No Significant Harm & Remedial Measures to Transition. |

### 5.3.3. EO2 Assessment under the FF

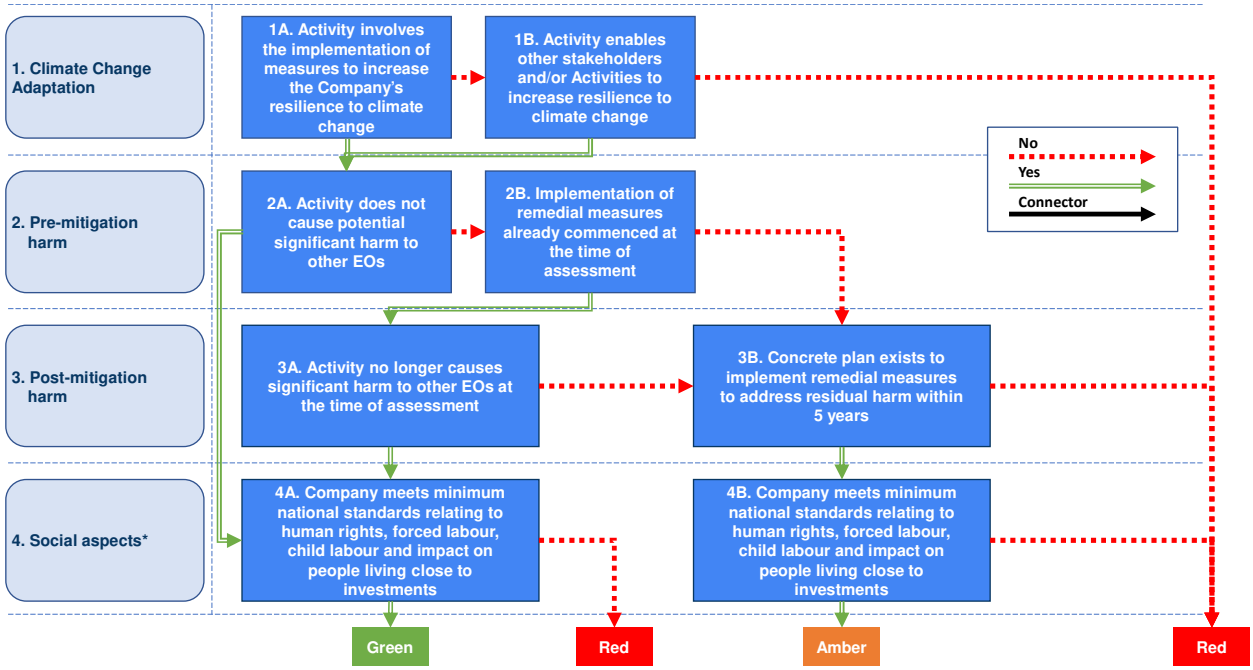



**Figure 9: The EO2 Decision Tree**[7]

**Table 14: Guiding Questions for EO2**

| S/N | Guiding questions - EO2 (Climate Change Adaptation) |
|---|---|
| **1A** | Does the Activity implement measures to increase the Company's resilience to climate change?<br>1. How does the Activity contribute to Company's resilience against adverse physical impacts of current and future climate change? (e.g., refurbishing infrastructure for greater resilience to impacts of sea level rise, building flood protection infrastructure to protect facilities, operation of road and rail adapted to current and future heatwaves through the use of more heat-resistant materials during its construction)<br>○ Has a climate risk assessment been conducted to establish the Activity's risk exposure towards physical climate risks?<br>○ Has robust and recent climate data, projections and scenarios been used for the assessment?<br>○ Do the results of the climate risk assessment showcase the impacts of climate change on the Activity? Is it a positive or negative impact?<br>○ Does the Activity consider the expected future climate in its current and planned practices?<br>○ Does the Activity avoid leading to an increase in the vulnerability of human or natural systems due to the effects of climate change and climate variability–related risks?<br>2. Does the Activity avoid leading to an increased adverse impact of the current climate and the expected future climate, on the Activity itself or on people, nature or |

[7] Social Aspects (4.) assessment is done at Company-level, while all other assessments (1. – 3.) are conducted at Activity level

| | |
|---|---|
| | assets?<br>3. Does the Activity avoid impeding the adjustment to actual and expected climate change and its impacts?<br>4. Do the Company's policies and business strategy generally avoid contradicting or impeding alignment with the specified EO2 principles?<br>5. Where applicable and relevant, is a 3rd party certification or verification of alignment of Activity with EO2 available?<br>6. Does the Activity fulfil relevant environmental law(s) applicable to EO2?<br>7. Is the reduction and/or prevention of increase in climate physical risks measurable and observable? (e.g., data on monthly transport accidents caused by natural disasters against maintenance activities delivered, data on houses repaired due to floods against budget increase for building safeguards) |
| **1B** | Does the Activity enable other stakeholders and/or Activities to increase resilience to climate change?<br>1. Does the Activity help other stakeholders (including the community) to reduce/manage physical risks? (e.g., provision of infrastructure to facilitate climate change adaptation of stakeholders)<br>○ Does the Activity avoid impeding upstream and/or downstream stakeholders from increasing their resilience to climate change?<br>2. Does it promote intersectoral collaborations for climate change adaptation without negatively affecting other sectors?<br>3. How does the Activity enable other Activities to reduce material physical risks? (e.g., removal of technological barriers to adaptation, activity which primarily provides installation of irrigation systems and improved land drainage measures that lead to reduced exposure to physical climate risks)<br>4. Has a climate risk assessment been conducted on the enabled Activity's risk exposure towards physical climate risks?<br>○ Has robust and recent climate data, projections and scenarios been used for the assessment?<br>○ Do the results of the climate risk assessment showcase the impacts of climate change on the enabled Activity? Is it a positive or negative impact? |
| • Once evaluation is complete, proceed to the Section 5.3.6 to evaluate the Activity under Do No Significant Harm & Remedial Measures to Transition. | |

### 5.3.4. EO3 Assessment under the FF

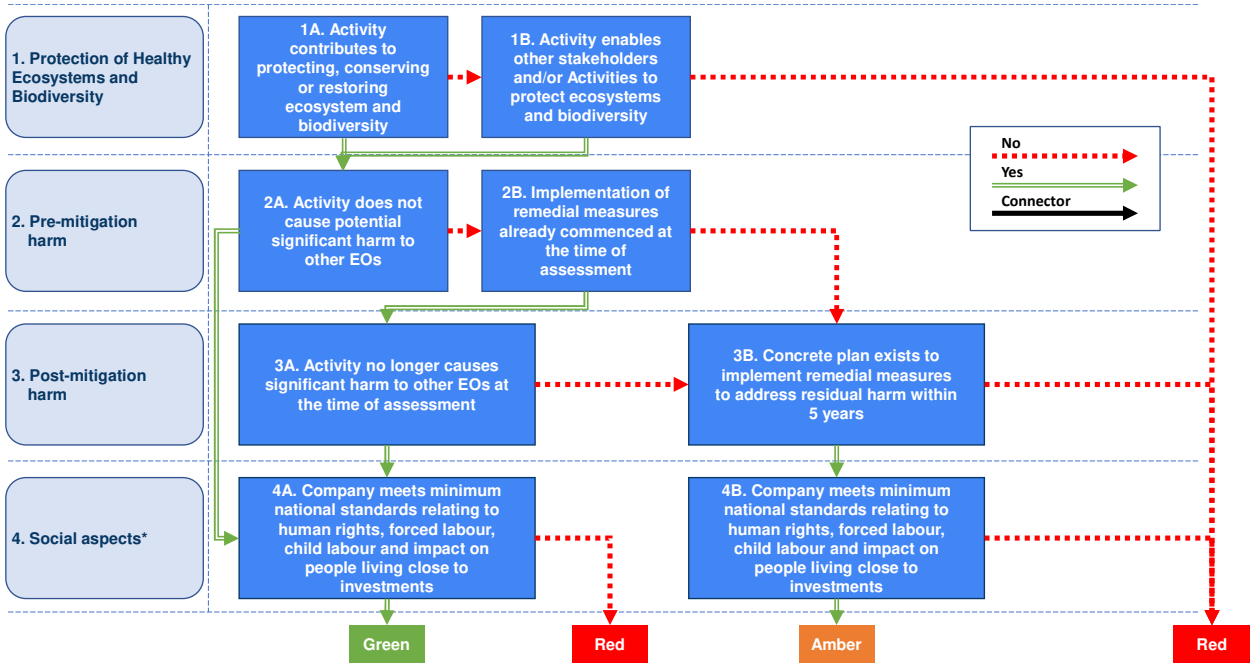



**Figure 10: The EO3 Decision Tree**[8]

**Table 15: Guiding Questions for EO3**

| S/N | Guiding questions - EO3 (Protection of Healthy Ecosystems and Biodiversity) |
|---|---|
| **1A** | Does the Activity contribute to protecting, conserving, or restoring ecosystems and biodiversity?<br>1. Which specific principles under EO3 does the Activity meet or contribute to?<br>○ How does the Activity contribute to these principles?<br>2. Does the Activity minimise or eliminate negative effects of operations on the natural ecosystem and biodiversity?<br>○ Is the Activity significantly detrimental to the good condition and resilience of ecosystems?<br>○ Does the Activity avoid leading to a significant increase in pollutant emissions into the air, land and/or natural bodies of water?<br>○ Does the Activity avoid involving the over-exploitation of natural resources?<br>○ Does the Activity avoid involving prohibited land use?<br>○ Is the Activity detrimental to the natural ecosystem's physical, chemical and biological quality, thus impeding self-reproduction and self-restoration capability of the occupying species?<br>○ Does the Activity avoid impairing natural species composition, ecosystem structure and ecological functions?<br>○ Is the Activity detrimental to the conservation status of habitats and species within the natural ecosystem? (e.g., inhibitions to the dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit) |

[8] Social Aspects (4.) assessment is done at Company-level, while all other assessments (1. – 3.) are conducted at Activity level

| | |
|---|---|
| | 3. Do the Company's policies and business strategy generally avoid contradicting or impeding alignment with the specified EO3 principles? (e.g., employment of services from subcontractors, suppliers and/or third-parties with practices detrimental to the natural ecosystem and biodiversity)<br>4. Is a 3rd party certification or verification of alignment of Activity with EO3 available?<br>5. Does the Activity fulfil relevant environmental law(s) applicable to the specified EO3 principles?<br>6. Is the protection of ecosystems and biodiversity measurable and observable? (e.g., number of trees reforested, land area of habitats protected) |
| **1B** | Does the Activity enable other stakeholders and/or other Activities to protect ecosystems and biodiversity?<br>1. Does the Activity help other stakeholders (including the community) to protect ecosystems and biodiversity?<br>○ Does the Activity avoid impeding upstream and/or downstream stakeholders from protecting ecosystems and biodiversity?<br>2. Does the Activity promote intersectoral collaborations for protecting biodiversity and ecosystems without negatively affecting other sectors?<br>3. How does the Activity enable other Activities to protect ecosystems and biodiversity?<br>4. Is the protection of ecosystems and biodiversity by enabled Activity measurable and observable? (e.g., number of trees reforested, land area of habitats protected) |
| • Once evaluation is complete, proceed to the Section 5.3.6 to evaluate the Activity under Do No Significant Harm & Remedial Measures to Transition. | |

### 5.3.5. EO4 Assessment under the FF

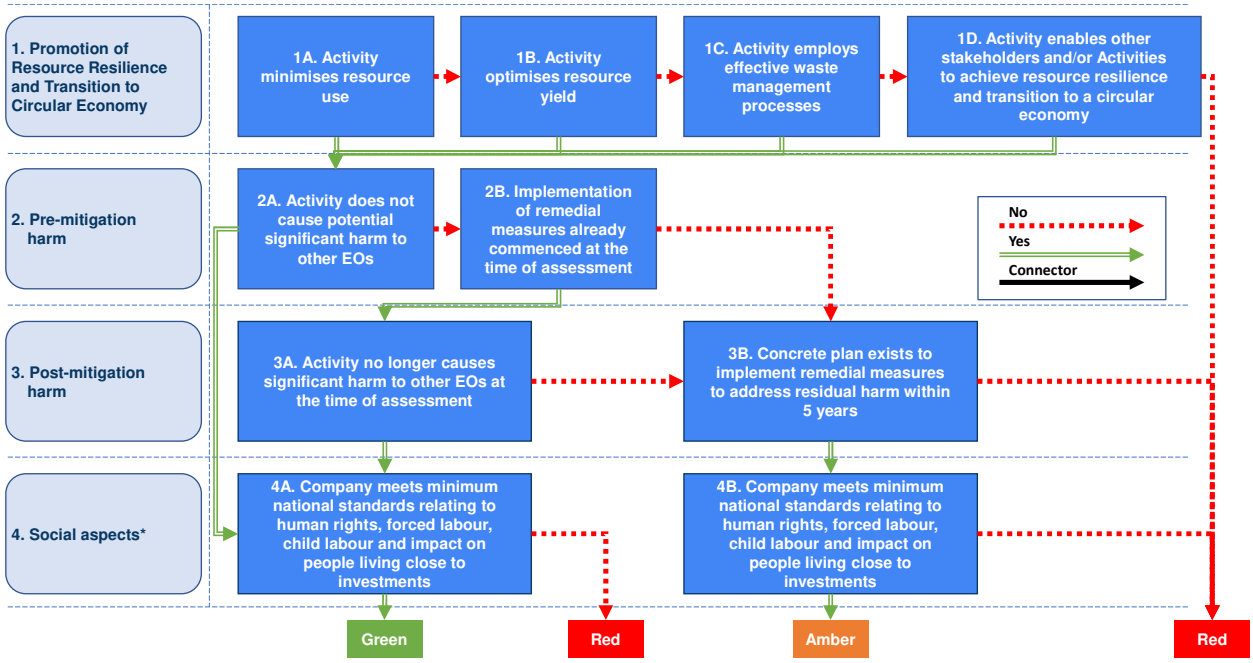



**Figure 11: The EO4 Decision Tree**[9]

[9] Social Aspects (4.) assessment is done at Company-level, while all other assessments (1. – 3.) are conducted at Activity level

**Table 16: Guiding Questions for EO4**

| S/N | Guiding questions - EO4 (Promotion of Resource Resilience and Transition to Circular Economy) | |
|---|---|---|
| **1A** | Does the Activity minimise resource use? (e.g., operation of a manufacturing plant that uses alternative fuels from waste material)<br>1. Does the Activity use renewable energy, bio-based resources or other recovered materials to reduce the rate of resource extraction?<br>2. Is the building of resource resilience and transition to circular economy measurable and observable? | Questions applicable to 1A, 1B and 1C<br>1. Do the Company's policies and business strategy generally avoid contradicting or impeding alignment with the specified EO4 principle?<br>2. Is a 3rd party certification or verification of alignment of Activity with EO4 available?<br>3. Does the Activity fulfil relevant environmental law(s) applicable to the specified EO4 principle?<br>4. Does the Activity avoid inhibiting the maintenance of value, the efficient use in production and consumption, the reduction of environmental impact and the minimising of waste of products, materials and other resources in the economy?<br>5. Does the Activity avoid involving the release of hazardous substances at all stages of their lifecycle? |
| **1B** | Does the Activity optimise resource yield? (e.g., operation of a plantation that employs fertiliser application techniques to optimise crop yield)<br>1. Does the Activity extend the use of products through reuse, repurposing, refurbishing, remanufacturing, disassembly, upgrades and repair, and/or sharing of products?<br>2. Does the Activity increase resource efficiency by ensuring recovered materials are recycled as high-quality secondary raw material?<br>3. Is the Activity made available as product-as-a-service to reduce the demand for new products and their embedded raw materials? (e.g., inter alia, leasing, pay-per-use, subscription or deposit return schemes)<br>4. Does the Activity involve the use of products, assets or process technologies designed and produced based on circular economy principles? (e.g., designing for longevity, resource efficiency, durability, functionality, modularity, upgradability, easy disassembly and repair, using recyclable or biodegradable materials)<br>5. Does the Activity avoid leading to significant inefficiencies in the use of materials or in the direct or indirect use of natural resources at one or more stages of the product lifecycle?<br>6. Is the building of resource resilience and transition to circular economy measurable and observable? | |
| **1C** | Does the Activity employ effective waste management processes? (e.g., operation of a manufacturing plant with systems that minimise the leaching out of nutrients from the production system | |

| | | |
|---|---|---|
| | into the environment, refurbishment and recycling features)<br>1. Does the Activity reduce waste generation, including through:<br>○ replacement of virgin materials with secondary raw materials or by-products, either fully or partially?<br>○ repair, reuse, donation, resale, upcycling activities or on-site composting?<br>2. Is the building of resource resilience and transition to circular economy measurable and observable?<br>3. Does the Activity apply the waste hierarchy of priority orders in the prevention and management of waste material?<br>○ Prevention<br>○ Preparing for re-use<br>○ Recycling<br>○ Other forms of recovery, e.g., energy recovery<br>○ Disposal<br>4. Does the Activity avoid leading to a significant increase in the generation, incineration or disposal of waste?<br>5. Does the long-term disposal of waste resulting from the Activity avoid causing significant and long-term harm to the environment? | |
| **1D** | Does the Activity enable other stakeholders and/or Activities to achieve resource resilience and transition to a circular economy?<br>6. Does the Activity help other stakeholders (including the community) to build resource resilience and transition to a circular economy?<br>○ Does the Activity avoid impeding upstream and/or downstream stakeholders from building resource resilience and transition to a circular economy?<br>7. Does it promote intersectoral collaborations for resource resilience and circular economy transitions without negatively affecting other sectors?<br>8. How does the Activity enable other Activities to build resource resilience and transition to a circular economy?<br>9. Is the building of resource resilience and transition to circular economy of the enabled Activity measurable and observable? (e.g., recovery, reuse and recycle rates) | |
| • Once evaluation is complete, proceed to Section 5.3.6 to evaluate the Activity under Do No Significant Harm & Remedial Measures to Transition. | | |

### 5.3.6. Assessment of Essential Criteria

Following the EO assessment (Sections 5.3.2 to 5.3.5), the assessor proceeds to the next layer of the decision tree and assesses the Activity against EC1 – as shown in decision boxes 2A and 3A, EC2 – as shown in decision boxes 2B and 3B, and EC3 – as shown in decision boxes 4A and 4B; with reference to the respective guiding questions (Table 17).

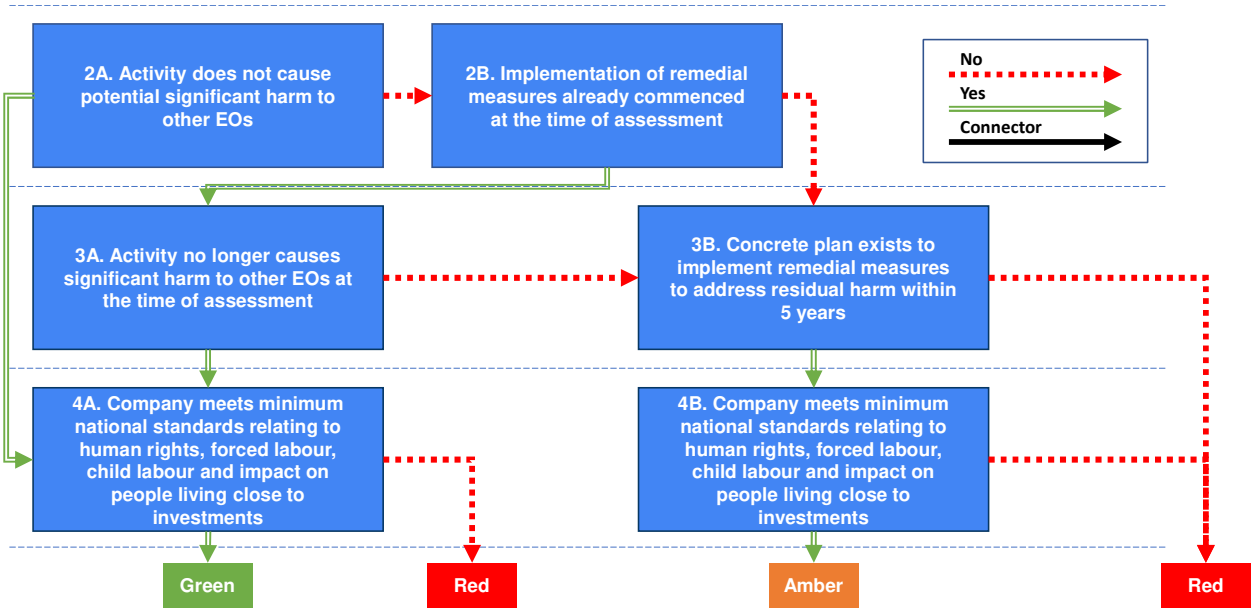



**Figure 12: The logic flow and decision-tree diagram for assessing essential criteria**

**Table 17: Guiding details to the decision box in the flow diagram**

| Decision Box | Details to Guide Decision |
|---|---|
| 2A. Activity does not cause potential significant harm to other EOs | The Activity potentially causes harm to EOs other than the one it is being assessed against. It is important to understand the significance of the harm caused by the Activity based on the materiality of the harm to each EO. The assessor should consider whether the degree (i.e., severity) of the harm and scale of the harm when the Activity commences (i.e., the date of the notice to proceed) would reasonably indicate that the harm is material. |
| 2B. Implementation of remedial measures already commenced at the time of assessment | The Company implementing the Activity has recognised the potential for, or the occurrence of significant harm, and has already started to implement remedial measures to reduce harm at the time of assessment. |
| 3A. Activity no longer causes significant harm to other EOs at the time of assessment | The implementation of remedial measures adequately mitigates/addresses the harm caused and the Activity no longer causes significant harm to other EOs. |
| 3B. Concrete plan exists to implement remedial measures to address residual harm within 5 years | The implementation of remedial measures does not adequately mitigate or address the harm caused and as such, the Company has established concrete plans for additional remedial measures to address remaining harm within 5 years. |
| 4A/4B. The Company meets minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments | The Company has recognised the impacts of its Activity on its employees and surrounding communities, and has met national standards relating to human rights, forced labour, child labour and impact on people living close to investments. |

Each decision box within the decision tree (Figure 12) contains a binary question, that the assessor will need to answer. The assessor answers ‘Yes’ or ‘No’ to the binary question based on information pertaining to the Activity being assessed.

Table 18 shows generic guiding questions which may relate to any EO.

**Table 18: General guiding questions for EC1 (DNSH)**

| S/N | Guiding questions - Essential Criteria 1 (Do No Significant Harm) |
|---|---|
| 2A | Does the Activity avoid causing potential significant harm to other EOs?<br>1. Has an EIA been conducted and approved on the Activity?<br>2. What are the results of the EIA and where do the impact of the activity lie?<br>3. Have the remedial measures recommended within the EIA been implemented?<br>4. Regardless of whether an EIA has been conducted or not, is there any evidence or consideration that suggests the activity could cause potential significant harm to other EOs? |

The assessor must determine which of the three remaining EOs (other than the one to which is contributes) will experience significant harm because of the Activity. The assessor must then refer to the guiding questions in Table 19 to assess whether significant harm has been caused. associated with the specific EO(s).

**Table 19: EO Specific guiding questions for EC1 (DNSH)**

| EO | Guiding questions - Essential Criteria 1 (Do No Significant Harm) |
|---|---|
| 2A EO1 | 1. Does the Activity avoid significant GHG emissions, incl. $CO_2$, $CH_4$, $N_2O$, SF6, $NF_3$ and/or HFCs?<br>2. Does the Activity avoid leading to or causing extensive deforestation practices?<br>3. Does the Activity avoid impeding upstream and/or downstream stakeholders from reducing their GHG emissions? |
| 2A EO2 | 1. Does the Activity avoid leading to an increase in the vulnerability of human or natural systems due to the effects of climate change and climate variability-related risks?<br>2. Does the Activity avoid impeding upstream and/or downstream stakeholders from increasing their resilience to climate change?<br>3. Does the Activity avoid an increased adverse impact of the current climate and the expected future climate, on the activity itself or on people, nature or assets?<br>4. Does the Activity avoid impeding the adjustment to actual and expected climate change and its impacts?<br>5. Does the Activity consider the expected future climate in its current and planned practices? |
| 2A EO3 | 1. Is the Activity significantly detrimental to the good condition and resilience of ecosystems?<br>2. Does the Activity avoid leading to a significant increase in pollutant emissions into the air, land and/or natural bodies of water, relative to the situation before the commencement of said economic activity?<br>3. Does the Activity avoid involving the over-exploitation of natural resources?<br>4. Does the Activity avoid involving prohibited land use?<br>5. Is the Activity detrimental to the natural ecosystem's physical, chemical and biological quality, thus impeding self-reproduction and self-restoration capability of the occupying species?<br>6. Does the Activity avoid impairing natural species composition, ecosystem structure |

| | |
|---|---|
| | and ecological functions?<br>7. Is the Activity detrimental to the conservation status of habitats and species within the natural ecosystem? (i.e., inhibitions to the dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit)<br>8. Does the Activity avoid impeding upstream and/or downstream stakeholders from protecting ecosystems and biodiversity? |
| 2A EO4 | 1. Does the Activity avoid inhibiting the maintenance of value, the efficient use in production and consumption, the reduction of environmental impact and the minimising of waste of products, materials and other resources in the economy?<br>2. Does the Activity avoid releasing hazardous substances at all stages of its lifecycle?<br>3. Does the Activity apply the waste hierarchy of priority orders in the prevention and management of waste material?<br>○ Prevention<br>○ Preparing for re-use<br>○ Recycling<br>○ Other forms of recovery, e.g., energy recovery<br>○ Disposal<br>4. Does the Activity avoid significant inefficiencies in the use of materials or the direct or indirect use of natural resources at one or more stages of the product lifecycle?<br>5. Does the Activity avoid leading to a significant increase in the generation, incineration or disposal of waste?<br>6. Does the long-term disposal of waste resulting from the Activity avoid causing significant and long-term harm to the environment?<br>7. Does the Activity avoid impeding upstream and/or downstream stakeholders from building resource resilience and transition to a circular economy? |

**Table 20: Guiding questions for EC2 (RMT)**

| S/N | Guiding questions - Essential Criteria 2 (Remedial Measures to Transition) |
|---|---|
| 2B | Have remedial measures already started to be implemented at the time of assessment?<br>1. Does the Activity remediate risk and impacts through e.g., compliance with relevant (national) environmental law(s), internal policies and processes, implementation of additional measures that reduce harm?<br>2. What are these proposed actions and their contributions to remediation (e.g., avoidance, minimisation, reduction)?<br>3. Is there available technology for this Activity in place for compliant risk management measures against the adverse effects of climate change?<br>4. If the Activity is new and has yet to commence, consider whether there are planned remedial measures already in place to address the potential harm |
| 3A | Does the Activity no longer cause significant harm to other EOs at the time of assessment?<br>1. 'Residual harm' refers to any harm that remains even after compliance with the relevant environmental laws and Company's processes and policies, as well as implementation of any other measures on top of compliance. |
| 3B | Are there concrete plans established for remedial measures to address the residual harm within a defined timeframe (i.e., within 5 years)?<br>1. Do the planned remedial measures fall within the defined timeframe?<br>2. What is the expected output for results of tracking and monitoring (e.g., annual reports, sustainability reports, other publications)?<br>3. Are the remedial measures and assessments done appropriate/proportionate to the business' scale of operations and industry benchmarks?<br>4. Who are the direct stakeholders involved in the Activity's supply chain? What are these proposed actions and their contributions to remediation (e.g., avoidance, minimisation, reduction)? |

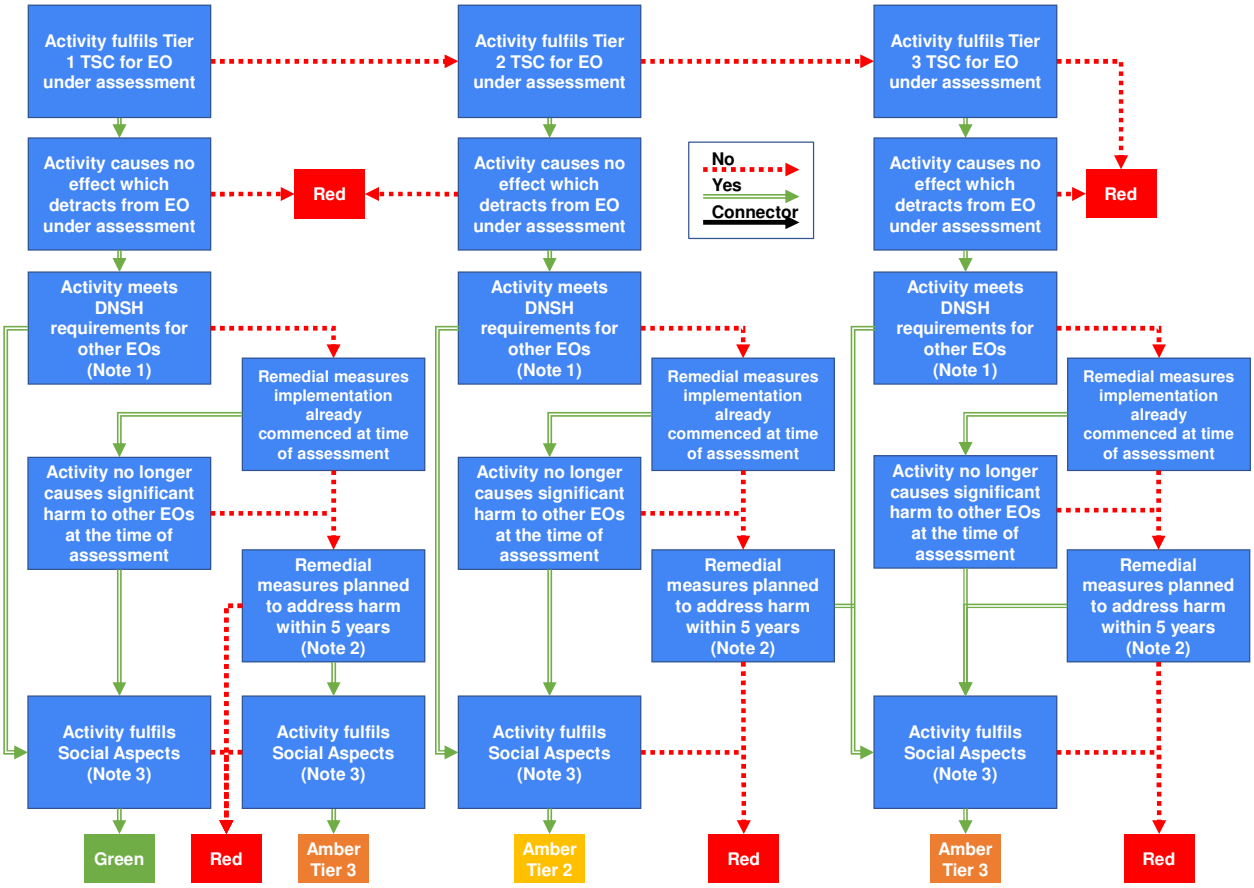
The assessor is required to answer all relevant guiding questions with "yes" to pass the EC1 and EC2 assessment.

The assessor can first determine which of the three remaining EOs (other than the one to which it contributes) will experience significant harm because of the Activity. The assessor can then refer to the guiding questions associated with the specific EO(s) to assess whether significant harm has been caused.

Details on the assessment of Social Aspects, which is applicable for both the PS and the FF, is in Section 5.5.

## 5.4. Assessment using the PS

In an Activity is to be assessed by the PS, the Company is required to provide evidence of the fulfilment of the terms of the EO (or EOs), DNSH (if material), RMT (if applicable) and Social Aspects under the terms of the ASEAN Taxonomy (see Figure 13).




**Notes**
1. DNSH Requirements are the same for all Tiers
2. Activity must be re-assessed to ensure harm has been remediated within 5 years
3. Social Aspects are the same for all Tiers

**Figure 13: PS Assessment Tree**

### 5.4.1. Applicability of TSC

Activities are 'normally' assessed according to the TSC which is extant at the time of the assessment. However, if the Activity has not yet commenced:

- The Activity should be assessed according to the TSC which will apply at commencement if this is known at the time of assessment.
- If the TSC at commencement is not known, the Activity should be assessed according to the TSC extant at the time of assessment; if TSC changes before commencement, an updated assessment should be conducted.

TSC extant at the time of assessment will be subject to the rules set out in Section 4.2. An example of this application is shown in Appendix E.

### 5.4.2. Assessment of the contribution of the Activity to the EO

The contribution of the Activity to the EO is determined by contribution to the respective Green (Tier 1), Amber (Tier 2), or Amber (Tier 3) TSC. These TSC are listed and described in Annex 1. Note that an Activity which directly or indirectly causes an effect which detracts from the EO for which the Activity is seeking classification will be classified as Red.

### 5.4.3. Assessment of DNSH

Specific criteria and approaches for identifying and assessing the harm caused by Activities are set out in Annex 2. Companies and assessors should refer to the categories of potential significant harm which may be caused by Activities and evaluate the harm caused by the Activity based on the guidance provided in Annex 2.

### 5.4.4. Remedial Measures to Transition

Where it has been assessed that significant harm is occurring, or will occur, the Company must demonstrate that a realistic and comprehensive plan is in place to mitigate the harm to a level which it is no longer significant. In this case, a remediation plan must be submitted. This plan must demonstrate that there will be no significant harm occurring within 5 years after assessment of the Activity. Activities for which RMT is outstanding shall be provisionally classified as 'Amber Tier 3' until the RMT is complete and significant harm has effectively been remediated.

The Activity shall be subject to a new assessment, which shall be conducted at the expense of the Company:

- If the new assessment shows that harm has been remediated, the Activity shall be classified appropriately according to the achievement of the TSC;
- If it cannot be shown that harm can be remediated within 5 years, the Activity shall be assessed as 'Red'.

Refer also to Section 3.6.3.

## 5.5. Assessment of Social Aspects

Social Aspects assessments are applicable for both the FF and the PS.

The key requirement of Social Aspects assessment is to meet relevant social regulations and legislations in the relevant AMS.

There are three Social Aspects that need to be considered under the EC3 assessment:

- Promotion and protection of human rights
- Prevention of forced labour and protection of children's rights
- Impact on people living close to investments

Unlike EC1 and EC2, EC3 assessment is performed at a Company-level as opposed to at an Activity-level. This is because social policies are usually crafted at the Company level.

**Table 21: Guiding questions through the decision tree for the EC3 Assessment**

| S/N | Guiding questions - Essential Criteria 3 (Social Aspects) |
|---|---|
| 4A<br>4B | Does the Company meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments? In the absence of minimum standards established through national regulations or legislations, the following guiding questions will be used:<br>**1. Promotion and protection of human rights**<br>a. Does the Company have policies or guidelines that uphold an individual's right to enjoy just, decent and favourable working conditions?<br>b. Does the Company have a clear and transparent policy that sets out measures to create a positive environment in overcoming discrimination?<br>c. Does the Company have a policy that provides decent wages to all workers, taking into account adequate standards of living?<br>**2. Prevention of forced labour and protection of children's rights**<br>a. Does the Company employ occupational health and safety practices?<br>b. Does the Company have a clear and transparent policy that sets out measures taken to prevent and eliminate all forms of exploitation, trafficking, violence and abuse in its entire supply chain?<br>c. Do all workers have the right to enter into, and leave, employment voluntarily and freely?<br>d. If the Company employs migrant workers, are the migrant workers treated fairly?<br>e. Does the Company ensure all its workers free access to their documentation?<br>f. If the Company employs private employment agencies, do they conduct measures to ensure that such agencies are not involved in any form of exploitation, trafficking, violence and abuse?<br>**3. Impact on people living close to investments**<br>a. Does the Company conduct risk and vulnerability assessments to ensure targeted response measures that would contribute to the progressive implementation, effective monitoring and evaluation, as well as optimum impact of social protection?<br>b. Does the Company engage and strengthen the capacity of the community for the better responsiveness, coordination and effectiveness of risk reduction and management policies?<br>c. Does the Company promote public awareness of their exposure and vulnerability and establish platforms to empower people to meet their basic needs? |

The boundary of Social Aspects coverage is as follows:

1. The Social Aspects assessment will cover the immediate Company carrying out the Activity as well as branches/subsidiaries (if any) that are directly involved in carrying out the Activity, without which the Activity cannot be carried out.

2. The adherence of suppliers and subcontractors directly involved in carrying out the Activity, without which the Activity cannot be carried out, to the Social Aspects must also be exhibited; e.g., through signing a Code of Conduct.
3. The Company should refer to national legislations and regulations of the respective country in which the organisation (e.g., corporate or branch/subsidiary) is based.

For example, if the immediate Company carrying out the Activity is based in Singapore, but its subsidiary is based in Indonesia, then the assessment will be done with reference to Singapore legislations and regulations for the Company, while Indonesia legislations and regulations will be referenced for the subsidiary.

Passing the Social Aspects assessment requires adherence to the relevant AMS legislations and regulations for each Social Aspects. Not meeting national legislations and thus failing the Social Aspects assessment leads to 'Red classification'. Please refer to the use case in Appendix F.

In AMS where legislations and regulations pertinent to any of the Social Aspects are absent, the assessor shall utilise the guiding questions instead. The Activity will pass the Social Aspects assessment if all the guiding questions are at least satisfactorily met. The guiding questions on Social Aspects are shown in Table 22.

**Table 22: Guiding questions Social Aspects in the absence of relevant legislations and regulations**

| Social Aspects | Guiding Questions |
|---|---|
|  Promotion and Protection of Human Rights | 1. Does the Company have policies or guidelines that uphold an individual's right to enjoy just, decent and favourable conditions of work?<br>2. Does the Company have a clear and transparent policy that sets out measures to create a positive environment in overcoming discrimination?<br>3. Does the Company have a policy that provides decent wages to all workers, taking into account adequate standards of living? |
|  Prevention of Forced Labour and Protection of Children's Rights | 1. Does the Company employ occupational health and safety practices?<br>2. Does the Company have a clear and transparent policy that sets out measures taken to prevent and eliminate all forms of exploitation, trafficking, violence and abuse in its entire supply chain?<br>3. Do all workers have the right to enter into, and leave, employment voluntarily and freely?<br>4. If the Company employs migrant workers, are the migrant workers treated fairly?<br>5. Does the Company ensure all its workers free access to their documentation?<br>6. If the Company employs private employment agencies, do they conduct measures to ensure that such agencies are not involved in any form of exploitation, trafficking, violence and abuse? |
|  Impact on People Living Close to Investments | 1. Does the Company conduct risk and vulnerability assessments to ensure targeted response measures that would contribute to the progressive implementation, effective monitoring and evaluation, as well as optimum impact of social protection?<br>2. Does the Company engage and strengthen the capacity of the community for the better responsiveness, coordination and effectiveness of risk reduction and management policies?<br>3. Does the Company promote public awareness of their exposure and vulnerability and establish platforms to empower people to meet their basic needs? |

If a Company is found or known to have an unsatisfactory track record (due to violations or breaches) in at least one of the Social Aspects, the said Company will still be allowed to undergo the Social Aspects assessment; but as an additional requirement, it has to prove that its relevant

processes (where violations or breaches have occurred) have improved and remediation processes were implemented to prevent a repeat of violation or breach.

Data on a Company's violations and breaches of the Social Aspects may be collected through publicly available sources, but it is ultimately up to the Company's discretion to voluntarily disclose such violations or breaches.

# 6. CONCLUSIONS AND WAY FORWARD

## 6.1. Expansion of Activities and EOs in the PS

In ASEAN Taxonomy Version 2, the PS primarily establishes TSC for Activities under ISIC Sector D: Electricity, Gas, Steam and Air Conditioning Supply for all EOs, where possible. The PS will develop TSC for more Activities across all focus sectors in the subsequent versions of the ASEAN Taxonomy.

## 6.2. Taxonomy Applications

Table 22 showcases the different potential uses for the ASEAN Taxonomy based on the following user groups (non-exhaustive):

- AMS / governments;
- Regulators (including but not limited to central banks, securities commissions, stock exchanges, etc.);
- Financial institutions;
- Providers of capital (including but not limited to investors, shareholders, asset/fund managers, companies, insurance providers etc.);
- Rating agencies.

| User: ASEAN Member States | *Uses* | User: Regulators |
|---|---|---|
| Taxonomy applied when setting requirements for green bonds and issuance of green sovereigns. | **Bond issuance** | Taxonomy applied when setting requirements for green bonds. |
| Taxonomy referred to when setting requirements for "sustainable" investment funds. | **Identifying sustainable investees** | Taxonomy referred to when setting requirements for "sustainable" investment funds. |
| Taxonomy referred to when setting requirements for green loans in the country. Taxonomy also used when designing government sustainable loan programs, including via provision of loan guarantees. | **Developing sustainable lending products or identifying eligible borrowers** | Taxonomy referred to when setting requirements for green loans in the member state. |
| Taxonomy referred to when setting requirements for ESG benchmarks. | **Definition of ESG benchmarks / indices and identification of constituents** | Taxonomy referred to when setting requirements for ESG benchmarks. |
| Taxonomy used as a reference for setting rules on corporate sustainability disclosures and ESG risk management practices. | **Corporate sustainability reporting** | Taxonomy used as a reference for setting rules on corporate sustainability disclosures and ESG risk management practices. |
| Taxonomy used as reference when setting rules for the financial market participant sustainability reporting disclosures at portfolio and product level. | **Financial market participant sustainability reporting** | Taxonomy used as reference when setting rules for the financial market participant sustainability reporting disclosures at portfolio and product level. |
| Taxonomy used as reference for fiscal benefits, policy incentives, economic growth, and climate change mitigation. | **Transition finance** | Taxonomy referred to in order to ensure accurate reporting on the environmental impact of transition finance activities and adherence to relevant regulatory requirements. |

| User: Companies | *Uses* | User: Rating Agencies |
|---|---|---|
| Taxonomy applied in the process of issuing corporate bonds and reporting on bond sustainability credentials. | **Bond issuance** | Taxonomy applied to derive ESG ratings of bonds and issuers. |
| Taxonomy used as a reference for self-assessment to assess feasibility of receiving potential investments from investment funds and for promoting green credentials to potential investors. | **Identifying sustainable investees** | Taxonomy applied as a basis to provide ESG data to fund managers for sustainable investment fund design and investee selection. |
| Taxonomy used as a reference for self-assessment to assess feasibility of receiving potential green/sustainability loans and for promoting green credentials to potential lenders. | **Developing sustainable lending products or identifying eligible borrowers** | Taxonomy applied as basis in determining ESG ratings of credit institutions. |
| Taxonomy used as a reference for self-assessment to assess feasibility of being selected for ESG benchmarks and for promoting green credentials to ESG benchmark administrators and investors. | **Definition of ESG benchmarks / indices and identification of constituents** | Taxonomy applied to provide ESG performance data for the design of ESG benchmarks and identification of benchmark constituents. |
| Taxonomy applied in demonstrating green credentials without risk of greenwashing, improving competitiveness and attractiveness to sustainable investors and lenders, and improving sustainability-related risk management. | **Corporate sustainability reporting** | Taxonomy applied in the process of corporate sustainability reporting and to calculate ESG ratings for Companies. |
| N/A | **Financial market participant sustainability reporting** | Taxonomy applied in the process of deriving ESG ratings for Companies. |
| Taxonomy is applied to adapt business models and strategies that meet the demand of transition to low-carbon and sustainable economies. | **Transition finance** | Taxonomy applied in the process of assessing credit worthiness in light of transition mechanisms (such as incorporating ESG principles). |

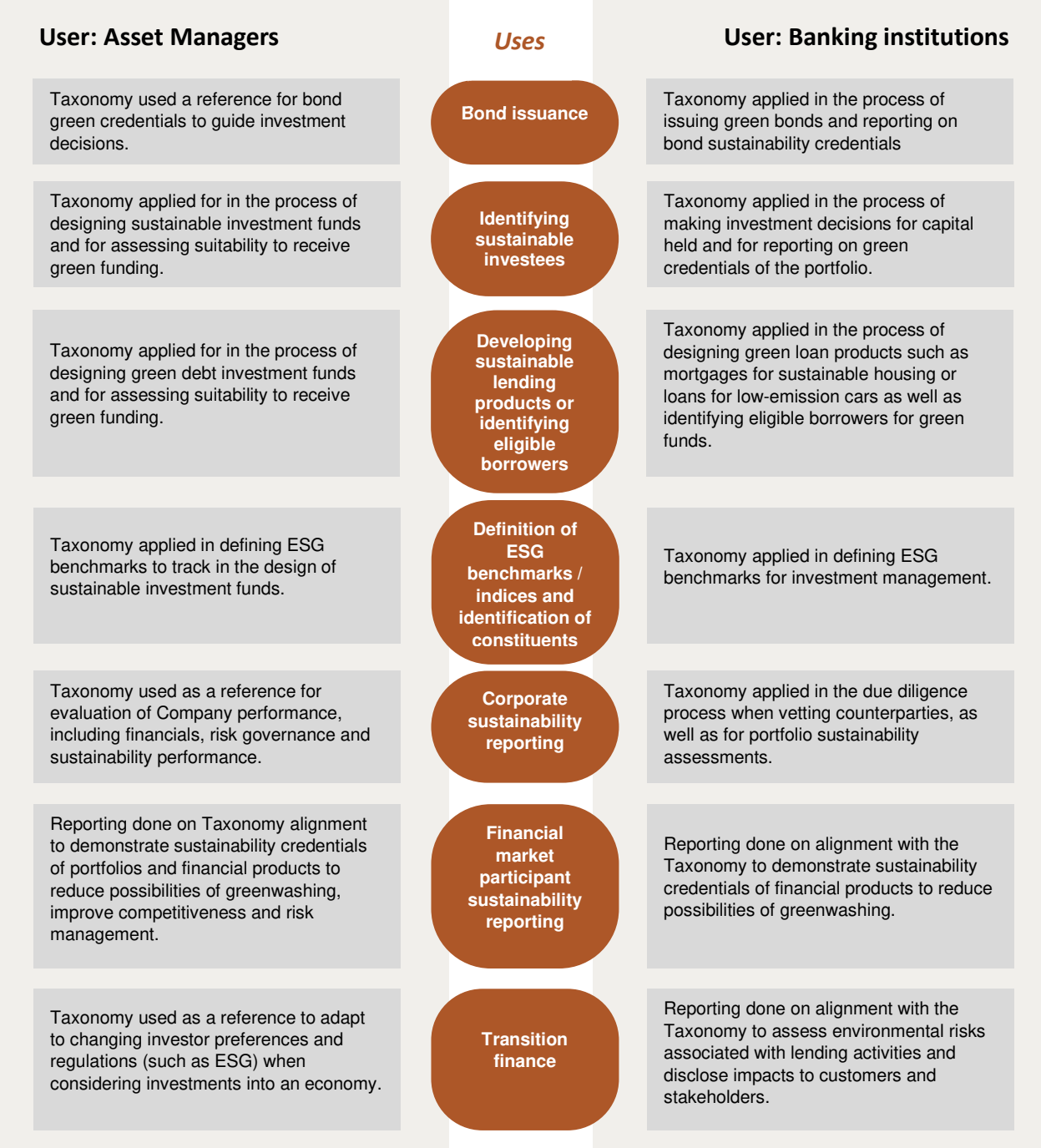



**Figure 14: Potential Uses and Users of the ASEAN Taxonomy**

## 6.3. Classification of entities, portfolios, and financial instruments

The ASEAN Taxonomy Version 2 currently only provides guidance on how to assess individual Activities. Notwithstanding, the ASEAN Taxonomy aims to facilitate classification of entities and portfolios through aggregation of Activities. Further guidance on the assessment of entities and portfolios will be provided in future Versions of the ASEAN Taxonomy.

### 6.3.1. Assessment procedures other than Use of Proceeds

It is expected that assessments of financial instruments may make use of similar procedures as described in the ASEAN Green Bond Standards (ASEAN GBS), ASEAN Social Bond Standards (ASEAN SBS), and ASEAN Sustainability Bond Standards (ASEAN SUS) (ACMF, 2018) in as much as it applies to aspects other than Use of Proceeds, i.e.:

- Process for Project Evaluation and Selection
- Management of Proceeds
- Reporting

For avoidance of doubt, the ASEAN Taxonomy does not propose any changes to ASEAN GBS, ASEAN SBS, and ASEAN SUS themselves.

### 6.3.2. Grandfathering

For Activities, classification is always based on the TSC extant at the time of assessment. When Activity TSC changes, i.e., either the Activity Tier is sunset by the ATB or decided to be phased out by an AMS, the preceding TSC may no longer be used for assessment and classification.

The rules for grandfathering will be set out in a subsequent version of the ASEAN Taxonomy.

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# APPENDIX A: STAKEHOLDER CONSULTATION

After publishing Version 1 of the ASEAN Taxonomy, the ATB held stakeholder consultations to seek feedback on the conceptual framework of the ASEAN Taxonomy. Online surveys, webinars, roundtable discussions and individual interviews were organised between May to July 2022.

The consultation covers a wide range of institutions with an interest in the ASEAN Taxonomy. Survey responses were gleaned from 181 individuals representing 160 different organisations – covering all AMS and stakeholders beyond the ASEAN region. The consultations were conducted with approximately 393 registrants across 20 roundtables (of various sectors/industries), and 27 independent/individual interviews with organisations.

Generally, stakeholders are supportive of the ASEAN Taxonomy initiative and highlighted several challenges to be addressed, including:

- Clarity of definitions;
- Design of the ASEAN Taxonomy for simplicity and ease of use;
- Transparency of reporting;
- Interoperability and recognition (within ASEAN and across other regions in the world); and
- Access to usable and consistent data

More than 80% of the stakeholders commented on the importance of the ASEAN Taxonomy providing a common language. The commonality of language was an issue raised particularly by those stakeholders whose operations are transitional by nature; such as airlines, maritime operators, and international development banks.

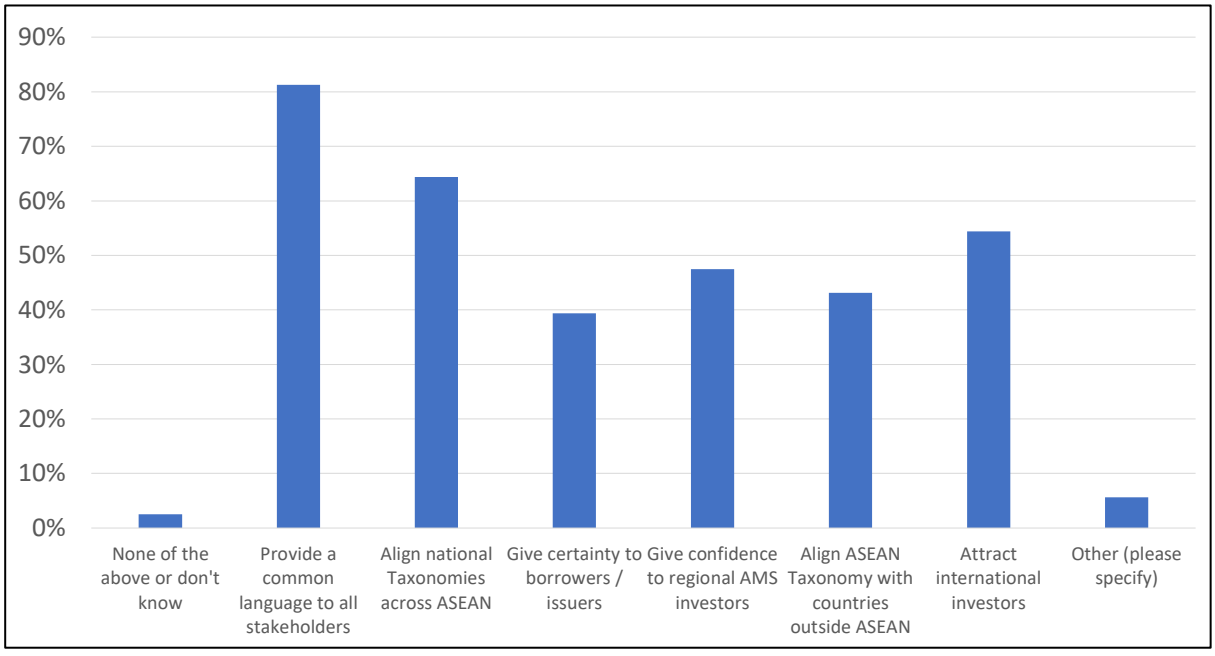


**Figure 15: Stakeholder feedback on the role of the ASEAN Taxonomy**

*Clarity of definitions*

Some stakeholders suggested that the term 'Sustainable Finance' implied the ASEAN Taxonomy should have 'social', as well as 'environmental' objectives. Others were of the opinion that Social Aspects should be seen as essential minimum criteria for environmental Activities but should not be seen as an explicit objective of the ASEAN Taxonomy.

Stakeholders also highlight the need for further clarity in the concept of an Amber classification. While Amber classification is positively received in principle by stakeholders, it was not necessarily clear that the function of the Amber classification was understood uniformly. This confusion is compounded by the fact that Version 1 of the ASEAN Taxonomy has differing definitions of the Amber classification under the FF and the PS. It was widely recognised by stakeholders that economic development is a key priority in ASEAN thus requiring a transition phase as the region approaches a 'pure green' future. Several stakeholders also stated that the Amber classification could be a useful tool for investors to assess the relative 'greenness' of a portfolio as well as for assessing sustainability-linked bonds. On the other hand, some stakeholders believed that the Amber classification could represent a potential investment signal which might be relevant at the Company or portfolio level.

*Design of the ASEAN Taxonomy for simplicity and ease of use*

While the Tier system was generally regarded as appropriate for ASEAN, there were concerns about its implementation. There was a perception that, while same EOs and ECs are applied across ASEAN, assessment results will differ as each AMS faces different contexts. Some stakeholders also highlighted the difficulty to assess EOs 2-4 given that they seek to address an impact which may be specific to certain areas, as opposed to EO1, which is more global in nature.

Although thresholds might need to be adjusted to meet the needs of the specific AMS, it must be possible to compare projects and to track environmental performance over time. Stakeholders suggested that instead of defining thresholds, for some industries it might be easier to define the kind of technology that can be categorised as Green, Amber, or Red.

Finally, there were mixed opinions on 'what should be done with investments which fulfilled conditions of a Tier which has since been retired?'. Some participants saw dangers in grandfathering as it could pose the risk of gamification. New long-term projects could be implemented just before the criteria becomes stricter to avoid the need to meet higher standards. The opposing view to this was that it might be difficult to develop projects in the knowledge that future refinancing might be limited by requirements to meet newer and higher standards. In this case, a ban on grandfathering would mean that such projects could find themselves outside the ASEAN Taxonomy Green or Amber classification.

*Transparency of reporting*

During the stakeholder consultation process, there was considerable interest in the setting, review, and eventual retirement of metrics and tiers. Many stakeholders also highlighted the issue of information transparency by issuers which is critical to assess potential investments. Therefore, the ASEAN taxonomy should consider useful and relevant metrics and thresholds and set minimum requirements that can help facilitate data transparency.

*Interoperability and recognition (within ASEAN and across other regions in the world)*

Some stakeholders shared feedback on the ASEAN Taxonomy being linked to the European Taxonomy (EUT) and expressed a desire for less restrictive thresholds to be set in ASEAN than might be the case in the EU. On the other hand, this could result in investors seeking to invest in countries with the most lenient criteria, resulting in a 'race to the bottom'. The practicality and usability of the ASEAN Taxonomy is key in ensuring its uptake. Consultations showed consensus in the necessity for clear definitions and guidance, with 53% of responses regarded simplicity and clarity enables them to convince their organisations to adopt or align with the ASEAN Taxonomy.

There was a consensus across stakeholder interactions that commonality between national and ASEAN Taxonomies is desirable, as having different taxonomies could lead to a fragmented landscape, creating competition instead of cooperation. It was felt that the ASEAN Taxonomy should provide an overarching flexible framework for national taxonomies. However, it was recognised that uniting national AMS taxonomies is not a simple expectation due to differing national priorities, tolerances, and pathways. Interoperability is thus necessary to ensure the end goal can be achieved under the various national pathways.

International investors also expressed a wish to see alignment of the ASEAN Taxonomy with international standards to make green investment easier in ASEAN. However, this is not straightforward, and investors can understand the benefit of the ASEAN Taxonomy being tailored to ASEAN circumstances. There is an opinion that if the objective of the ASEAN Taxonomy is to share and standardise best practices, alignment with the EUT could provide potential benefits for bridging these differences between AMS and international investors. On the other hand, many stakeholders also made comparisons of the proposed ASEAN Taxonomy with the Climate Bond Standards (CBS) and associated Climate Bonds Initiative Taxonomy, as well as the Green Bond Principles (GBP), to determine interoperability with international standards and applications.

*Access to usable and consistent data*

Most stakeholders felt that data issues were the single greatest barrier to successful implementation of the ASEAN Taxonomy, as it has been in other taxonomies. The mismatch in different understandings of data may result in Technical Screening Criteria being applied inconsistently. Some AMS and private entities evidently already collect and store data, but there is a perceived unwillingness to share data for confidentiality and competition reasons. Globally, governments already hold credible data but are not willing to disclose said data as it may have reputational implications. Continued self-reporting, which is currently the norm, could result in different organisations interpreting screening criteria thresholds differently even when applying the same taxonomy.

*Conclusion*

While the stakeholder consultation process demonstrated a level of success in engaging stakeholders from a diverse range of organisations (i.e., financial institutions, government agencies, NGOs, and industries from all ASEAN Member States), it was recognised that more work would need to be done to raise awareness of the ASEAN Taxonomy and increase recognition to its value to potential users.

# APPENDIX B: COAL PHASE-OUT

Coal-fired power plants (CFPP) are amongst the largest emitters of GHG in the region, where unlike the rest of the world, coal-fired generation has been expanding among the AMS. There is roughly 20GW of new coal-fired generating capacity currently under construction and slated for construction over the next few years; mostly in Indonesia, Viet Nam, and the Philippines (IEA, 2020). Considering that a significant portion of the capacity is at the pre-construction stage, emphasis is being placed on alternative sources such as transitional fuels (i.e., natural gas, biowaste, etc.) and renewables.

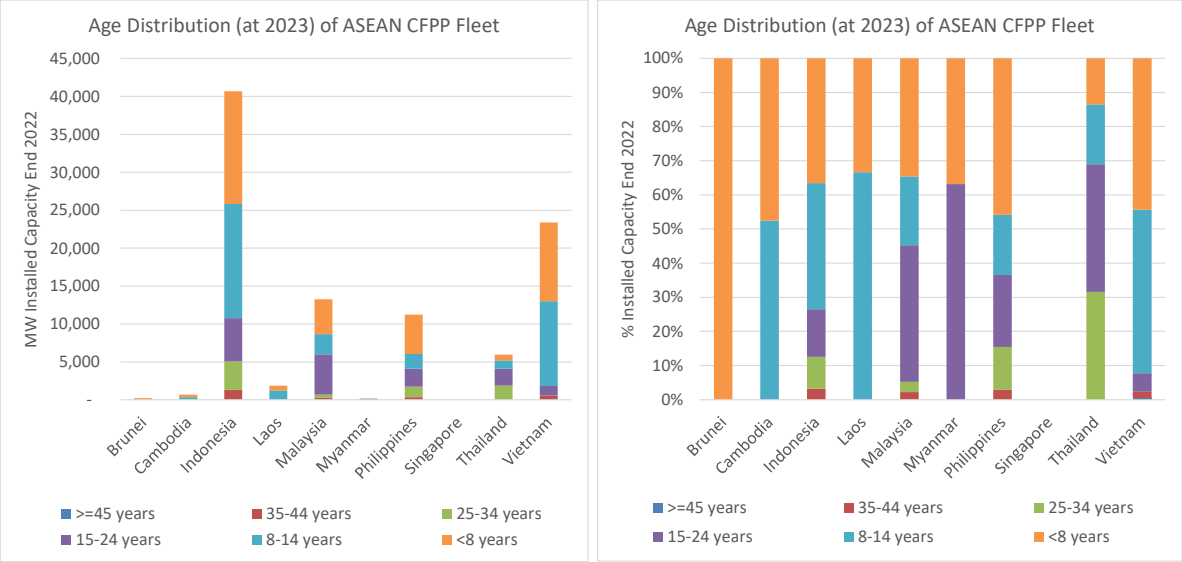


**Figure 16: Average age of CFPPs in Southeast Asia** (GEM, 2022)

Inclusion of this Activity assumes that early phase-out of a CFPP could be seen as a sustainable activity. However, this leads to the question of '*what can be classified as an early phase-out?*'

As of 2023, 38% of existing CFPPs across the AMS will be less than 8 years old, and close to 90% of them will be less than 35 years old. CFPPs typically have a useful life of about 40 years, although some operate for much longer with refurbishment. For the ASEAN Taxonomy, specific calendar dates and ages of plants are preferred over emissions calculations for reasons including:

- Age may be seen as a proxy for emissions factor – generally, older and less advanced CFPPs are heavier emitters while younger CFPPs are more efficient and emit less. However, this should not omit the fact that some newer CFPPs may also be high emitters depending on their design and the fuel used.
- Calendar dates provide a hard deadline for the operation of all CFPPs and do not allow operations to carry on indefinitely (which can also be the case for emissions-based calculations in phase-out). This is necessary for achieving sustainability and net-zero targets set out in the Taxonomy.

Early phase-out based on the age of CFPPs is a simpler way of assessment. On the other hand, using emissions-based calculations is complex and it is difficult to balance robustness of the calculation formula and ease of usability of the Taxonomy.

# APPENDIX C: USER ENTRY POINT WORKED EXAMPLE

**Example 1: Assessing a dairy producer with one user entry point**

***Background***

Dairy producer proposes a sustainability strategy to offset the environmental impacts of cow rearing. Part of this strategy includes adopting circular farming principles, which entails the following practices, among others:

- Composting animal waste into organic fertiliser;
- Removing affluents from liquid waste and recycling treated liquid waste to irrigate farmland and wash barns; and
- Using recyclable packaging

Additionally, as part of its effort to mitigate climate change, the dairy producer has established the following initiatives to reduce GHG emissions from its production activities:

- Livestock manure management to reduce the production of methane and nitrous oxide;
- Using renewable energy to power dairy farms and production line.

***User entry point assessment***

| **Activity** |
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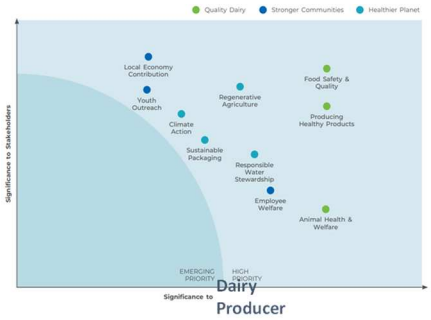
| Dairy producer is opening another farm based on the company sustainability practices; or is seeking funds to support and further expand or improve the operations of the existing farm |
| **User Entry Point 1: Activity Relevance and Strategic Alignment** |
| a) Which EO is most relevant to the nature of the Activity?<br>• Given that the proposed farm is to be constructed based on a circular farming strategy (including facilities for recycling farm waste to meet various agricultural needs, like pasture irrigation and farmland fertilisation), EO4 is most relevant.<br>b) What is the strategic focus of the company?<br>• Achieving sustainability through circularity (recycling agricultural resources and packaging) and mitigating climate change (reducing GHG emissions through animal waste management and adopting renewable energy).<br>c) Which EO(s) is most aligned to the company's strategic focus?<br>• Given the materiality assessment from the company, where circular agriculture (i.e., regenerative agriculture and responsible water stewardship) are high priority items, EO4 is most aligned.<br>  |
| **Based on the answers to the questions above, the assessor should be able to determine that EO4 is the primary EO.** |

**Example 2: Assessing a land developer with two user entry points**

***Background***

A land developer, to green their portfolio has developed and implemented a sustainability strategy to mitigate the impacts of construction on the climate and the environment. Part of this strategy includes:

- Construction of low-carbon developments and the decarbonisation of their existing development portfolio
  - Measures include the use of renewable energy and carbon capture and storage technologies
- Pollution and waste reduction across the supply chain
  - Revised resource management plans
  - Application of the waste management hierarchy
  - Closing resource loops where possible

***User entry point assessment***

| **Activity** | |
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| The developer is looking to construct a complex of new office buildings which are in line with its sustainability strategy and is looking to see if this latest development is taxonomy-aligned. | |
| **User Entry Point 1: Activity Relevance and Strategic Alignment** | **User Entry Point 2: Government and Industry Guidance** |
| d) Which EO is most relevant to the nature of the Activity?<br>o EO1 (proposed complex will meet green building standards and will partially run on renewable energy), EO3 (assessments on the environmental impact of developments on ecosystem conservation and efficient land use), and EO4 (use of recovered materials and responsible waste management practices)<br>e) What is the strategic focus of the company?<br>o Achieving sustainability through circularity (recycling construction materials), protecting biodiversity and ecosystems (monitoring, conservation and rehabilitation) and mitigating climate change (reducing GHG emissions through green building best practices).<br>f) Which EO(s) is most aligned to the company's strategic focus?<br>o Since the Company aims to mitigate climate change and achieve resource | a) Has the government issued guidance indicating that this Activity contributes to a specific EO under their NDC or national plan?<br>o Part of the country's NDCs are focused on reducing the carbon intensity of all sectors across the country, i.e., climate change mitigation (EO1). The NDCs are also committed to the resilience of infrastructure and cities, which fall under EO2.<br>b) Is there guidance from the sectoral bodies which indicates that this Activity contributes to a specific EO under their sectoral plan?<br>o There is a government-initiated certification system for green buildings, and much of it focuses on buildings that reduce GHG emissions and mitigate climate change, which contributes to EO1. |

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| resilience, EO1, EO3 and EO4 are aligned. | |
| **Given the focus of User Entry Point 1 and 2 on EO1, the assessor decides that this activity is best evaluated with EO1. Therefore, EO1 is primary EO.** | |

# APPENDIX D: FF – EO ASSESSMENT USE CASES

**Use Case 1 – Renewable Energy**

| **Company introduction** | **The Company is a major solar farm operator, with a global presence and multiple farms mainly located within Malaysia.** | |
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| **Case context** | The Company is looking to expand their operations and advance the field of renewable energy. As such, they are seeking new project financing for the construction of a new solar farm in Malaysia.<br><br>The solar panels utilised in the solar farm are sourced from its subsidiary based in Singapore. | |
| **Sustainability efforts** | • Achieving net-zero before 2050<br>• Avoiding and enhancing critical habitats (e.g., forests, wetlands)<br>• Ensuring that human and labour rights are protected<br>• Alignment of operations to internationally-recognised standards i.e., ISO 45001:2018 (Occupational Safety and Health Management) & ISO 14001:2015 (Environmental and Social Management Systems) | |
| **User entry point** | Which EO is the nature of the Activity most relevant to? | Given that the Activity involves the expansion of solar farm operations, which enables carbon emissions reduction and hence climate change mitigation, the Activity is most relevant to EO1 |
| | Which EO(s) is most aligned to the company's strategic focus? | Considering the company's Net Zero 2050 target and focus on expanding its solar farm operations, the activity is most relevant to EO1. |
| | **EO1 (Climate Change Mitigation) is the primary EO** | |
| **EO1 Assessment** | **1A. Does the Activity avoid / reduce GHG emissions?** | |
| | How does the Activity avoid or help reduce emissions? | While the raw material extraction and panel production and transportation yields GHG emissions, the embodied and lifecycle emissions of solar energy generation are still lower than that of conventional energy generation. |
| | Does the Activity avoid locking in high-carbon activity? | Yes, because increasing the capacity for solar energy enables increased renewable energy generation, allowing for more low-carbon power generation. It does not delay or prevent the transition to low carbon alternatives but supports it at the core. The entity also envisions future possibilities in reducing GHG emissions in its supply chain, and thus is not locked-in to dependency on equipment with high lifecycle emissions. |
| | Do the Company's policies and business strategy | Yes, because as a solar farm operator, the Company's business strategy involves |

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| | generally avoid contradicting or impeding alignment with the specified EO1 principles? | expanding their solar farm footprint across Malaysia, which is in line with EO1 principles, as an increase of solar energy production will enable more low-carbon energy and hence climate change mitigation. |
| | **Yes, the Activity avoids/reduces GHG emissions.** | |
| **DNSH / RMT Assessment** | **2A. Does the Activity avoid causing potential significant harm to other EOs?** | |
| | Has an EIA been conducted and approved on the Activity? | Yes |
| | What are the results of the EIA, where do the impact of the Activity lie? | The results of the EIA indicate that the new solar farm, due to its proximity to an unprotected forest, will adversely affect the habitats and biodiversity surrounding it, because of land disturbance, habitat loss and pollution to soil and water resources. |
| | (EO3) Is the Activity detrimental to the conservation status of habitats and species within the natural ecosystem? *(i.e., inhibitions to the dynamic complex of plant, animal and microorganism communities and their non-living environment interacting as a functional unit)* | Yes. Solar farms require large areas of land which interfere with existing uses of land e.g., grazing, natural functioning of the ecosystem. The solar farms operations will also encroach on forests, while unprotected under local legislation, are still habitats for endangered species, who might be threatened by the intrusion into their habitats. Solar farms may also contain hazardous substances and chemicals which results in the contamination of soil and groundwater. |
| | **No. The Activity causes potential significant harm to EO3.** | |
| | **2B. Has the implementation of remedial measures already commenced at the time of assessment?** | Yes. To mitigate this harm, the mitigation hierarchy for biodiversity protection has been applied. Further expansion towards forested areas that are home to endangered species will be prohibited. Additionally, any loss of habitat will be restored or replanted to ensure no net loss of natural habitat. Proper management and disposal of hazardous substances is also considered to avoid/reduce the contamination of soil and water resources. These processes are ISO14001-certified, which indicates that the company has in place an effective and |

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| | | international-standard environmental management system that manages harms that might arise from any operational processes that interact with the environment. Beyond ensuring legal compliance, the environmental management system also involves other measures to minimise environmental footprint. |
| | **3A. Does the Activity no longer cause significant harm to other EOs at the time of assessment?** | Yes. Harm has been mitigated, as critical habitat will remain untouched, contamination of soil/water reduced significantly, and any other loss of natural habitat will be replaced. |
| **Initial Classification** | **Green** | |
| **Social aspect Assessment** | **4A. Does the Company meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments?** | The activity is carried out by the Company based in Malaysia. A subsidiary based in Singapore is also involved by supplying the solar panels without which the activity cannot be carried out. Therefore, the social aspect assessment will cover both the Company and the subsidiary. Both organisations will be assessed according to the national legislations and regulations in their respective location.<br><br>• The Company's operations meet the relevant Malaysian legislations and regulations on:<br>  ○ Respect human rights (main references: Federal Constitution of Malaysia)<br>  ○ Prevention of forced and child labour (National Action Plan on Forced Labour & Child Act 2001)<br>  ○ Impact on people living close to investments (Environmental Quality Act 1974 & Town and Country Planning Act 1976)<br>• The subsidiary's operations meet the relevant Singaporean legislations and regulations on:<br>  ○ Respect human rights (Constitution of the Republic of Singapore)<br>  ○ Prevention of forced and child labour (Prevention of Human Trafficking Act 2014) |

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| | | ○ Impact on people living close to investments (Environmental Protection and Management Act 2002)<br>• Both organisations uphold the rights and principles indicated in the ASEAN Human Rights Declaration (AHRD), ASEAN Consensus on the Protection and Promotion of the Rights of Migrant Workers (ACPPRMW), and ASEAN Declaration on Strengthening Social Protection (ADSSP) such as but not limited to the following:<br>○ Provision of minimum wage and normal hours of work in line with Paragraph 27(1) of the AHRD on "just, decent and favourable conditions of work"<br>○ Employment of policies and guidelines regarding occupational health and safety for all workers in line with Paragraph 40(b) of the ACPPRMW on "occupational safety and health protection"<br>○ Implementation of a stakeholder engagement plan in line with Paragraph 8 of the ADSSP on "inclusive and participatory approach"<br>**Yes, the Company and its subsidiary meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments.** |
| **Final Classification** | **Green** | |

**Use Case 2 - Agriculture**

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| **Company introduction** | **The Company cultivates and produces palm oil. It has operations across multiple Southeast Asian countries, owning both oil palm plantations and on-site processing facilities.** | |
| **Case context** | The Company is hoping to expand their cultivation footprint within Indonesia, by **seeking new project financing for palm oil plantation expansion.** The expansion involves reclaiming previously degraded soil and planting new oil palm trees on the restored land. | |
| **Sustainability efforts** | • Adherence to Indonesian Sustainable Palm Oil (ISPO) standards<br>• Development of water control structures to regulate plantation water levels for the protection of peatlands<br>• Water categorisation and optimisation, as well as conservation efforts<br>• Monitoring and disclosure of carbon emissions, in line with the Carbon Disclosure Project (CDP) | |
| **User entry point** | Which EO is the nature of the activity most relevant to? | Assessment of the Company's sustainability strategy and disclosures showed that the Company's environmental principles include peatland protection, soil health maintenance, water accountability and emissions reduction. Both EO1 Climate Change Mitigation and EO3 Protection of Healthy Ecosystems and Biodiversity are applicable. |
| | Which EO(s) is most aligned to the Company's strategic focus? | Given the heavy focus on ecosystem protection (i.e., peatland protection, soil health maintenance and water accountability), EO3 was selected as the primary EO for assessment. |
| **EO3 Assessment** | **1A. Does the Activity contribute to protecting, conserving or restoring ecosystems and biodiversity?** | |
| | Which specific principles under EO3 does the Activity meet or contribute to? | 'Implementation of necessary measures to protect ecosystems and biodiversity'. While the activity conventionally involves extensive deforestation and loss of biodiversity, several policies are already in place, including measures that prevent soil erosion and runoff into watercourses. An internal policy prohibiting peatland conversion is also in place. The expansion will involve reclaiming previously degraded soil and planting new oil palm trees on the restored land, which has less significant impact on the biodiversity of the area, relative to clearing of peatlands and forests. The clearing and reclamation of the degraded soil area will not involve land burning practices. |

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| | Does the Activity minimise or eliminate negative effects of operations on the natural ecosystem and biodiversity? | Yes. The activity avoids unsustainable peatland use through its policy that prohibits planting on new peatlands regardless of depth. |
| | Is a 3rd party certification or verification of alignment of Activity with EO3 available? | Yes. The Company adheres to the Indonesia Sustainable Palm Oil (ISPO) standard. |
| | **Yes, the Activity contributes to protecting ecosystems and biodiversity by minimising or eliminating negative effects of its operations.** | |
| **DNSH / RMT Assessment** | **2A. Does the activity avoid causing potential significant harm to other EOs?** | |
| | Has an EIA been conducted and approved on the Activity? | Yes. |
| | What are the results of the EIA and where do the impact of the activity lie? | The results of the EIA highlight the following: 1) Existing plantations on peatlands and wastewater treatment of palm oil mill effluents (POME) are significant sources of emissions with no established mitigation efforts in place; 2) Lack of internal policies that prohibit deforestation practices in the pursuit of new plantation projects |
| | (EO1) Does the activity avoid leading to significant GHG emissions, incl. CO2, CH4, N2O, SF6, NF3 and/or HFCs? | No. As reflected in the EIA, emissions from peat and wastewater treatment of POME are significant sources of GHG emissions. |
| | (EO1) Does the activity avoid leading to or causing extensive deforestation practices? | No. While there has not been any record of deforestation activities by the Company since 2018, a No Deforestation policy is not yet in place. |
| | **No. The activity causes potential significant harm to EO1.** | |
| | **2B. Has the implementation of remedial measures already commenced at the time of assessment?** | Yes. A recent internal environmental review has highlighted the high emission potential of the Company's peat emissions and POME wastewater treatment, and the planning and implementation of remedial measures have just begun. These measures include offsetting carbon emissions by emission credits from the export of electricity and palm kernel shells. |
| | **3A. Does the activity no longer cause significant** | No. The remedial measures that have been implemented are insufficient as there is still a |

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| | **harm to other EOs at the time of assessment?** | significant amount of emissions, so the activity still causes significant harm to EO1. |
| | **3B. Are there concrete plans to implement remedial measures to address residual harm within 5 years?** | Yes. Methane capture facilities will be installed at palm oil processing facilities. The Company has also pledged to commit to 'no deforestation, no peat and no exploitation (NDPE)' within the next 3 years. |
| **Initial Classification** | **Amber** | |
| **Social Aspect Assessment** | **4B. Does the Company meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments?** | The activity is solely carried out by the Company. Therefore, the social aspect assessment will only cover the Company which will be assessed according to Indonesian legislations and regulations.<br>• The Company's operations meet the relevant Indonesian legislations and regulations on:<br>  ○ Respect human rights (Constitution of the Republic of Indonesia Year 1945)<br>  ○ Prevention of forced and child labour (Labour Law 2003)<br>  ○ Impact on people living close to investments (Decree of Ministry of Environment No. 17/2012 on Community Participation and Information Disclosure in Environmental Impact Assessment)<br>• The Company also upholds the rights and principles indicated in the AHRD, ACPPRMW, and ADSSP such as but not limited to the following:<br>  ○ Employment of policies and guidelines to overcome discrimination in line with Paragraph 2 of the AHRD on entitlement of every person to rights and freedoms "without distinction of any kind, such as race, gender, age, language, religion, political or other opinion, national or social origin, economic status, birth, disability or other status"<br>  ○ Employment of policies and guidelines that set out measures taken to prevent and eliminate violence and abuse in line with Paragraph 30(b) of the ACPPRMW |

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| | | on preventing “abuses, exploitation and violence”<br>○ Implementation of social policies and guidelines on risk and vulnerability assessments and mitigation measures in line with Paragraph 11 of the ADSSP on “implementation of social protection programme, as well as effective targeting systems to ensure social protection services would go to those most in need”<br>• However, upon discovery by the assessor, it was found that there were previous credible allegations of forced labour, as workers were found to be held against their will to work on plantations. Workers were physically confined in the plantations which is a violation of Article 28I of the Constitution of the Republic of Indonesia Year 1945 and Paragraph 12 of the ACPPRMW. The Company rectified this issue by providing compensation, implementing a human rights due diligence process and workers’ grievance mechanism to ensure there is no forced labour in its operations.<br><br>**Yes, the Company meets minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments and has demonstrated improvement of their operations to prevent a repeat of violations.** |
| **Final Classification** | **Amber** | |

**Use Case 3 - Manufacturing**

| | | |
|---|---|---|
| **Company introduction** | **The Company is a semiconductor manufacturer. The Company has operations across Southeast Asia, including Malaysia and the Philippines.** | |
| **Case context** | The Company wants to take advantage of the rapid growth of semiconductor manufacturing in Viet Nam, and plans on expanding their operations there. As such, the Company is **seeking new project financing for the construction of a new semiconductor manufacturing factory** in the outskirts of Ho Chi Minh City. | |
| **Sustainability efforts** | • ISO 50001 Energy Management Standard certification for all manufacturing facilities<br>• Maximum energy efficiency achieved through the use of energy efficient machinery and lighting systems, as well as regular energy audits<br>• Conservation of water used and watershed restoration<br>• Diverting manufacturing waste (e.g., sulfuric acid) from landfills by processing waste into raw materials reusable by others<br>• Stringent occupational health and safety standards | |
| **User entry point** | What is the investors' priority and investment strategy? | The investor, who has a history of investments in manufacturing infrastructure, recognises the semiconductor manufacturing boom in Viet Nam and wishes to capitalise on it. However, the investor is cognisant of the environmental impacts of such an expansion, as semiconductor manufacturing is a resource-intensive process. As part of their investment strategy, the investor has incorporated elements of the OECD's Sustainable Manufacturing Toolkit into its sustainable investment framework, including the de-prioritisation of infrastructure investments that do not support a circular economy. Since the Company is pursuing a circular economy strategy with their new factory, the investor is interested to assess the Activity in line with EO4, which is also in line with their strategy. |
| | Which EO(s) is/are most aligned to the investors' priority and strategy? | Given the heavy focus on optimising resource use, which is a key tenet within a circular economy, EO4 is the most relevant EO |
| | **EO4 (Promotion of Resource Resilience and Transition to Circular Economy) is the primary EO.** | |
| **EO4 Assessment** | **1A. Does the Activity minimise resource use?** | |
| | Does the Activity use renewable energy, bio- | • No. Given the high purity standards required of raw material inputs into the semiconductor |

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| | based resources or other recovered materials to reduce rate of resource extraction? | manufacturing process, and the high-quality standards upheld, the Company is reluctant to use recovered materials. As such, production of semiconductors in the new factory will utilise primary raw materials. |
| | **No, the economic activity does not use renewable energy, bio-based resources or other recovered materials to reduce rate of resource extraction.** | |
| | **1B. Does the Activity optimise resource yield?** | |
| | Does the Activity increase resource efficiency by ensuring recovered materials are recycled as high-quality secondary raw material? | Yes, the process of semiconductor manufacturing involves a number of different solvents, which are separated and refined by a third-party. Sulfuric acid is another waste product in the process of semiconductor manufacturing, and the Company practises resource recovery by sending sulfuric acid waste to a third-party that processes it into technical grade, reusable sulfuric acid. The Company is able to recover 95% of sulfuric acid used in the facility which is refined by a third-party for resale to other companies. The percentage of recovery is comparable with the industry standard. Recovered and refined solvents, processed sulfuric acid and reclaimed precious metals are sold to other companies, supporting the continuation of a circular economy. |
| | Does the Activity avoid leading to significant inefficiencies in the use of materials or in the direct or indirect use of natural resources at one or more stages of the product life cycle? | Yes. The activity avoids inefficiencies in its manufacturing processes through end-to-end digitisation and predictive maintenance. |
| | **Yes, the Activity optimises resource yield** | |
| **DNSH / RMT Assessment** | **2A. Does the activity avoid causing potential significant harm to other EOs?** | |
| | Has an EIA been conducted and approved on the Activity? | Yes |
| | What are the results of the EIA and where do the impact of the activity lie? | The results of the EIA highlight that the specific manufacturing process that will be used at this plant will release significant amounts of |

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| | | greenhouse gas into the environment as a by-product. |
| | (EO1) Does the activity avoid leading to significant GHG emissions, incl. CO2, CH4, N2O, SF6, NF3 and/or HFCs? | No. The process of creating the intricate circuitry patterns in semiconductors will be done using fluorinated GHGs, which enables the creation of faster and more powerful semiconductors. However, some of these GHGs will remain unreacted and escape the manufacturing chambers, potentially being released into the environment uncaptured; this process results in significant GHG emissions. |
| | **No. The activity causes potential significant harm to EO1.** | |
| | **2B. Has the implementation of remedial measures already commenced at the time of assessment?** | No. Given the high level of precision involved in the process of semiconductor manufacturing, these manufacturing processes require significant amounts of time for designing. Changing the gases used therefore will require an overhaul of the manufacturing process, which requires significant R&D time and expenditure. As such, the Company is currently reluctant to change their longstanding manufacturing processes, and has no remedial measures implemented at the time of assessment. |
| | **3B. Are there concrete plans to implement remedial measures to address residual harm within 5 years?** | No. There are no remedial measures planned within 5 years due to the Company's reluctance to change their manufacturing processes. |
| **Final Classification** | **Red** | |

**No Social Aspects assessment is performed as the Activity has failed the Do No Significant Harm and Remedial Measures to Transition assessment**

**Use Case 4 - Construction**

| Company introduction | The Company is a land developer, with operations across Southeast Asia, including Philippines, Viet Nam and Cambodia. | |
|---|---|---|
| **Case context** | The Company has recently acquired a plot of land in the Philippines, which contains a dilapidated office building and several informal settlements. The Company is seeking financing to develop the land area by demolishing the dilapidated office building and constructing a multi-towered office complex.<br><br>The Company procures the construction materials (concrete, steel, wood, etc.) from an accredited supplier and enlists specialised services (roofing, plumbing, electricians, etc.) from a subcontractor for the activity. Both supplier and subcontractor are based in the Philippines. | |
| **Sustainability efforts** | • Increasing the resilience of developments to the effects of climate change<br>• Protecting and restoring local biodiversity through native tree conservation, moving/re-planting and planting in the design<br>• Increasing resource efficiency, by reducing resource use, upcycling and recycling<br>• Ensuring the health and safety of employees in and out of work | |
| **User entry point** | Has the government issued any guidance (including policies, roadmaps and guidelines) which indicates that this Activity contributes to a specific EO under their NDC or national plan? | Given the vulnerability of the Philippines to the effects of climate change, including droughts, heatwaves and flooding, the Department of Environment and Natural Resources has lead the Inter-Agency Committee on Climate Change to put together the National Strategy for Climate Change Adaptation. A focus of this action plan is infrastructure, including investments in public and private buildings of all types. This will in part involve designing and constructing infrastructure according to the country's guidelines on climate resilient buildings. Therefore, EO2 is most aligned to the priorities of the government of the Philippines. |
| | What is the investors' priority and investment strategy? Which EO(s) is most aligned to the investors' priority and strategy? | The investor is looking into environmentally responsible investments and understanding the Philippines' vulnerability to climate change-related extreme weather conditions, is seeking investments that improve Manila's resilience to climate change, including the construction of infrastructure with climate resilient features like drainage systems and passive cooling. Therefore, EO2 is most aligned to the investors' priority and strategy. |
| | **EO2 (Climate Change Adaptation) is the primary EO.** | |

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| **EO2 Assessment** | **1A. Does the Activity implement measures to increase the Company's resilience to climate change?** | |
| | How does the activity contribute to Company's resilience against adverse physical impacts of current and future climate change? | The office complex will use passive cooling methods, like green roofing and landscaping with native trees. This helps reduce temperatures within and around the buildings, as well as manage the Urban Heat Island Effect, hence increase resilience to extreme heat. The construction of the office complex will also involve building extensive drainage systems and a decent percentage of permeable surfaces. Given that Manila is prone to flooding, this infrastructure will enable an increase of the Company's portfolio's resilience to floods. |
| | Does the Activity avoid leading to an increase in the vulnerability of human or natural systems due to the effects of climate change and climate variability–related risks? | No, because the building is constructed with climate change resilience in mind, it generally does not lead to an increase in vulnerability to the effects of climate change. |
| | **Yes, the activity implements measures that increase the Company's resilience to climate change.** | |
| **DNSH / RMT Assessment** | **2A. Does the activity avoid causing potential significant harm to other EOs?** | |
| | Has an EIA been conducted and approved on the Activity? | Yes |
| | What are the results of the EIA and where do the impact of the activity lie? | The results of the EIA highlight biodiversity protection through conservation of on-site native trees as part of the building design, moving/re-planting if incorporation to the current design is not possible, and planting native trees. However, the demolition and construction of the new office building could potentially generate vast amounts of construction waste. |
| | (EO4) Does the activity avoid leading to a significant increase in the generation, incineration or disposal of waste? | Construction and demolition activities generate significant amounts of waste, including steel, wood, concrete, and asphalt. Without proper management, this will lead to the significant increase in the generation, incineration and/or disposal of waste. |
| | **No. The activity causes potential significant harm to EO4.** | |

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| | **2B. Has the implementation of remedial measures already commenced at the time of assessment?** | Yes. To minimise the amount of waste bound for landfills and promote the establishment of a circular economy, the Company has measures in place e.g., purchasing mostly recycled materials, and recycling any construction waste they generate. When procuring construction materials, the Company purchases a majority of their inputs from companies that upcycle construction waste to produce new construction materials. Any construction waste generated is also separated and sent to in-house or third-party recycling companies. Construction of the new building will adhere to the circular economy standards which are laid out in the Company sustainability policy. |
| | **3A. Does the activity no longer cause significant harm to other EOs at the time of assessment?** | Yes. Harm has been mitigated, as recycled materials will be primarily used and construction waste will be recycled**.** |
| **Initial Classification** | **Green** | |
| **Social Aspect assessment** | **4A. Does the Company meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments?** | The activity is carried out by the Company based in the Philippines. A supplier and a subcontractor are also involved by providing materials and services, respectively, without which the activity cannot be carried out. Therefore, the social aspect assessment will cover the Company, supplier and subcontractor. The organisations are based in the same location, hence they will be assessed according to Philippine legislations and regulations.<br>• The Company's, supplier's and subcontractor's operations meet the relevant Philippine legislations and regulations on:<br>  ○ Respect human rights (Constitution of the Philippines)<br>  ○ Prevention of forced and child labour (Labour Code of the Philippines, Expanded Anti-Trafficking in Persons Act of 2012, and Special Protection of Children Against Abuse, Exploitation and Discrimination Act) |

| | | |
|---|---|---|
| | | • The Company, supplier and subcontractor uphold the rights and principles indicated in the AHRD and ACPPRMW such as but not limited to the following:<br>  ○ Employment of policies and guidelines that respect freedom of association and right to collective bargaining in line with Paragraph 27(2) of the AHRD on “right to form trade unions and join the trade union of his or her choice for the protection of his or her interests”<br>  ○ Issuance of written employment contracts that clearly stipulate the basic terms of employment in line with Paragraph 14 of the ACPPRMW on “right to be issued an employment contract or proper documentation by relevant authorities/ bodies and/or employers with clear and basic terms of employment”<br>• The supplier and subcontractor have also been found to be in compliance with the Company’s Supplier’s Code of Ethics<br>• However, the Company’s operations do not meet the relevant Philippine legislations and regulations on:<br>  ○ Impact on people living close to investments (Department of Natural Resources and Environment Administrative Order No. 30 Series of 2003)<br>• The Company at present does not have any avenues for affected groups to raise grievances, despite the potential for social harm in land development (e.g., displacement of nearby communities) which is a violation of Paragraph 12 of the ADSSP on advocating “strategies that promote the coverage, availability, comprehensiveness, quality, equitability, affordability and sustainability of various social protection services. |

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| | **No, the Company does not meet minimum national standards relating to human rights, forced labour, child labour and impact on people living close to investments.** |
| **Final Classification** | **Red** |

# APPENDIX E: PS – TSC APPLICABILITY USE CASE

**Context**: Company will build a bioenergy (rice-husk) power plant in Cambodia in 2023 (in this case – Year 0). It has an estimated emissions intensity of 350 $gCO_2e/kWh$. The Company wishes to assess the bioenergy plant against the ASEAN Taxonomy.

| Year | ASEAN Taxonomy Status[10] | Company Action |
|---|---|---|
| 0 | ATB has not yet defined the TSC for the Activity under the PS. | Bioenergy power plant commences. ASEAN Taxonomy V2 has not yet been published and PS is not yet available for assessment. |
| 1 | Bioenergy plant defined under the PS and sets the TSC (TSC1) for Tiers:<br>• Amber Tier 3: 425 – 510 $gCO_2e/kWh$<br>• Amber Tier 2: 100 – 425 $gCO_2e/kWh$<br>• Green: < 100 $gCO_2e/kWh$ | The Company chooses to assess the bioenergy plant under the PS. The bioenergy plant is assessed as meeting TSC for Amber Tier 2, as well as all EC, and is classified accordingly. |
| | **Classification** | **Amber Tier 2** |
| 8 | New TSC (TSC2) for bioenergy plants sunsets Amber Tier 3 for this Activity for bioenergy plants:<br>• Amber Tier 3: Sunset<br>• Amber Tier 2: *100 – 300* $gCO_2e/kWh$ *(values for illustration only)*<br>• Green: < 100 $gCO_2e/kWh$ | The bioenergy plant no longer meets TSC for Amber Tier 2. The Activity must now be re-assessed as Red. according to TSC2. Actions are commenced to re-gain Amber Tier 2 status. |
| | **Classification** | **Red** |
| 9 | TSC2 is still extant:<br>• Amber Tier 3: Sunset<br>• Amber Tier 2: *100 – 300* $gCO_2e/kWh$ *(values for illustration only)*<br>• Green: < 100 $gCO_2e/kWh$ | The Company has made the bioenergy plant more efficient, and it now has an emissions intensity of 240 gCO2e/kWh. The plant may be re-classified as Amber Tier 2. |
| | **Classification** | **Amber Tier 2** |
| 13 | New TSC (TSC2) for bioenergy plants sunsets Amber Tier 3 for this Activity for bioenergy plants:<br>• Amber Tier 3: Sunset<br>• Amber Tier 2: *100 – 200* $gCO_2e/kWh$ *(values for illustration only)*<br>• Green: < 100 $gCO_2e/kWh$ | The Company has maintained operations as usual and conducted improvements in terms of efficiency over the previous years. The bioenergy plant slightly improved in efficiency, with an emissions intensity of 220 $gCO_2e/kWh$. However, the plant does not meet the Green TSC and must now be classified as Red. |
| | **Classification** | **Red** |

[10] The figures represented under this table are for illustration purposes only; refer to Annex 1 for extant TSC

# APPENDIX F: PS ASSESSMENT USE CASE

**Context**: A Company financed and commissioned a rice-husk to energy (bioenergy) plant in an AMS in 2023 and wishes to assess the Activity against the PS for classification.

**Example 1:**

| Step | Company / Assessor Action[11] | Assessment Status |
|---|---|---|
| 1 | Company chooses to assess the Activity against the PS for classification under EO1: Climate Change Mitigation. | The ATB has defined the TSC under EO1, for the Activity to be assessed under the PS. |
| 2 | Activity is assessed under the EO1 TSC. The ASEAN Taxonomy defines bioenergy plants under EO1 in the PS to have the following criteria for Tiers:<br>• Amber Tier 3: 425 – 510 $gCO_2e$/kWh<br>• Amber Tier 2: 100 – 425 $gCO_2e$/kWh<br>• Green: < $gCO_2e$/kWh | The bioenergy plant has a carbon intensity of 350 $gCO_2e$/kWh, which means that, in principle, it could be classified as **Amber Tier 2.** |
| 3 | Activity is assessed against the DNSH Requirements. | The assessment reveals that there is potential significant harm to be caused against EO3, although realistic and comprehensive plans for remediation measures have been made. The Activity cannot be classified as Amber Tier 2. It may now be classified as either Amber Tier 3 or Red, pending remediation within 5 years. |
| 4 | The Company provides supporting documentation of the potential significant harm being remediated withing 3.5 years from the commissioning period (i.e., to be remediated before 2027). | Since the potential significant harm will be remediated in less than 5 years (the maximum period allowed for harm to be remediated) the Activity can now be considered as an **Amber Tier 3** Activity. |
| 5 | Activity is assessed against the requirements for Social Aspects. | The assessment passes the criteria for Social Aspects. As a result, the Activity receives an interim classification of **Amber Tier 3.** |
| | **Interim Classification** | **Amber Tier 3** |
| 6 | Within 3.5 years of the original assessment, the potential harm is assessed as having been remediated. | The Activity receives its final classification of **Amber Tier 2.** |
| | **Final Classification** | **Amber Tier 2** |

[11] The figures represented under this table are for illustration purposes only; refer to Annex 1 for extant TSC

**Example 2:**

| Step | Company / Assessor Action[12] | Assessment Status |
|---|---|---|
| 1 | The Company chooses to assess the Activity against the PS for classification under EO1: Climate Change Mitigation. | The ATB has defined the TSC under EO1, for the Activity to be assessed under the PS. |
| 2 | Activity is assessed under the EO1 TSC. The ASEAN Taxonomy defines bioenergy plants under EO1 in the PS to have the following criteria for Tiers:<br>• Amber Tier 3: 425 – 510 $gCO_2e$//kWh<br>• Amber Tier 2: 100 – 425 $gCO_2e$/kWh<br>• Green: < 100 $gCO_2e$/kWh | The bioenergy plant has a carbon intensity of 95 $gCO_2e$/kWh meets the other criteria under EO1. It passes the assessment to be classified as a **Green** Activity. |
| 3 | Activity is assessed against the DNSH Requirements. | The assessment reveals that there is no significant harm to be caused against the other EOs. |
| 4 | Activity is assessed against the requirements for Social Aspects. | The Activity fails the Social Aspects assessment by indicating that there are non-compliances with some of the social requirements. As a result, the Activity receives a final **Red** classification. |
| | **Final Classification** | **Red** |

[12] The figures represented under this table are for illustration purposes only; refer to Annex 1 for extant TSC

**Example 3:**

| Step | Company / Assessor Action[13] | Assessment Status |
|---|---|---|
| 1 | The Company chooses to assess the Activity against the PS for classification under EO1: Climate Change Mitigation. | The ATB has defined the TSC under EO1, for the Activity to be assessed under the PS. |
| 2 | Activity is assessed under the EO1 TSC. The ASEAN Taxonomy defines bioenergy plants under EO1 in the PS to have the following criteria for Tiers:<br>• Amber Tier 3: 425 – 510 $gCO_2e$/kWh<br>• Amber Tier 2: 100 – 425 $gCO_2e$/kWh<br>• Green: < 100 $gCO_2e$/kWh | The bioenergy plant has a carbon intensity of 95 $gCO_2e$/kWh and meets the other criteria under EO1. It passes the assessment to be classified as a **Green** Activity. |
| 3 | Activity is assessed against the DNSH Requirements. | The assessment reveals that there is potential significant harm to be caused against EO3. As a result, the Activity can no longer be classified as **Green**. It may now be classified as either **Amber Tier 3** or **Red**, pending an assessment on whether the potential significant harm will be remediated within 5 years. |
| 4 | The Company provides supporting documentation of the potential significant harm being remediated. Remediation will be complete 7 years from the from assessment date. | The Activity fails to remediate the harm within the 5-year period. As a result, the Activity receives a final **Red** classification. |
| | **Final Classification** | **Red** |

[13] The figures represented under this table are for illustration purposes only; refer to Annex 1 for extant TSC

# LIST OF ANNEXES

1. Technical Screening Criteria
2. DNSH Criteria
3. Assessment of Climate Risk
4. Alignment of the ASEAN Taxonomy with national strategies
5. Regulations pertaining to Social Aspects listed by AMS
6. Regulations pertaining to the Environment listed by AMS

# Technical Screening Criteria (TSC) for the Plus Standard

Updated as at 9 June 2023

to include Activities contained with:

- ISIC 352, including:
  - Transmission and distribution networks for renewable and low-carbon gases; and
  - Storage of renewable and low-carbon gases
- ISIC 353, including:
  - Production of heating/cooling through various means; and
  - Storage of thermal energy

## CONTENTS

# 1 INTRODUCTION

## 1.1 Structure of Annex

This Annex contains the following information in support of the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy):

- Section 2: Principles upon which Technical Screening Criteria (TSC) are based
- Sections 3-4: TSC for each Industry Sector and cross references to Significant harm criteria
- Section 5: How TSC will change over time

## 1.2 Use of this Annex

This Annex contains details of the respective guiding principles and TSC for all Activities for which TSC have been defined for the PS. For each Activity, TSC have been defined for each Tier which is applicable to that Activity in each Environmental Objective (EO).

Development of this Annex is ongoing, and ATB will seek consultation and conduct reviews on guiding principles and TSC for all EOs in subsequent revisions of the Annex.

It is only possible to classify an Activity under the ASEAN Taxonomy under an EO if TSC have been set for that Activity in that EO for the respective Tier.

The term “No TSC available” in this Annex means that the Activity cannot be classified under that EO at that Tier by use of the PS and that there are currently no plans to develop a TSC for that Activity Tier. For example, it is currently not expected that there will be Amber Tiers for Climate Change Adaptation (EO2) for power generation Activities. The reason is that it is expected that Amber for these Activities will normally only apply for Climate Change Mitigation (EO1), any and that classification under EO2 must demonstrate clear substantial contribution to EO2.

The term, “TSC are presently not available for the Activities Tiers defined” means that it is expected that TSC will be developed for that Activity Tier in future revisions of this Annex.

Details on the procedure for the assessment of an Activity for the purposes of classification under the PS can be found in the Main Report.

Notwithstanding any TSC published in this Annex, any Activity which is directly or indirectly resulting in an effect which detracts from the EO to which it is intended to contribute should be classified as Red.

Note that the information provided in this Annex was not intended for use in assessments conducted using the Foundation Framework (FF).

## 1.3 Activity Identification System

Definitions and Activities under the PS are grouped under ‘ISIC Groups’. The ISIC system is the international reference classification of productive activities based on a set of internationally agreed concepts, definitions, principles, and classification rules. The ASEAN Taxonomy also appends an additional code to the end of the ISIC Group Code to precisely define the Activity within the ISIC Group Code.

This additional code is known as the Activity Code (AC). For example:

- 351[060] – Electricity Generation from Hydropower; where:

- 351 – ISIC Group Code for ‘Electric power generation, transmission and distribution’
- [060] – AC for hydropower within this ISIC Group

# 2 PRINCIPLES FOR SETTING TSC

This section explains the considerations which guided the setting of TSC at each Tier for each Environmental Objective (EO). The TSC themselves have been set by the ATB and are published in subsequent chapters.

Guiding principles are pending consultation and TSC have not been set in all places.

## 2.1 Principles for TSC setting in EO1: Climate Change Mitigation

| Tier | Description / Definition |
|---|---|
| Tier 1 (Green) | Activity is in line with limiting global temperature rise to no more than 1.5ºC, according to the Paris Agreement.<br><br>In practice, this definition usually takes the form of quantitative thresholds which limit the emission of GHG for given units of utility. For example, it has been assessed that a threshold of 100 gCO2e/kWh for power generation is aligned with limiting temperature rise to 1.5°C by 2050. The equivalent value of 28 gCO2e/MJ has been used for heating and cooling Activities. As will be seen in Section 5.4, thresholds may be adjusted after the first TSC Period, which concludes at the end of 2030.<br><br>Note that a 'Green' Activity need not necessarily preclude use fossil fuels. This is because, the TSC are aimed at achieving defined GHG emissions levels, which reference credible, 1.5°C-aligned science-based pathways. Activities which can achieve these targets while using fossil fuels may be eligible. |
| Tier 2 (Amber T2) | 1. Activity supports a transition towards a Green pathway within a defined time frame; AND<br>a. Results in a contribution to the EO which is at least as good at the lowest carbon emitting technology currently technically and economically feasible for widespread use in ASEAN, with a prescribed sunset date; OR<br>b. Enables or promotes the implementation of a Green Activity in the context of this EO |
| Tier 3 (Amber T3) | 1. Activity is in line with supporting the meeting of Nationally Determined Contribution (NDC) reduction targets of AMS that do not have a net zero 2050 timeline; OR<br>2. Activity meets the TSC of Amber (Tier 2) or Green, but has been assessed that it will do some level of significant harm to other EOs; which will be remediated within 5 years. |

## 2.2 Principles for TSC setting in EO2: Climate Change Adaptation

| Tier | Description / Definition |
|---|---|
| Tier 1 (Green) | 1. Activity where measures have been implemented to ensure own resilience to climate change and thereby contribute to overall local, national or regional resilience; OR<br>2. Activity enables other Activities to increase resilience to climate change. |
| Tier 2 (Amber T2) | TSC are presently not available for the Activity Tiers defined |
| Tier 3 (Amber T3) | 1. Activity meets the TSC of Amber (Tier 2) or Green but has been assessed that it will do some level of significant harm to other EOs; which will be remediated within 5 years. |

## 2.3 Principles for TSC setting in EO3: Protection of Healthy Ecosystems and Biodiversity

| Tier | Description / Definition |
|---|---|
| Tier 1 (Green) | TSC are presently not available for the Activity Tiers defined |
| Tier 2 (Amber T2) | TSC are presently not available for the Activity Tiers defined |
| Tier 3 (Amber T3) | TSC are presently not available for the Activity Tiers defined |

## 2.4 Principles for TSC setting in EO4: Resource Resilience and the Transition to a Circular Economy

| Tier | Description / Definition |
|---|---|
| Tier 1 (Green) | TSC are presently not available for the Activity Tiers defined |
| Tier 2 (Amber T2) | TSC are presently not available for the Activity Tiers defined |
| Tier 3 (Amber T3) | TSC are presently not available for the Activity Tiers defined |

# 3 TSC FOR ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY

All TSC set within this chapter are common for all ASEAN Member States (AMS). The Green TSC was set for consistency with other international taxonomies.

TSC for the Amber Tiers were set against future emissions projections for all power generation in Southeast Asia as derived from the IEA Sustainable Development Scenario (SDS)[1]:

- Amber Tier 2: reflects projected emissions intensity for SE Asia in 2030
- Amber Tier 3: reflects projected emissions intensity for SE Asia in 2027

The TSC set here are for TSC Period 1. Proposed future TSC can be seen in Section 5.

TSC were checked against the lowest carbon emitting technology currently, technically and economically feasible, for widespread use in ASEAN, both through review of publicly available technology comparisons[2] and through consultation with regional stakeholders.

## 3.1 351[011] Electricity Generation from fossil gas

- Includes:
  - Power generation as part of cogeneration
- Excludes:
  - Unabated power generation from coal or fuels derived from coal.
  - Co-firing of fossil fuels with fuels derived from renewable sources (refer to 351[012] and 351[014])

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| TSC applicable to all Tiers | 1. For facilities that are equipped with CCUS, CO2 from power generation that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020].<br>2. The Activity meets either of the following criteria:<br>a. at construction, measurement equipment for monitoring of physical emissions, such as methane leakage is installed, or a leak detection and repair program is introduced; OR<br>b. at operation, physical measurement of methane emissions is reported, and leak is eliminated. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018 |

[1] Southeast Asia Energy Outlook 2022, International Energy Agency
[2] Intergovernmental Panel on Climate Change (IPCC)

| | |
|---|---|
| | • For estimating GHG intensity in cogeneration, 1 MJ of heat energy shall be deemed to be equivalent to 0.277778 kWh of electricity:<br>  ○ If used for heating, at the point of discharge from the heat producing facility;<br>  ○ If used for cooling, at the point of delivery to the equipment for producing a cooling medium.<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.2 351[012] Electricity generation from renewable non-fossil gaseous and liquid fuels, including co-firing with fossil fuels

- Includes:
    - Power generation as part of cogeneration
- Excludes:
    - Unabated power generation from coal or fuels derived from coal.
    - Power generation from fuels derived from waste, other than bio-waste.

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| TSC applicable to all Tiers | 1. For facilities that are equipped with CCUS, CO2 from power generation that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020].<br>2. Where the electricity makes use of fuels derived from biomass, the same TSC as described in Activity 351[014] shall apply<br>3. The Activity meets either of the following criteria:<br>a. at construction, measurement equipment for monitoring of physical emissions, such as methane leakage is installed, or a leak detection and repair program is introduced; OR<br>b. at operation, physical measurement of methane emissions is reported and leak is eliminated. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• For estimating GHG intensity in cogeneration, 1 MJ of heat energy shall be deemed to be equivalent to 0.277778 kWh of electricity:<br>o If used for heating, at the point of discharge from the heat producing facility;<br>o If used for cooling, at the point of delivery to the equipment for producing a cooling medium.<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.3 351[013] Hybrid fossil, renewable power generation, T&D, and/or energy storage for Island Systems

- Includes:
    - Island System, which is defined as a collection of grid-connected power generation, electrical distribution, storage, control assets and loads, which have the ability to operate together independently of a wider electrical network.
    - Island Systems in this can refer to 'electrical' islands and do not need to be literal islands surrounded by water.
    - Any generation, T&D or related control, monitoring or management operating within the Island System may be classified if the whole Island System meets the terms of the relevant TSC for the relevant Tier, as well as Essential Criteria (EC).
- Excludes:
    - Unabated power generation from coal or fuels derived from coal.
    - Power generation from fuels derived from waste, other than bio-waste.
    - Any Activity on an Island System with a total nameplate power generation capacity of >100 MW

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| TSC applicable to all Tiers | 1. Any part of the Island System may be classified under the appropriate Tier if the lifecycle GHG emissions for the whole Island System are within the TSC for that Tier.<br>2. If an Island System becomes unaligned with the classification after having previously been aligned, Activities within that System are not considered aligned unless the individual Activity can be shown to be aligned with a specific TSC (e.g., operation of a wind or solar farm).<br>3. Where the electricity makes use of fuels derived from biomass, the same TSC as described in Activity 351[014] shall apply<br>4. For facilities that are equipped with CCUS, CO2 from power generation that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020]. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which must be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers within the Island System, as an adaptation measure addressing specific identified physical climate risks projected to impact energy supply to the area". It should be shown that:<br>a. the Island System could not technically or economically be integrated into a wider electrical network within the periods considered in the CRVA; OR<br>b. the wider electrical network is projected to experience significant disruptions due to climate change impacts, cannot be feasibly made resilient to those impacts and an Island System is deemed to represent the most suitable back-up or alternative energy supply option. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | 1. If an Island System becomes unaligned with the classification after having previously been aligned, Activities within that System are not considered aligned unless the individual Activity can be shown to be aligned with a specific TSC (e.g., operation of a wind or solar farm).<br>2. Where the electricity makes use of fuels derived from biomass, the same TSC as described in Activity 351[014] shall apply. |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.4 351[014] Electricity generation from bioenergy, including co-firing with fossil fuels

- Includes: Power generation as part of cogeneration

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| TSC applicable to all Tiers | 1. Anaerobic digestion of organic biowaste or sewage which is conducted at the site of the power generation must comply with the following:<br>a. Implement monitoring and contingency plan to minimise methane leakage;<br>b. Biogas produced onsite at a facility for the conduct of this Activity must be used only for this Activity or other Activities defined by the ASEAN Taxonomy, etc.; AND<br>c. Any bio-waste that is used for anaerobic digestion is source segregated and collected separately.<br>2. For facilities that are equipped with CCUS, CO2 from power generation that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020]. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• For estimating GHG intensity in cogeneration, 1 MJ of heat energy shall be deemed to be equivalent to 0.277778 kWh of electricity:<br>o If used for heating, at the point of discharge from the heat producing facility;<br>o If used for cooling, at the point of delivery to the equipment for producing a cooling medium.<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.5 351[021] Electricity generation using solar photovoltaic technology

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity generates electricity using solar photovoltaic (PV) technology |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Not Relevant | - |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.6 351[022] Electricity generation using CSP technology

- Excludes: Power generation through a combination of CSP and a combustion process (refer to 351[011], 351[012], 351[014], as applicable)

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity generates electricity using concentrated solar power (CSP) technology |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.7 351[030] Electricity generation from wind power

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity generates electricity using wind power |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Relevant (offshore wind) | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.8 351[040] Electricity generation from hydropower

- Includes: Power generation as part of cogeneration

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Generation plant meets criteria (1) and (3) OR (2) and (3):<br>1. the electricity generation facility is a run-of-river plant and does not have an artificial reservoir;<br>2. Power density of the electricity generation facility is above 5 W/m2;<br>3. Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Generation plant meets criteria (1) and (3) OR (2) and (3):<br>1. the electricity generation facility is a run-of-river plant and does not have an artificial reservoir;<br>2. Power density of the electricity generation facility is above 5 W/m2;<br>3. Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | No TSC available |
| Applicable standards | The GHG emissions intensity is the average GHG emissions intensity, including emissions associated with the reservoir only and allocated to hydropower only, averaged over an estimated 100-year life of the facility. This can be estimated in one of two ways:<br>• Using the G-res tool[3]<br>• Site-specific assessments carried out by the issuer or its appointed consultant following IEA Hydro Framework as described in the 'Guidelines for the Quantitative Analysis of Net GHG Emissions from Reservoirs'.[4]<br><br>Power density is defined as the nameplate capacity of the facility divided by the surface area of the reservoir. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

[3] https://g-res.hydropower.org/about-tool/
[4] Task XII: Hydropower & the Environment Task 1: Managing the Carbon Balance of Freshwater Reservoirs (2007 - Present), https://www.ieahydro.org/annex-xii-hydropower-and-the-environment

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.9 351[050] Electricity generation from geothermal energy

- Includes:
    - Power generation as part of cogeneration
- Excludes:
    - Power generation through a combination of geothermal and a combustion process (refer to 351[011], 351[012], 351[014], as applicable)

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh |
| Tier 2 (Amber T2) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh |
| Tier 3 (Amber T3) | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• For estimating GHG intensity in cogeneration, 1 MJ of heat energy shall be deemed to be equivalent to 0.277778 kWh of electricity:<br>o If used for heating, at the point of discharge from the heat producing facility<br>o If used for cooling, at the point of delivery to the equipment for producing a cooling medium |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.10 351[060] Electricity generation from ocean energy

- Excludes
    - Offshore wind; refer to Activity 351[030]
    - Floating solar PV: refer to Activity 351 [021]

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity generates electricity from ocean energy |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.11 351[071] Transmission and distribution (T&D) of electricity

- Includes
    - T&D related Activities on an electrical 'System' which meets the TSC for the relevant classification. A System in this context may refer to the entire T&D System of an AMS but may also refer to a subordinate System within that national System.
- Excludes:
    - T&D Activity related entirely to transportation of electricity from a power generator which does not meet the TSC for which the T&D is seeking classification.

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. T&D infrastructure or equipment is part of a System where:<br>a. >67% of new generation capacity which achieved commercial operation on the System over a five-year rolling period[5] is 'Green[6]'; AND<br>b. emissions intensity <100 gCO2e/kWh for the System measured on a life cycle basis over a rolling five-year period; OR<br>2. Activity relates entirely to the implementation or operation of equipment and infrastructure:<br>a. For electrical connection to power generation, classified as 'Green' based on compliance with the TSC for the respective technology; OR<br>b. For electrical connection and related supporting infrastructure, for 'Green' electrical transport based on alignment with the TSC for the respective technology; OR<br>c. which is intended to increase the controllability and observability of the System and to enable the development and integration of 'Green' power generation |
| Tier 2 (Amber T2) | 1. T&D infrastructure or equipment is part of a System with emissions intensity for the installed facilities: >100 and <425 gCO2e/kWh; AND<br>2. Activity relates to the implementation or operation of equipment and infrastructure which will support an increase of the generation or use of 'Green' electricity in the System or 'Green' electrical transport (as defined in the ASEAN Taxonomy) |
| Tier 3 (Amber T3) | 1. T&D infrastructure or equipment is part of a System with emissions factor: >425 and <510 gCO2/kWh; AND<br>2. Activity relates to the implementation or operation of equipment and infrastructure which will support an increase of the generation or use of 'Green' electricity in the System or 'Green' electrical transport |
| TSC applicable to all Tiers | 1. In the case of a power control area[7] of an electrical T&D network, the weighted average emissions intensity should be calculated for the entire T&D network<br>2. In the case of individual subordinate T&D systems, an emissions intensity for that subordinate System may be estimated.<br>3. If a System becomes unaligned after having previously been aligned, no new T&D activities are aligned with the applicable classification from that moment onward, until the System complies again with the TSC (except for those Activities that are always aligned). 'Activities |

[5] Requirement is waived if no new generation capacity was installed in that period
[6] The term 'Green' in all parts of this TSC refers to technology which may be classified as Green under the ASEAN Taxonomy
[7] A power control area is a power system, a part of a power system or a combination of systems to which a common generation control scheme is applied.

| | |
|---|---|
| | that are always aligned' refers to (e.g.) a transmission line which only supplies renewable energy. This means that, even if the rest of the system becomes unaligned, that specific line will remain aligned. |
| Applicable standards | 'Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018 |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers within the System with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of T&D equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain T&D equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of T&D-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Relevant (offshore) | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.12 351[072] Storage of electricity, including pumped storage

- Includes
    - All electrical storage systems which are available to provide power to electrical networks or loads

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Construction and operation of grid-connected electricity storage, including pumped hydropower storage. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant (pumped storage) | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant (pumped storage) | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.13 351[100] Coal power phase-out

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. Aligned with a 1.5°C outcome and is consistent with the IEA Net Zero Emissions Pathway for the power sector to achieve net zero emissions by 2050. Specific conditions under (1) include:<br>a. Coal phase out by 2040; and<br>b. Coal plants built after 31 December 2022 will not qualify; and<br>c. Operation duration of the coal plant from commercial operation date (COD) is capped at 35 years; and<br>d. Qualifying coal plants must demonstrate the adoption of best-in-class technology, provided that these technologies are affordable, accessible, reliable and can be implemented within a reasonable timeframe; and<br>e. Qualifying coal plants have been independently verified or acknowledged by internationally recognised bodies or programmes as having demonstrated substantial absolute positive emissions savings over their expected lifetime compared to a case without a transition mechanism. Coal plants under the ADB ETM or JETP meet these criteria. |
| Tier 2 (Amber T2) | 1. Aligned with a 1.5°C outcome for coal phase-out that is derived from regional- or country-specific pathways that are consistent with science-based pathways. Specific conditions under (1) include<br>a. Coal phase out by 2050; and<br>b. Coal plants built after 31 December 2022 will not qualify; and<br>c. Operation duration of the coal plant from commercial operation date (COD) is capped at 35 years. |
| Tier 3 (Amber T3) | 1. Operation duration of the coal plant from commercial operation date (COD) is capped at 35 years; and<br>2. Coal plants that are built after 31 December 2022 will not qualify, except for<br>a. Coal plants that are built from 1 January 2023 up till 31 December 2027; and<br>b. adopt best-in-class technology, provided that these technologies are affordable, accessible, reliable and can be implemented within a reasonable timeframe. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Not Relevant | - |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Relevant | Annex 2, Section 4.8 |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.14 352[010] Transmission and distribution networks for renewable and low-carbon gases

- Includes
    - Operation of facilities related to low carbon hydrogen, renewable-derived gases, fossil gases or mixtures thereof which meet the criteria below.

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Operation of gas networks for the transmission and distribution of renewable and low-carbon gases (including hydrogen and fossil gas), including:<br>1. New networks transporting renewable and low carbon gases with lifecycle GHG intensity of <28 gCO2e/MJ;<br>2. Networks converted or re-purposed for renewable and low carbon gases with lifecycle GHG intensity of <28 gCO2e/MJ;<br>3. Activity which results in the injection of fuel gas with lifecycle GHG intensity of <28 gCO2e/MJ into an existing network.<br><br>* For transmission and distribution systems of hydrogen, hydrogen gas must meet the 'Green' criteria for 'manufacture of hydrogen' Activity set out in the 'Manufacturing' sector when it is finalised in future ASEAN Taxonomy versions |
| Tier 2 (Amber T2) | Operation of gas networks for the transmission and distribution of gases (including hydrogen and fossil gas), including:<br>1. New networks transporting gases with lifecycle GHG intensity of <65 gCO2e/MJ;<br>2. Networks converted or re-purposed for gases with lifecycle GHG intensity of <65 gCO2e/MJ.<br><br>* For transmission and distribution systems of hydrogen, hydrogen gas must meet the 'Amber Tier 2' criteria for 'manufacture of hydrogen' Activity set out in the 'Manufacturing' sector when it is finalised in future ASEAN taxonomy versions |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | • For all Tiers, it must be shown that the average carbon intensity of a low carbon gas transported through the network is below the respective threshold.<br>• As indicated above, this Activity permits the transportation of fossil gas, as long as it meets the thresholds shown, which are aligned with principles explained in Section 2.1. This inclusion is subject to review and may be revised at the end of the first TSC Period.<br>• For purposes of assessment, fuel gas GHG intensities should be averaged over a rolling five-year period. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of T&D equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain T&D equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of T&D-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.15 352[030] Storage of renewable and low-carbon gases

- Includes
    - Operation of facilities related to low carbon hydrogen, renewable-derived gases, fossil gases or mixtures thereof which meet the criteria below

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity is operation of one of the following facilities:<br>a. new storage facilities for renewable and low carbon gases; OR<br>b. existing underground gas storage facilities converted for dedicated renewable and low-carbon gases; AND<br>c. Activity which results in the injection of fuel gas with lifecycle GHG intensity of <28 gCO2e/MJ into an existing network.<br>2. Renewable and low-carbon gases, including hydrogen and fossil gases, stored in the facility meets lifecycle GHG intensity of <28 gCO2e/MJ<br><br>* For storage systems of hydrogen, hydrogen gas has to meet the 'Green' criteria for 'manufacture of hydrogen' Activity set out in the 'Manufacturing' sector when it is finalised in future ASEAN taxonomy versions |
| Tier 2 (Amber T2) | 1. Activity is operation of one of the following facilities:<br>a. new storage facilities for gases; OR<br>b. existing underground gas storage facilities converted for dedicated gases; AND<br>2. Gases, including hydrogen and fossil gases, stored in the facility meets lifecycle GHG intensity of <65 gCO2e/MJ<br><br>* For storage systems of hydrogen, hydrogen gas has to meet the 'Amber Tier 2' criteria for 'manufacture of hydrogen' Activity set out in the 'Manufacturing' sector when it is finalized in future ASEAN taxonomy versions |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | • For all Tiers, it must be shown that the average carbon intensity of a low carbon gas stored in the facility is below the respective threshold.<br>• As indicated above, this Activity permits the storage of fossil gas, as long as it meets the thresholds shown, which are aligned with principles explained in Section 2.1. This inclusion is subject to review and may be revised at the end of the first TSC Period.<br>• For purposes of assessment, fuel gas GHG intensities should be averaged over a rolling five-year period. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of fuel gas storage facilities which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain fuel gas storage facilities in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of related fuel gas storage facilities in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.16 353[011] Production of heating/cooling from solar thermal energy

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity produces heating/cooling using solar thermal energy |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.17 353[012] Production of heating/cooling from geothermal energy

- Excludes:
    - Geothermal heating/cooling as part of cogeneration (refer to 351[050])
    - Geothermal heating/cooling through a combination of geothermal and a combustion process (refer to 353[013], 353[014], as applicable)

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions <28 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 2 (Amber T2) | Lifecycle GHG emissions <65 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 3 (Amber T3) | No TSC available |
| Applicable standards | Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018 |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.18 353[013] Production of heating/cooling from renewable non-fossil gaseous and liquid fuels

- Includes
    - Heating/cooling resulting from non-biological renewable non-fossil gaseous and liquid fuels only
    - Heating/cooling resulting from a blend of non-biological renewable non-fossil gaseous and liquid fuels and biofuels
- Excludes:
    - Heating/cooling as part of cogeneration (refer to 351[014])
    - Heating/cooling resulting from bioenergy only

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions <28 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 2 (Amber T2) | Lifecycle GHG emissions <65 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | 1. Anaerobic digestion of organic biowaste or sewage which is conducted at the site of fuel combustion must comply with the following:<br>a. Implement monitoring and contingency plan to minimise methane leakage;<br>b. Biogas produced onsite at a facility for the conduct of this Activity must be used only for this Activity or other Activities defined by the ASEAN Taxonomy, etc.; AND<br>c. Any bio-waste that is used for anaerobic digestion is source segregated and collected separately.<br>2. For facilities that are equipped with CCUS, CO2 from energy provision that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020].<br>3. The Activity meets either of the following criteria:<br>a. at construction, measurement equipment for monitoring of physical emissions, such as methane leakage, is installed, or a leak detection and repair program is introduced;<br>b. at operation, physical measurement of methane emissions is reported, and leak is eliminated. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Not Relevant | - |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.19 353[014] Production of heating/cooling from fossil gas

- Excludes:
    - Fossil heating/cooling as part of cogeneration (refer to 351[011] or 351[013] as applicable)

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Lifecycle GHG emissions <28 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 2 (Amber T2) | Lifecycle GHG emissions <65 gCO2e/MJ per unit of heat and/or cooling produced |
| Tier 3 (Amber T3) | No TSC available |
| TSC applicable to all Tiers | 1. For facilities that are equipped with CCUS, CO2 from energy provision that is captured for underground storage, must be transported and stored in accordance with the TSC for Activities 000[010] and 000[020].<br>2. The Activity meets either of the following criteria:<br>a. at construction, measurement equipment for monitoring of physical emissions, such as methane leakage is installed, or a leak detection and repair program is introduced; OR<br>b. at operation, physical measurement of methane emissions is reported, and leak is eliminated.<br>3. This Activity permits the storage of fossil gas, as long as it meets the thresholds shown, which are aligned with principles explained in Section 2.1. This inclusion is subject to review and may be revised at the end of the first TSC Period. |
| Applicable standards | • Calculation of Lifecycle Emissions ISO 14067: 2018 or ISO 14064-1: 2018<br>• Regulations for the detection and elimination of gas leaks must conform at least with regulations applicable in the AMS in which the Activity takes place and should demonstrate due consideration of the Methane Guiding Principles https://methaneguidingprinciples.org/. |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Not Relevant | - |
| EO3 | Impacts Related to Noise | Not Relevant | - |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.20 353[015] Production of heating/cooling using waste heat

- Excludes:
    - Any heating / cooling conducted by a cogeneration (combined heat and power) plant (refer to 351[011], 351[012], 351[013], 351[014], 351[022] or 351[050] as applicable)

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. Heating/cooling from waste heat resulting from another process; AND<br>2. It must be shown that such waste heat would otherwise be lost and would result in no utility. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.21 353[020] District heating/cooling distribution

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity is operation of an efficient district heating and cooling system; or evidence can be provided to show that the system will become an efficient district heating and cooling system within 3 years of assessment, where an efficient district heating or cooling system is defined as using at least:<br>a. 50% renewable energy;<br>b. 50% waste heat;<br>c. 75% cogenerated heat; OR<br>d. 50% of a combination of such energy and heat; OR<br>2. Activity is an advanced pilot system (control and energy management systems, Internet of Things). |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Relevant | Annex 2, Section 4.7 |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.22 353[030] Storage of thermal energy

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity is storage of thermal energy, including Underground Thermal Energy Storage (UTES) or Aquifer Thermal Energy Storage (ATES). |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 3.23 353[040] Production of heating / cooling using electric heat pump

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | Activity is operation of electric heat pumps complying with both of the following criteria:<br>1. Refrigerant threshold: Global Warming Potential does not exceed 675;<br>2. Demonstrate a high standard of energy efficiency according to an internationally recognised certifications scheme |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | 1. Activity has implemented physical and non-physical solutions ('adaptation solutions') that substantially reduce the most important physical climate risks that are material to that Activity, which can be demonstrated by a climate risk and vulnerability assessment (CRVA) as described in Annex 3; AND<br>2. It must be shown that the Activity is necessary for the provision of energy security of supply to consumers with consideration to future possible climate-related disruptions. In the context of this Activity, the following examples may be regarded as aligned:<br>a. Operation of heating/cooling equipment which has been built or upgraded to be better able to operate in projected flooding, storm conditions or higher temperatures; OR<br>b. Operation of monitoring and control equipment or other related IT systems to operate or maintain heating/cooling equipment in the event of projected flooding, storm conditions or higher temperatures; OR<br>c. Operation of facilities or equipment to provide support, storage or training related to the operations, maintenance or repair of heating/cooling-related equipment in scenarios of projected flooding, storm conditions or higher temperatures. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

# 4 TSC FOR ACTIVITIES NOT INCLUDED IN ISIC

## 4.1 000[010] Transport of CO2

- Includes
    - Equipment for the transport of CO2 for the purposes of sequestration

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. CO2 transported from capture point to injection point does not lead to leakages above 0.5% of CO2 by mass on an annual basis; AND<br>2. CO2 is delivered directly or indirectly to a permanent storage site that meets the criteria for underground geological CO2 storage as described in Activity 000[020]; AND<br>3. Appropriate leak detection systems are applied, and a monitoring plan is in place, with the report verified by an independent third party in accordance with international standards. |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| Applicable standards | • Exploration and operation of storage sites ISO 27914: 2017 Carbon dioxide capture, transportation and geological storage - Geological storage<br>• Refer to international standards such as quoted by IPCC guidance[8] |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

[8] https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_chapter4-1.pdf

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant (Offshore) | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

## 4.2 000[020] Underground permanent geological storage of CO2

| Tiers | EO1: Climate Change Mitigation TSC |
|---|---|
| Tier 1 (Green) | 1. Characterisation and assessment of the potential storage complex and surrounding area, or exploration is carried out in order to establish whether the geological formation is suitable for use as a CO2 storage site; AND<br>2. For operation of underground geological CO2 storage sites, including closure and post-closure obligations: appropriate leakage detection systems are implemented to prevent release during operation; AND<br>3. A monitoring plan of the injection facilities, the storage complex, and, where appropriate, the surrounding environment is in place, with the regular reports checked by the competent national authority; AND<br>4. Exploration and operation of storage sites complies with applicable standard |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |
| Applicable standards | • Exploration and operation of storage sites ISO 27914: 2017 Carbon dioxide capture, transportation and geological storage — Geological storage<br>• Refer to international standards such as quoted by IPCC guidance[9] |

| Tiers | EO2: Climate Change Adaptation TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO3: Protection of Healthy Ecosystems and Biodiversity TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

| Tiers | EO4: Resource Resilience and the Transition to a Circular Economy TSC |
|---|---|
| Tier 1 (Green) | No TSC available |
| Tier 2 (Amber T2) | No TSC available |
| Tier 3 (Amber T3) | No TSC available |

[9] https://www.ipcc.ch/site/assets/uploads/2018/03/srccs_chapter4-1.pdf

| Significant Harm | Category for Assessment | Relevance | If Relevant, Reference for Assessment |
|---|---|---|---|
| EO1 | Climate Change Mitigation | Relevant | Annex 2, Section 2 |
| EO2 | Climate Change Adaptation | Relevant | Annex 2, Section 3 |
| EO3 | Assessment of Materiality and Impacts | Relevant | Annex 2, Section 4.2 |
| EO3 | Protection and Restoration of Biodiversity and Ecosystems | Relevant | Annex 2, Section 4.3 |
| EO3 | Impacts Related to the Use of Water and Marine Resources | Relevant | Annex 2, Section 4.4 |
| EO3 | Impacts Related to Noise | Relevant (Offshore) | Annex 2, Section 4.5 |
| EO3 | Impacts Resulting Pollution and the Use and Presence of Chemicals | Relevant | Annex 2, Section 4.6 |
| EO3 | Impacts Related to the Supply and Use of Bio-Resources | Not Relevant | - |
| EO3 | Impacts Related to HV Electrical Equipment | Not Relevant | - |
| EO4 | Resource Resilience and the Transition to Circular Economy | Relevant | Annex 2, Section 5 |

# 5 FUTURE TSC

## 5.1 Background

It is expected that the TSC in this Annex will change over time, as criteria become more stringent to promote a pathway to sustainability for ASEAN. In order to promote transparency, and to allow for forward planning by users of the ASEAN Taxonomy, the ATB has included this chapter which shows current intentions for how TSC will change over time.

Note that the future TSC below are not binding, and that ATB reserves the right to make changes to meet changing technical and economic situation in ASEAN.

The ASEAN Taxonomy defines TSC in the three different ways shown in Table 1. The plans below relate to each of these TSC types.

**Table 1: Types of TSC**

| # | Type of TSC | Explanation | Examples of Activities included |
|---|---|---|---|
| 1 | TSC applied to Activities classified 'by their nature' | TSC which relate to specific Activities which are normally considered to be Green by default (assuming any other TSC which may be applicable to that Activity are also fulfilled). | • Electricity generation using solar photovoltaic technology<br>• Electricity generation using CSP technology<br>• Electricity generation from wind power<br>• Electricity generation from ocean energy technologies<br>• Storage of electricity, including pumped storage |
| 2 | Qualitative TSC | Process- or practice-based TSC which require for an Activity to demonstrate that it is following certain principles, standards or rules. | • All Activities may be subject to some qualitative TSC. |
| 3 | Quantitative TSC | Threshold-based TSC where Activities are required to meet certain defined numerical targets (e.g., gCO2e/kWh) | • All forms of power generation which emit GHG<br>• Electrical Transmission and Distribution (T&D) networks which incorporate GHG emitting generation |

## 5.2 Activities classified 'by their nature'

It is currently assumed that any Activity which may be classified as Green by its nature in the ASEAN Taxonomy will continue to be classified in this way for the foreseeable future.

## 5.3 Qualitative TSC

The ATB is not able to give clear indications as to how qualitative TSC may change over time, noting that many qualitative TSC cross refer to external standards not under the control of the ATB.

However, the ATB recommends that assessors should allow classification of Activities in all cases where:

- The Activity met the terms of any qualitative TSC which were extant at the time of its Commencement;[10]
- The Activity complied all national and regional rules and regulations, as well as any applicable international conventions, at the time of assessment.

## 5.4 Quantitative TSC

In the case of power generators which emit GHG and T&D of electricity, the ASEAN Taxonomy intends to follow the plans shown in Table 2, Table 3, Table 4 and Table 5.

These plans relate only to quantitative TSC. These Activities may also be subject to other TSC as described in Section 3.

In all tables below, 'years' mean from 1 January to 31 December, except for TSC period 1 which commences on publishing of ASEAN Taxonomy Version 2

**Table 2: Plan for quantitative TSC for Power generation which emits GHG**

| TSC Period | TSC Years | Tier 1 TSC | Tier 2 TSC | Tier 3 TSC |
|---|---|---|---|---|
| 1 | 2023 - 2030 | Lifecycle GHG emissions from the generation of electricity by the entire facility <100 gCO2e/kWh | Lifecycle GHG emissions from the generation of electricity by the entire facility: >100 and <425 gCO2e/kWh | Lifecycle GHG emissions from the generation of electricity by the entire facility: >425 and <510 gCO2e/kWh |
| 2 | 2031 - 2035 | Not published as of this Annex date | Not published as of this Annex date | Sunset |
| 3 | 2036 - 2040 | Not published as of this Annex date | Not published as of this Annex date | Sunset |
| 4 | 2041 - 2045 | Not published as of this Annex date | Sunset | Sunset |

[10] If the Activity commenced before TSC were set for that Activity, it must comply with the first TSC set by the ASEAN Taxonomy

**Table 3: Plan for quantitative TSC for electrical T&D**

| TSC Period | TSC Years | Tier 1 TSC | Tier 2 TSC | Tier 3 TSC |
|---|---|---|---|---|
| 1 | 2023 - 2030 | T&D infrastructure or equipment is part of a System where:<br>a. >67% of newly enabled generation capacity on the System over a five-year rolling period is 'Green'; AND<br>b. emissions factor, <100 gCO2e/kWh | T&D infrastructure or equipment is part of a System with emissions factor: >100 and <425 gCO2e/kWh | T&D infrastructure or equipment is part of a System with emissions factor: >425 and <510 gCO2e/kWh |
| 2 | 2031 - 2035 | Not published as of this Annex date | Not published as of this Annex date | Sunset |
| 3 | 2036 - 2040 | Not published as of this Annex date | Not published as of this Annex date | Sunset |
| 4 | 2041 - 2045 | Not published as of this Annex date | Sunset | Sunset |

**Table 4: Plan for quantitative TSC for transmission, distribution and storage of renewable and low-carbon gas**

| TSC Period | TSC Years | Tier 1 TSC | Tier 2 TSC | Tier 3 TSC |
|---|---|---|---|---|
| 1 | 2023 - 2030 | T&D and storage of renewable and low carbon gases with lifecycle GHG intensity of <28 gCO2e/MJ | T&D and storage of renewable and low carbon gases with lifecycle GHG intensity of <65 gCO2e/MJ | No TSC available |
| 2 | 2031 - 2035 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |
| 3 | 2036 - 2040 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |
| 4 | 2041 - 2045 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |

**Table 5: Plan for quantitative TSC for production of heating / cooling**

| TSC Period | TSC Years | Tier 1 TSC | Tier 2 TSC | Tier 3 TSC |
|---|---|---|---|---|
| 1 | 2023 - 2030 | Lifecycle GHG emissions <28 gCO2e/MJ per unit of heat and/or cooling produced | Lifecycle GHG emissions <65 gCO2e/MJ per unit of heat and/or cooling produced | No TSC available |
| 2 | 2031 - 2035 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |
| 3 | 2036 - 2040 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |
| 4 | 2041 - 2045 | Not published as of this Annex date | Not published as of this Annex date | No TSC available |

ANNEX 2. to the ASEAN Taxonomy for Sustainable Finance

# Significant Harm criteria for the ASEAN Taxonomy for Sustainable Finance

Updated as at 9 June 2023

# CONTENTS

# 1 INTRODUCTION

## 1.1 Document Purpose

This Annex relates to Activities undergoing assessment for classification under the Plus Standard (PS) of the ASEAN Taxonomy for Sustainable Finance (ASEAN Taxonomy). Specifically, the Annex provides criteria to determine if these Activities may cause significant harm to Environmental Objectives (EOs). The criteria outlined in this Annex are partly mandated by the text of the ASEAN Taxonomy requiring that an assessment must be undertaken to ascertain whether the Activities are causing significant harm to the environment while fulfilling one or more of the EOs. In alignment with the intentions of the ASEAN Taxonomy,[1] this Annex attempts to provide consistent understanding of what it means for Activities to be considered as causing significant harm (or not) to the ASEAN Taxonomy EOs.

## 1.2 Definition of Significant Harm in the ASEAN Taxonomy

A definition of 'significant harm' in the context of the ASEAN Taxonomy is important as users must work from the same definition and avoid subjective interpretations. With progress in the implementation of the criteria developed in this Annex, it is expected that there will be periodic reviews and updates to keep the document relevant to the prevailing contexts.

An Activity is considered as having done significant harm when, with respect to:

1. **Climate Change Mitigation (EO1):**
   (i) Activity leads to significant greenhouse gas (GHG) emissions.
2. **Climate Change Adaptation (EO2):**
   (i) Activity leads to greater adverse impacts of the current and expected future climate on the Activity itself, or on people, nature, or other assets; or
   (ii) Activity fails to adequately assess, consider and manage key climate risks affecting the Activity.
3. **Protection of Healthy Ecosystem and Biodiversity (EO3):**
   (i) Activity is significantly detrimental to the good condition and resilience of ecosystems;
   (ii) Activity encroaches upon ecosystems; or
   (iii) Activity is detrimental to the conservation status of habitats and species.
4. **Promotion of Resource Resilience and Transition to Circular Economy (EO4):**
   (i) Activity leads to significant inefficiencies in the use of materials or the direct or indirect use of natural resources compared to what is technically and economically feasible in that industry; or
   (ii) Activity significantly increases the generation, incineration, or disposal of waste, or if waste disposal may cause significant and/or long-term environmental harm.

[1] Section 2.1 of ASEAN Taxonomy Version 1 recognises the clear need for a common language across AMS to communicate and coordinate on labelling for Activities and financial instruments.

## 1.3 Lock-in

For an Activity seeking classification under any EO, it must be shown that the Activity is not resulting in 'Lock-in'. Lock-in refers to an Activity, which may itself be supporting an EO, but does not support a sustainable solution over the medium/long term or may limit or inhibit resource availability (capital, technology, etc.) for longer-term sustainable alternatives.

## 1.4 Application of Significant Harm Criteria

The Annex is intended as a generic guide to significant harm for use with the PS for assessment of any defined Activity at any Tier.

Any Activity to be classified under the ASEAN Taxonomy must Do No Significant Harm (DNSH) to an EO other than that for which the EO was intended to result in a benefit.

Also, notwithstanding any guidance given in this Annex, any significant harm, which is being caused or which may potentially be caused by an Activity, whether or not described in this Annex, may negatively affect the classification of the Activity.

Not also, that although significant harm relates to EOs other than that to which the Activity is intended to contribute, Activities may also not cause effects which directly or indirectly detract from the intended EO. Such an effect must result in the Activity being assessed as not meeting the criteria for the intended EO, and therefore being classified as Red. This could include an effect which is the same as significant harm, as it has been defined in this Annex.

# 2 EO1: CLIMATE CHANGE MITIGATION

## 2.1 Generic Criteria and Guiding Principles

An Activity seeking classification under the ASEAN Taxonomy must demonstrate that it will not unduly result in emissions which contribute to Climate Change. An Activity is deemed to be considered as doing significant harm to EO1 if it leads to significant GHG emissions or causes other people or assets, to increase their GHG emissions.[2]

**Table 1: Guiding Principles for DNSH in EO1**

| Guiding Principles |
|---|
| For an Activity to demonstrate that it will do no significant harm with respect to factors related to climate change mitigation, the following must be considered: [3]<br>1. An identification of the Scope 1, Scope 2, and Scope 3 Emissions related to the Activity;<br>2. An identification of the potential risk to other people or assets to directly increase their GHG emissions; and<br>3. Plans for the management and minimization of emissions related to the Activity |

## 2.2 Assessment of Significant Harm

An assessment of the potential significant harm caused to the environment by an Activity must be conducted if the Activity causes emissions which contribute to Climate Change.

Where an Activity is applicable and deemed relevant based on the above assessment, the following actions should be in place, for which evidence is required as part of an assessment to determine if the Activity is causing significant harm to EO1:

- Plans for the management and minimization of Scope 1, Scope 2, and Scope 3 emissions related to the Activity; [4]
- Evidence that the remediation plans have been implemented and are ongoing;
- These plans should include, where applicable, the following:
    - For new and existing Activities that encroach on natural/self-sustaining land, which is a significant carbon sink/storage (e.g., wetlands and peatlands), a Sustainable Land Management (SLM) Plan must be in place to show appropriate guiding principles in maintaining the land to prevent and/or offset GHG emissions that would normally be absorbed by the natural land; [5]
    - In line with the principles of the Montreal and Kigali Protocol,[6] the Activity must show compliance with the phase-out and/or elimination of substances with global warming potential (GWP).[7]

[2] General Principle under EO1: Climate Change Mitigation.
[3] The following points are referenced from all sectors included in the Appendix List of Activities in the EU Taxonomy, as they pertain to direct impact on the climate. The EU Taxonomy does not provide a direct reference to DNSH in terms of EO1, however, provides references to Annexes for specific Activities/Sectors that need to consider DNSH requirements in terms of climate change mitigation.
[4] Greenhouse Gas Protocol 2001 (GHG Protocol, 2001).
[5] Reference to the 2018 IPCC Special Report on Climate Change and Land, focused on mitigating GHG emissions to stay on track with the 1.5°C global target.
[6] Phase-out and elimination of the production and use of ODS and GWP substances. The Kigali Protocol is the latest amendment (2016) to the Montreal Protocol (1987).
[7] Article 5 of the Kigali Protocol (2016) provides a timetable on the production of ODSs and its definite elimination. It usually involves a 10-year phase-out for developing countries (which is case-dependent).

## 2.3 Specific Criteria for Consideration

### 2.3.1 Energy Provision, T&D and Storage

Activities involving aspects of energy provision (including power generation, co-generation, heating, and cooling) shall have lifecycle GHG emissions as follows:

- Activities which predominantly involve electric power generation, transmission and distribution: less than 510 $gCO_2e/kWh$;
- Activities which predominantly involve distribution of gas fuels and steam and air conditioning supply: less than 65 $gCO_2e/MJ$

The provision of electricity or heat / cooling 'predominates' for an Activity if more than 50% of the energy supplied by that Activity over its lifetime is electricity or heat / cooling respectively.

For the purposes of estimating GHG intensity, the 'non-predominant' energy supplied shall be converted to the 'predominant' energy unit. For this conversion, 1 MJ of heat energy is equal to 0.277778 kWh of electricity:

- If used for heating, at the point of discharge from the heat producing facility;
- If used for cooling, at the point of delivery to the equipment for producing a cooling medium.

Electricity T&D or storage Activities must demonstrate an average GHG intensity of less than 510 $gCO_2e/kWh$ averaged over a five-year rolling period for all energy supplied from that network.

Gas supply networks, or networks which are used to distribute heating or cooling media, must demonstrate an average GHG intensity of less than 65 $gCO_2e/MJ$ averaged over a five-year rolling period, for all energy supplied from that network.

In all cases, lifecycle emissions are calculated using the methodology described in ISO 14067: 2018 or ISO 14064-1: 2018.

### 2.3.2 Carbon Lock-in

Carbon lock-in is a form of lock-in related specifically to the difficulty of transitioning to cleaner and more sustainable energy sources due to the existing infrastructure and economic systems being built around the use of carbon-based fuels.

Examples of carbon lock-in may include, but are not necessarily limited to:

- Sustainable Activities (e.g., renewable power), solely dedicated to supporting the extraction, storage, transport, or manufacture of fossil fuels which are not eligible under the ASEAN Taxonomy;
- Climate change adaptation Activities which are intended to serve another high carbon emitting Activity (e.g., the upgrade of a road intended to transport coal to a power station);

# 3 EO2: CLIMATE CHANGE ADAPTATION

## 3.1 Generic Criteria and Guiding Principles

An Activity is deemed to be considered as doing significant harm to EO2 if it fails to adequately assess, consider and manage its own climate change related physical risks, or leads to greater adverse impacts of the current and expected future climate on the Activity itself, or on people, nature, or other assets; directly infringing on these to build resilience against climate change.[8] Resilience in this context is defined as the ability of the Activity, or other activities, to provide utility over time - in the short, medium and long term - at the current or improved performance level in the face of actual or potential climate-related disruption or gradual change.

**Table 2: Guiding Principles for DNSH in EO2**

| Guiding Principles |
|---|
| Criterion 1: Reducing material physical climate risks<br>The Activity must reduce all material physical climate risks to the Activity to the extent possible and on a best effort basis. |
| 1.1 The Activity integrates physical and non-physical measures aimed at reducing – to the extent possible and on a best effort basis – all material risks that have been identified through a climate risk and vulnerability assessment.<br>● For existing Activities, the implementation of those physical and non-physical measures may be phased and executed over a period of up to 5 years.<br>● For new Activities, implementation of these measures must be met at the time of design and construction. |
| 1.2 The above-mentioned climate risk and vulnerability assessment has the following characteristics:<br>● considers both current weather variability and future climate change, including uncertainty;<br>● is based on robust analysis of available climate data and projections across a range of future scenarios; and<br>● is consistent with the expected lifespan of the Activity. |
| Criterion 2: Supporting system adaptation<br>The Activity and its adaptation measures do not adversely affect the adaptation efforts of other people, nature, and/or assets. |
| 2.1 The Activity and its adaptation measures do not increase the risks of an adverse climate impact on other people, nature, and assets, or hamper adaptation elsewhere. |
| 2.2 The Activity is consistent with sectoral, regional, and/or national adaptation efforts. |

## 3.2 Climate Risk and Vulnerability Assessment

Any Activity seeking to demonstrate its compliance with DNSH related to EO2, must conduct a Climate Risk and Vulnerability Assessment (CRVA) in accordance with the guidance shown in Annex 3.

[8] Referenced from the EU Taxonomy and consolidated with the general principle of EO2 under the ASEAN Taxonomy.

# 4 EO3: PROTECTION OF HEALTHY ECOSYSTEMS AND BIODIVERSITY

## 4.1 Generic Criteria and Guiding Principles

An Activity is deemed to be considered as doing significant harm to EO3 if it meets any of the conditions in Table 3.

**Table 3: Guiding Principles for DNSH in EO3.**

| Objective | Conditions for causing 'Significant Harm' |
|---|---|
| Sustainable use and protection of water and marine resources | …where that Activity is detrimental to the good status, or where relevant the good ecological potential, of water bodies, including surface waters and groundwaters, or to the good environmental status of marine waters; |
| Pollution prevention and control | …where that Activity leads to a significant increase in the emissions of pollutants into air, water, or land, as compared to the situation before the Activity started; |
| Protection of healthy ecosystems | …where that Activity is detrimental to a significant extent to the good condition and resilience of ecosystems or where that Activity is detrimental to the conservation status of habitats and species, including those of Community interest. |

This Section is broken down into two distinct parts:

- Section 4.2:
  - Provides guidance as to whether an Environmental Impact Assessment (EIA) or an Environmental and Social Impact Assessment (ESIA)[9] is required for an aspect of potential significant harm; and
  - If required, the requirements for assessing harm and/or measures to remediate harm through an EIA or ESIA.
- Sections 4.3 to 4.8:
  - Define specific criteria, and provide guidance and standards, for aspects of potential significant harm, through sub-categories under an overarching umbrella of ecosystem and biodiversity protection (as listed in Table 4).

**Table 4: Aspects of Potential Significant Harm**

| Aspect of Potential Significant Harm | Criteria defined in |
|---|---|
| Protection and Restoration of Biodiversity and Ecosystems | Section 4.3 |
| Impacts related to the Use of Water and Marine Resources | Section 4.4 |
| Impacts related to Noise | Section 4.5 |
| Impacts on biodiversity and ecosystems resulting from Pollution and the Use and Presence of Chemicals | Section 4.6 |
| Impacts on biodiversity and ecosystems related to the Supply and Use of Bio-Resources | Section 4.7 |
| Biodiversity and ecosystem impacts related to HV Electrical Equipment | Section 4.8 |

[9] Note that Significant Harm, as defined by the ASEAN Taxonomy, does not cover Social Aspects; these are a separate Essential Criterion within. Nevertheless, in some cases, an ESIA study is required, as its output will be a necessary input to the Social Aspects EC.

## 4.2 Guidance on Environmental Impact Assessments

### 4.2.1 Requirement for an EIA or ESIA

The general requirement of the ASEAN Taxonomy is that an Environmental Impact Assessment (EIA) or an Environmental and Social Impact Assessment (ESIA)[10] must be conducted to address an aspect of significant harm which may be **relevant** and **material** to the Activity.

- A potential aspect of significant harm is considered not **relevant** if the Activity would not have any interaction with that aspect at all. For example, subsea noise would not be relevant to a purely onshore Activity. Annex 1 shows those aspects of significant harm which are not relevant.
- In the context of the ASEAN Taxonomy, '**materiality'**[11] relates to the extent to which the negative impact of an Activity could be considered significant to a specific aspect.

Table 5 shows the condition under which an EIA or ESIA is not required to address a potential aspect of significant harm.

**Table 5: Conditions under which an EIA or ESIA is not required for an aspect of significant harm**

| Step | Criteria | Action | Reference |
|---|---|---|---|
| 1 | Potential significant harm is not relevant to that aspect | For aspects considered to be 'not relevant', an EIA or ESIA is not required to address that aspect | Annex 1 |
| 2 | EIA or ESIA already exists which covers an aspect of potential significant harm for that Activity, and:<br>• any appropriate mitigation actions required by the existing EIA or ESIA were taken;<br>• the situation as it relates to the Activity as described in that EIA or ESIA has not significantly changed, and<br>• no new significant increase in the Activity's environmental impact is expected, | Any existing EIA or ESIA related to the Activity should be made available for assessment of that aspect.<br><br>No new EIA or ESIA is required related to that aspect. | - |
| 3 | It can be shown that an aspect of significant harm is not material to that Activity | An EIA or ESIA need not be made available related to that aspect | Section 4.2.2 |

[10] Note that DNSH does not cover Social Aspects; these are a separate Essential Criterion (EC) within the ASEAN Taxonomy. Nevertheless, in some cases, an ESIA study is required, as its output will be a necessary input to the Social Aspects EC.

[11] Note that 'materiality' in this context does not have the same meaning that is commonly used in financial reporting.

### 4.2.2 Materiality of Aspects of Potential Significant Harm

As has been shown in Table 5, an EIA or ESIA is not required to address an aspect of potential significant harm if it not considered **material**. Table 6 provides generic guidelines as to what may or may not be considered not material in this context.

**Table 6: Guidelines for deeming an aspect of potential significant harm as material or not**

| Step | Consideration | Result |
|---|---|---|
| 1 | The Activity is listed in Appendix A of this Annex | All aspects of potential significant harm, other than those which are not relevant (refer to Annex 1), should normally be considered material. |
| 2 | An EIA or ESIA is a regulatory requirement in the ASEAN Member State in which the Activity will take place | All aspects covered by this EIA and ESIA are considered material. |
| 3 | Activity is listed in Appendix B of this Annex | Materiality is deemed on a case-by-case basis with due consideration to Appendix C of this Annex. The following factors may be regarded as legitimate support factors for regarding an aspect of potential significant harm as not material:<br>● The risk of significant harm with respect to the Activity in question is very small and unlikely to have severe impact.<br>● The Activity is not located in or close to an area of high environmental value[12] and any impact to such areas is unlikely to be significant;<br>● Activity falls under an exemption category in national or local environmental regulations, which do not require an EIA |

The final determination of the materiality or otherwise of any aspect of potential significant harm shall lie with the assessor. An assessor may require an EIA or ESIA to be presented related to any aspect of potential significant harm which they deem to be material.

### 4.2.3 Guidance for ESIAs or EIAs

Except in those cases listed in Table 5, for an Activity to demonstrate that it will do no significant harm to the ecosystem and biodiversity, the following is required:

- EIA or ESIA against the Activity which assesses the potential impact of relevant forms of significant harm; and
- Mitigation actions resulting from the EIA or ESIA.

[12] Examples of areas of high environmental value are shown in Annex F

Any ESIA should be conducted in accordance with the **International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability**.[13] An ESIA must include the following assessments:

1. Assessment and Management of Environmental and Social Risks and Impacts; and

those items applicable to EO3 (3 and 6 below):

2. Labour and Working Conditions
3. **Resource Efficiency and Pollution Prevention**
4. Community Health, Safety, and Security
5. Land Acquisition and Involuntary Resettlement
6. **Biodiversity Conservation and Sustainable Management of Living Natural Resources**
7. Indigenous Peoples
8. Cultural Heritage

Note that an ESIA will also take into consideration Social Aspects. Whilst these are not required for assessment of significant harm, they may be relevant to the assessment of Social Aspects as defined by the ASEAN Taxonomy.

EIAs should draw from the **Food and Agriculture Organization (FAO) EIA Guidelines for Field Projects**,[14] or from national requirements, where such exist. It is expected that while carrying out an EIA, the necessary adaptations to the scale of the economic operator as well as the scale and impact of Activities on the Environment, are considered. For sites/operations located in or near biodiversity-sensitive areas, UNESCO World Heritage sites and Key Biodiversity Areas, as well as other protected areas, an appropriate assessment[15] must be conducted and based on its conclusions, the necessary mitigation measures[16] are implemented.

Any EIA or ESIA used in support of an assessment of an Activity must be completed and provided prior to the start of on-site construction of facilities to be used for the Activity.

### 4.2.4 Harm being caused by ongoing Activities

For an ongoing Activity, where no EIA or ESIA was conducted before commencement, an EIA or ESIA should be conducted with respect to any relevant and material aspect of potential significant harm.

In all cases, regardless of whether a prior EIA or ESIA was conducted, details of any significant harm being caused by an ongoing Activity must be presented as part of an assessment. Harm being caused by an ongoing Activity will be considered in the classification of an Activity.

[13] The standardised and one of the most used (and accepted) approaches for conducting ESIAs on Activities to determine material impact. https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_handbook_pps

[14] EIA Guidelines for FAO Field Projects, 2011, https://www.fao.org/climatechange/29103-02e9a33753ffc325da1e25250c06c927b.pdf

[15] In accordance with equivalent applicable national law or international standards, that aim at the conservation of natural habitats, wild fauna and wild flora, and that require to carry out (1) a screening procedure to determine whether, for a given activity, an appropriate assessment of the possible impacts on protected habitats and species is needed; (2) such an appropriate assessment where the screening determines that it is needed, for example IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

[16] Those measures have been identified to ensure that the project, plan, or activity will not have any significant effects on the conservation objectives of the protected area.

## 4.3 Protection and Restoration of Biodiversity and Ecosystems

Where an EIA or ESIA has been carried out, the required mitigation and compensation measures for protecting the environment and society must be implemented. Reporting must be made of any ongoing measures to remediate any actual or potential harm resulting from the Activity.

## 4.4 Impacts related to the Use of Water and Marine Resources

### 4.4.1 Water Status and Ecological Potential

Prior to the commencement of any Activity which may have a material impact on water and marine resources, the following actions must be taken:

- Identify and manage environmental detrimental risks associated with the Activity related to water quality and/or water consumption at the appropriate level;
- Ensure that water use and conservation management plans, developed in consultation with relevant stakeholders, have been developed and implemented for the potentially affected water bodies; and
- Follow the guidance on the Management of Marine Water Quality stipulated under Chapter 7, of the ASEAN Marine Water Quality Management Guidelines and Monitoring Manual[17].

Environmental degradation risks related to preserving water quality and avoiding water stress are identified and addressed with the aim of achieving **good water status** and **good ecological potential,** as defined in Table 7.

**Table 7: Definitions of terms related to water quality.**

| Term | Relates to status of a | Defined as |
|---|---|---|
| Good water status | body of surface water or of groundwater | • for surface water: having both good ecological status and good surface water chemical status<br>• for groundwater: having both good groundwater chemical status and good quantitative status |
| Good ecological status | body of surface water | The values of the biological quality elements for the surface water body type show low levels of distortion resulting from human activity but deviate only slightly from those normally associated with the surface water body type under undisturbed conditions. |
| Good surface water chemical status | body of surface water | Body of surface water in which concentrations of pollutants do not exceed the environmental quality standards under regulations and/or guidance applicable in the ASEAN Member State in which the Activity takes place. |
| Good groundwater chemical status | body of groundwater | Body of groundwater in which concentrations of pollutants do not exceed the environmental quality standards under relevant regulations and guidance applicable in the ASEAN Member State in which the Activity takes place |

[17] Sections 7.1, 7.2, 7.5, and 7.6 of the ASEAN Water Standards are most relevant in terms of following the guidance under marine water quality.

| | | |
|---|---|---|
| Good quantitative status | body of groundwater | General:<br>● The chemical composition of the groundwater body is such that the concentrations of pollutants:<br>  ○ as specified below, do not exhibit the effects of saline or other intrusions<br>  ○ do not exceed the quality standards applicable under other regulations and guidance applicable in the ASEAN Member State in which the Activity takes place.<br>  ○ are not at such levels to cause any significant decrease of the ecological or chemical quality of such bodies, nor any significant damage to terrestrial[18] ecosystems which depend directly on the groundwater body<br>Conductivity:<br>● Changes in conductivity are not indicative of saline or other intrusion into the groundwater body |
| Good ecological potential | heavily modified or an artificial body of water | Biological quality elements:<br>● There are no or only slight changes in the values of the relevant biological quality elements as compared to the values found at maximum ecological potential.<br>Hydromorphological elements:<br>● Conditions consistent with the achievement of the values specified above for the biological quality elements.<br>Physico-chemical elements<br>● General conditions:<br>  ○ The values for physico-chemical elements are within the ranges established to ensure the functioning of the ecosystem and the achievement of the values specified above, for the biological quality elements.<br>  ○ Temperature and pH do not reach levels outside the ranges established to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements.<br>  ○ Nutrient concentrations do not exceed the levels established to ensure the functioning of the ecosystem and the achievement of the values specified above for the biological quality elements.<br>Specific synthetic pollutants:<br>● Concentrations do not exceed the standards set by regulations and guidance applicable in the ASEAN Member State in which the Activity takes place.<br>Specific non-synthetic pollutants:<br>● Concentrations do not exceed the standards set by regulations and guidance applicable in the ASEAN Member State in which the Activity takes place. |

[18] Terrestrial refers to any underground/earthly independent ecosystems.

For further reference, Chapter 7, Section 7.6 of the ASEAN Marine Water Quality Management Guidelines and Monitoring Manual provides guidance on specific water quality monitoring parameters for marine resources relevant to ASEAN.

### 4.4.2 Impacts specific to Damming of Waterways

Any Activity which requires large-scale damming of waterways, including hydropower and pumped storage, must comply with the following requirements.

#### 4.4.2.1 For Existing Facilities

All technically feasible and ecologically relevant mitigation measures must have been implemented to reduce adverse impacts on water as well as on protected habitats and species directly dependent on water.

Measures, where relevant and depending on the ecosystems naturally present in the affected water bodies, must include:

- measures to ensure downstream and upstream fish migration (such as fish friendly turbines, fish guidance structures, state-of-the-art fully functional fish passes;
- measures to stop or minimise operation and discharges during migration or spawning);
- measures to ensure minimum ecological flow (including mitigation of rapid, short-term variations in flow or hydro-peaking operations) and sediment flow; and
- measures to protect or enhance habitats.

The effectiveness of those measures must be monitored in the context of any authorization or permit setting out the conditions aimed at achieving good status or potential of the affected water body.

#### 4.4.2.2 For New Facilities

An impact assessment of the project (see Section 4.5.1) must be carried out to assess all potential impacts on the status of water bodies within the same river basin and on protected habitats and species directly dependent on the water bodies. This should consider, in particular, migration corridors, free-flowing rivers or ecosystems close to undisturbed conditions. The assessment must be based on recent, comprehensive, and accurate data, including monitoring data on biological quality elements that are specifically sensitive to hydromorphological alterations, and on the expected status of the water body as a result of the new Activity, as compared to existing ones. It must assess the cumulative impacts of this new project with other existing or planned infrastructure projects in the river basin.

Based on the impact assessment, it must be established that the plant is conceived, by design and location and by mitigation measures, so that it complies with one of the following requirements:

- the plant does not necessitate any deterioration nor compromises the achievement of good status or potential of the specific water body it relates to;
- where the plant risks deteriorating or compromising the achievement of good status/potential of the specific water body it relates to, such deterioration is not significant, and is justified by a detailed cost-benefit assessment demonstrating both of the following:
    - the reasons of overriding public interest or the fact that benefits expected from the planned plant outweigh the costs from deteriorating the status of water that are accruing to the environment and to society;

- the fact that the overriding public interest or the benefits expected from the plant cannot, for reasons of technical feasibility or disproportionate cost, be achieved by alternative means that would lead to a better environmental outcome (such as refurbishing of existing hydropower plants or use of technologies not disrupting river continuity).

All technically feasible and ecologically relevant mitigation measures must be implemented to reduce adverse impacts on water as well as on protected habitats and species directly dependent on water.

Where relevant and depending on the ecosystems naturally present in the affected water bodies, mitigation measures must include:

- measures to ensure downstream and upstream fish migration (such as fish friendly turbines, fish guidance structures, state-of-the-art fully functional fish passes
- measures to stop or minimise operation and discharges during migration or spawning);
- measures to ensure minimum ecological flow (including mitigation of rapid, short-term variations in flow or hydro-peaking operations) and sediment flow;
- measures to protect or enhance habitats.

The effectiveness of those measures must be monitored based on the authorization (or permit) setting the conditions aimed at achieving good status or potential of the affected water body.

The facility must not permanently compromise the achievement of good status/potential in any of the water bodies in the same river basin district.

In addition to the mitigation measures referred to above, and where relevant; compensatory measures must be implemented to ensure that the project does not increase the separation of water bodies in the same river basin district. This is achieved by restoring continuity within the same river basin district to an extent that compensates for the disruption of continuity, which the planned facility may cause. Compensation must start prior to the execution of the project.

## 4.5 Impacts related to Noise

### 4.5.1 Noise to Air

It must be shown that neither the construction nor operation of the Activity will cause significant harm to the environment through the emission of noise to air. Noise emitted by the Activity must comply with maximum permissible noise levels for the area in which the Activity will take place in accordance with current and future laws and regulations applicable in the ASEAN Member State where the Activity will take place, as well as any applicable international agreements or conventions.

### 4.5.2 Subsea Noise

Where the Activity involves the construction or operation of offshore facilities, the Activity must do no significant harm to marine environment and marine animals.

Any assessment of potential underwater noise must consider the criteria in Appendix D, as well as any national or regional laws and regulations and any international agreements to which the respective ASEAN Member State is subject. Any such assessment must be conducted with due

consideration for the species present in the area in which the Activity will be conducted, or any other area affected by the Activity.

## 4.6 Impacts on biodiversity and ecosystems resulting from Pollution and the Use and Presence of Chemicals

### 4.6.1 Use and Presence of Chemicals

The Activity must be conducted in a manner which ensures a high level of protection of the environment, including the promotion of alternative methods for assessment of hazards of substances, and must comply with the following laws and regulations:

- the laws and regulations of the ASEAN Member State(s) in which the Activity is conducted;
- any regional or international agreements or conventions which apply in the ASEAN Member State(s); and
- the laws and regulations of any country or region to which substances, mixtures or articles may be exported.

The Activity must be conducted in such a way as to ensure that the manufacture, market placement or use of certain dangerous substances or mixtures,[19] does not adversely affect the environment, as well as complies with the Laws & Regulations.

The Activity may not lead to the manufacture, placing on the market or use of the substances shown in Appendix E, whether on their own, in mixtures or in articles, except:

- under circumstances specifically permitted by the Laws & Regulations;
- in the case of substances present as an unintentional trace contaminant; or
- where their use has been proven to be essential for the society.

### 4.6.2 Impacts on biodiversity and ecosystems resulting from Emissions from Combustion Processes

For any Activity which requires the operation of a combustion plant which may result in a material impact to EO3, adequate abatement systems must be in place to reduce emission levels in order to:

- avoid damage to ecosystems and biodiversity, both within and outside the ASEAN region; and
- not hamper the achievement of air quality targets specified by national or local policies, laws and regulations or any international agreements or conventions applicable in the ASEAN Member State, in which the Activity will take place.

Where such pollutants may arise, measures must provide for the abatement and monitoring of emissions including, but not limited to, the following:

- Sulphur dioxide ($SO_2$),
- Nitrogen oxides ($NO_x$)
- Carbon Monoxide (CO)
- Dust (including PM2.5, PM5 and PM10)
- Arsenic
- Cadmium

[19] List of dangerous substances as defined by REACH Annex XVII; https://reachonline.eu/reach/en/annex-xvii.html

- Nickel
- Benzo(a)pyrene

Emissions from combustion processes must be within or lower than the emission levels:

- associated with the best available techniques which are technically and economically feasible; and
- within the emissions limit values specified by national or local laws and regulations, or any international agreements or conventions applicable in the ASEAN Member State in which the Activity will take place.

No significant cross-media effects may occur[20].

For any ongoing combustion process to which the requirements above apply, the following monitoring must be conducted:

1. Periodic measurements shall be required at least:
    a. every three years for combustion plants with a rated thermal input greater than or equal to 1 MW and less than or equal to 20 MW;
    b. every year for combustion plants with a rated thermal input greater than 20 MW.
2. Measurements shall be required for:
    a. pollutants for which an emission limit value is laid down in laws and regulations for the plant concerned;
    b. any pollutant where the potential impact has been identified as material for that Activity in an assessment conducted under the terms of the ASEAN Taxonomy; and
    c. CO for all combustion plants.
3. The first measurements shall be carried out within four (4) months of the grant of a permit to, or registration of, the plant; or of the date of the start of the operation, whichever is the latest.
4. As an alternative to the measurements referred to in point 1, other procedures, verified and approved by the competent authority, may be used to determine the $SO_2$ emissions;
5. As an alternative to the periodic measurements referred to in point 1, ASEAN Member States may require continuous measurements. In the case of continuous measurements, the automated measuring systems shall be subject to checking by means of parallel measurements with the reference methods at least once per year and the operator shall inform the competent authority about the results of those checks.
6. Sampling and analysis of polluting substances and measurements of process parameters as well as any alternatives used, as referred to under points 4 and 5, shall be based on methods enabling reliable, representative and comparable results. Methods complying with harmonised internationally recognised standards shall be presumed to satisfy this requirement. During each measurement, the plant shall be operating under stable conditions at a representative even load. In this context, start-up and shut-down periods shall be excluded from the measurement.

[20] Cross media effects in the context of combustion emissions refer to the impact of emissions released into one medium (such as air) on other media (such as water or soil).

### 4.6.3 Emissions from Other Processes impacting biodiversity and ecosystems

For Activities other than combustion processes that cause direct (and/or by-product) emissions of chemicals which may result in a material impact to EO3, adequate abatement systems must be in place to reduce emission levels in accordance with:

- any national or regional laws and regulations and any international agreements to which the ASEAN Member State in which the Activity occurs is subject; and
- any international conventions, regulations, or agreements for the minimization and/or abolition of harmful chemical emissions which apply in the ASEAN Member State in which the Activity occurs.

## 4.7 Impacts on biodiversity and ecosystems related to the Supply and Use of Bio-Resources

Special considerations must be made for any Activity which involves the supply or use of biofuels, bioliquids and biomass fuels produced from agricultural or forest biomass.

**Table 8: Specific requirements related to biofuels, bioliquids and biomass fuels produced from agricultural or forest biomass**

| Type | Requirements |
|---|---|
| Biofuels, bioliquids and biomass fuels produced from agricultural biomass | • shall not be made from raw material obtained from land with a high biodiversity value, namely land that had one of the following statuses (see Annex F for examples):<br>(a) primary forest and other wooded land, namely forests of native species, where there is no visible indication of human activity, and the ecological processes are not significantly disturbed;<br>(b) highly biodiverse forests and other wooded land which is species-rich and not degraded, or has been identified as being highly biodiverse by the relevant competent authority; unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;<br>(c) areas designated:<br>i. by law or by the relevant competent authority for nature protection purposes; or<br>ii. for the protection of rare, threatened or endangered ecosystems or species recognised by international agreements or included in lists drawn up by intergovernmental organizations or the International Union for the Conservation of Nature (such as the IUCN Red List), unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;<br>(d) highly biodiverse grassland spanning more than one hectare that is:<br>i. natural, namely grassland that would remain grassland in the absence of human intervention and that maintains the natural species composition and ecological characteristics and processes; or<br>ii. non-natural, namely grassland that would cease to be grassland in the absence of human intervention and that is species-rich and not degraded and has been identified as being highly biodiverse by the |

| | |
|---|---|
| | relevant competent authority; unless evidence is provided that the harvesting of the raw material is necessary to preserve its status as highly biodiverse grassland.<br>● shall not be made from raw material obtained from land with high-carbon stock, namely land that had one of the following statuses:<br>(a) wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;<br>(b) continuously forested areas, namely land spanning more than one (1) hectare with trees higher than five (5) meters and a canopy cover of more than 30%, or trees able to reach those thresholds in situ;<br>(c) land spanning more than one (1) hectare with trees higher than five (5) meters and a canopy cover of between 10% and 30%, or trees able to reach those thresholds in situ. |
| Biofuels, bioliquids and biomass fuels produced from forest biomass | ● shall meet the following criteria to minimise the risk of using forest biomass derived from unsustainable production:<br>(a) Avoid lands designated by international or national law or by the relevant competent authority for nature protection purposes, including wetlands and peatlands. High Conservation Values (see Annex F for examples).<br>(b) Forest management activities in such lands protects / and or enhances soil quality and biodiversity with the aim of minimizing negative impacts.<br>(c) Harvesting maintains or improves the long-term production capacity of the forest.<br>(d) Forest management activities are carried out in compliance with national and relevant laws in the sector.<br>(e) Forest management activities respects local and indigenous peoples' right to access and use the lands in a manner that maintains their traditions and customs.<br>● shall meet the following land-use, land-use change and forestry (LULUCF) criteria:<br>(a) the country or regional economic integration organization of origin of the forest biomass:<br>i. is a Party to the Paris Agreement;<br>ii. has submitted a Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC), covering emissions and removals from agriculture, forestry and land use which ensures that changes in carbon stock associated with biomass harvest are accounted towards the country's commitment to reduce or limit GHG emissions as specified in the NDC; or<br>iii. has national or sub-national laws in place, in accordance with Article 5 of the Paris Agreement, applicable in the area of harvest, to conserve and enhance carbon stocks and sinks, and providing evidence that reported LULUCF-sector emissions do not exceed removals. |
| Feedstock used for production | Internationally recognised certification schemes may include one of the following:<br>● Forest Stewardship Council (FSC) |

| | |
|---|---|
| of bioenergy should come from a source certified | • Biomass Biofuels voluntary scheme (2BSvs)<br>• Bonsucro<br>• International Sustainability and Carbon Certification (ISCC Plus)<br>• Roundtable of Sustainable Biomaterials (RSB)<br>• Roundtable on Responsible Soy (RTRS) |

Refer to Annex F for examples of protected lands with high biodiversity protection values.

## 4.8 Biodiversity and ecosystem impacts related to HV Electrical Equipment

Activities must respect applicable norms and regulations to limit impact of electromagnetic radiation on human health, including for Activities conducted in ASEAN Member States and other countries to which equipment may be interconnected.

For Activities involving construction overground high voltage lines: the principles of the IFC General Environmental, Health, and Safety Guidelines must be followed.[21]

With respect to the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz), the 1998 Guidelines of International Commission on Non-Ionizing Radiation Protection (ICNIRP) must be followed.[22]

Activities may not use PCBs (polychlorinated biphenyls).

[21] Environmental, Health, and Safety Guidelines, IFC https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines

[22] ICNIRP Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (up to 300 GHz), 1998, https://www.icnirp.org/cms/upload/publications/ICNIRPemfgdl.pdf

# 5 EO4: RESOURCE RESILIENCE AND THE TRANSITION TO A CIRCULAR ECONOMY

## 5.1 Generic Criteria and Principles

Resource resilience refers to the ability of an Activity to adapt and recover from disruptions or changes in resource availability. It involves the development and implementation of strategies and practices that enable the sustainable management and use of resources, including reducing waste and promoting conservation, efficiency, and innovation. A circular economy is an economic model that aims to reduce waste, conserve resources, and promote sustainability by minimizing the use of virgin materials and maximizing the use of existing resources.

An Activity is deemed to be considered as doing significant harm to EO4 if it meets any of the conditions in Table 9.

**Table 9: Guiding Principles for DNSH in EO4**

| Objective | Conditions for causing 'Significant Harm' |
|---|---|
| Circular economy including waste prevention and recycling | …where that Activity leads to significant inefficiencies in the use of materials and the direct or indirect use of natural resources such as non-renewable energy sources, raw materials, water and land in one or more stages of the life-cycle of products, including in terms of durability, reparability, upgradability, reusability or recyclability of products; or<br><br>…where that Activity leads to a significant increase in the generation, incineration or disposal of waste, with the exception of incineration of nonrecyclable hazardous waste, or where the long-term disposal of waste may cause significant and long-term harm to the environment. |

For an Activity to demonstrate that it will do no significant harm with respect to resource resilience and a circular economy, the following must be conducted to determine its resource use effectiveness: A Lifecycle Assessment (LCA) on the products, material, process, or other measurable activities involved in the Activity.

## 5.2 Assessment of Risk

Prior to commencement of the Activity, risks associated with resource resilience/circularity must be identified. This is to ensure the Activity encourages less use of primary resources, reuse and recycling of materials, but that the recycling is done in a way that avoids harm.

It must be demonstrated that the Activity will do no significant harm with respect to the following:

1. Impacts resulting from the natural diminution of resources on people, nature, or other assets; and
2. Actions by the Company implementing the Activity to ensure the maximum possible circularity of the resources/products and services;

## 5.3 Guidance on LCAs

Prior to the commencement of any Activity, an LCA must be completed. Table 10 can be used as a template for a Lifecycle Assessment (LCA) related to investigating EO4 (Resource resilience and transition to a circular economy).

**Table 10: Lifecycle assessment template**

| Step | Item | Description | Output |
|---|---|---|---|
| 1 | Goal and Scope Definition | Define purpose and boundaries | |
| | | Activity | |
| 1A | | Equipment | |
| 1B | | Period Activity (Start / End) | |
| 2 | Inventory Analysis | Identify and quantify inputs and outputs throughout lifecycle | |
| 2A | | Initial infrastructure / equipment | |
| 2B | | Raw materials used | |
| 2C | | Replacements and Spares | |
| 2D | | Energy use | |
| 2E | | Emissions | |
| 2F | | Waste Streams | |
| 3 | Impact Assessment | Evaluate potential environmental impacts associated with the Activity | |
| 3A | | Initial infrastructure / equipment | |
| 3B | | Raw materials used | |
| 3C | | Replacements and Spares | |
| 3D | | Energy use | |
| 3E | | Emissions | |
| 3F | | Waste Streams | |
| 4 | Interpretation | Identify areas of opportunities for improvement and actions to be taken with respect to considerations above | |
| 4A | | Initial infrastructure / equipment | |
| 4B | | Raw materials used | |
| 4C | | Replacements and Spares | |
| 4D | | Energy use | |
| 4E | | Emissions | |
| 4F | | Waste Streams | |

The LCA should include considerations of:

1. **Upstream sourcing** of materials and/or products for the intended Activity
2. **Usage** of the materials and/or products, or for processes and other measurable activities, for the intended Activity, including information on potential by-products, alternative processes, etc.
3. **Downstream** use or value of the materials and/or products, processes, and other measurable activities, for the intended Activity
4. **End of life requirements** and expectations from the materials and/or products, processes, or other measurable Activities.

The LCA need not include any aspects already covered in other EOs and which are not relevant to EO4.

## APPENDIX A ACTIVITIES WHERE AN ESIA OR EIA MUST BE CONDUCTED IN ALL CASES

An ESIA must be conducted in all cases for the following Activities.[23]

Note that inclusion in this list does not necessarily indicate that the Activity described would be eligible for classification under the ASEAN Taxonomy.

- Thermal power stations and other combustion installations with a heat output of 300 MW or more;
- Hydropower station with an electrical output of 50 MW or more;
- Wind power station with an electrical output of 50 MW or more;
- Integrated works for the initial smelting of cast iron and steel;
- Installations for the production of non-ferrous crude metals from ore, concentrates or secondary raw materials by metallurgical, chemical or electrolytic processes;
- Installations for the extraction of asbestos and for the processing and transformation of asbestos and products containing asbestos: for asbestos-cement products, with an annual production of more than 20,000 tonnes of finished products, for friction material, with an annual production of more than 50 tonnes of finished products, and for other uses of asbestos, utilization of more than 200 tonnes per year;
- Integrated chemical installations; i.e., those installations for the manufacture of substances on an industrial scale, using chemical conversion processes in which several units are contrasted and are functionally linked to one another, and which are:
    - for the production of basic organic chemicals;
    - for the production of basic inorganic chemicals;
    - for the production of phosphorous-, nitrogen- or potassium-based fertilisers (simple or compound fertilisers);
    - for the production of basic plant health products and of biocides;
    - for the production of basic pharmaceutical products using a chemical or biological process;
    - for the production of explosives.
- Construction of lines for long-distance railway traffic.
- Construction of airports with a basic runway length of 2,100m or more;
- Inland waterways and ports for inland-waterway traffic which permit the passage of vessels of over 1,350 tonnes.
- Trading ports, piers for loading and unloading connected to land and outside ports (excluding ferry piers) which can take vessels of over 1,350 tonnes.
- Waste disposal facilities using incineration or chemical treatment:
    - for hazardous waste;
    - for non-hazardous waste with a capacity exceeding 100 tonnes per day.
- Groundwater abstraction or artificial groundwater recharge schemes where the annual volume of water abstracted or recharged is equivalent to or exceeds 10 million cubic metres.
- Works for the transfer of water resources:

[23] This list is not exhaustive and may be expanded as and when Activities are added to the ASEAN Taxonomy. Users should ensure that they are referring to the most up-to-date list. Note, however, that inclusion of infrastructure types within this list does not necessarily imply that the related Activity will be an eligible Activity under the ASEAN Taxonomy.

    - between river basins where that transfer aims at preventing possible shortages of water and where the amount of water transferred exceeds 100 million cubic metres/year; and
    - between river basins where the multi-annual average flow of the basin of abstraction exceeds 2,000 million cubic metres/year and where the amount of water transferred exceeds 5% of that flow.
    - In both cases, transfers of piped drinking water are excluded.
- Wastewater treatment plants with a capacity which will serve population of greater than 150,000.
- Infilling of natural wetlands for real estate activities and/or the construction of water and/or wastewater treatment facilities.
- Extraction of natural gas for commercial purposes where the amount extracted exceeds 500,000 cubic metres/day in the case of gas.
- Dams and other installations designed for the holding back or permanent storage of water, where a new or additional amount of water held back or stored exceeds 10 million cubic metres.
- Pipelines with a diameter of more than 800 mm and a length of more than 40 km:
    - for the transport of gas, oil, chemicals;
    - for the transport of carbon dioxide ($CO_2$) streams for the purposes of geological storage, including associated booster stations.
- Installations for the intensive rearing of poultry or pigs with more than:
    - 85,000 places for broilers, 60,000 places for hens;
    - 3,000 places for production pigs (over 30 kg); or
    - 900 places for sows.
- Industrial plants for the production of:
    - pulp from timber or similar fibrous materials;
    - paper and board with a production capacity exceeding 200 tonnes per day.
- Quarries and open-cast mining where the surface of the site exceeds 25 hectares, or peat extraction, where the surface of the site exceeds 150 hectares.
- Construction of overhead electrical power lines with a voltage of 220 kV or more and a length of more than 15 km.
- Installations for storage of petroleum, petrochemical, or chemical products with a capacity of 200,000 tonnes or more.
- Storage sites for the geological storage of carbon dioxide.
- Installations for the capture of $CO_2$ streams for the purposes of geological storage where the total yearly capture of $CO_2$ is 1.5 megatonnes or more.
- Project related to the supply or use of biofuels, bioliquids and biomass fuels from agricultural or forest biomass;

Any change to or extension of Activities listed above where such a change or extension in itself meets the thresholds, if any, set out above.

## APPENDIX B ACTIVITIES WHICH MAY BE ASSESSED AS HAVING A MATERIAL IMPACT

The following Activities, where not specifically listed in Appendix A, shall be subject to an assessment for materiality in as much as they may have an impact on EO3.

For avoidance of doubt, inclusion in this list does not necessarily indicate that the Activity described would be eligible for classification under the ASEAN Taxonomy.

1 AGRICULTURE, SILVICULTURE AND AQUACULTURE
   (a) Projects for the restructuring of rural land holdings;
   (b) Projects for the use of uncultivated land or semi-natural areas for intensive agricultural purposes;
   (c) Water management projects for agriculture, including irrigation and land drainage projects;
   (d) Initial afforestation and deforestation for the purposes of conversion to another type of land use;
   (e) Intensive livestock installations (Activities not included in Appendix A);
   (f) Intensive fish farming;
   (g) Reclamation of land from the sea.
2 EXTRACTIVE INDUSTRY
   (a) Quarries, open-cast mining and peat extraction (Activities not included in Appendix B);
   (b) Underground mining;
   (c) Extraction of minerals by marine or fluvial dredging;
   (d) Deep drillings, in particular geothermal drilling but not including drilling for investigating the stability of the soil;
   (e) Surface industrial installations for the extraction of natural gas and ores.
3 ENERGY INDUSTRY
   (a) Industrial installations for the production of electricity, steam and hot water (Activities not included in Appendix A);
   (b) Industrial installations for carrying gas, steam and hot water; transmission of electrical energy by overhead cables (Activities not included in Appendix A);
   (c) Surface or underground storage of combustible gases;
   (d) Surface or underground storage of combustible liquids;
   (e) Installations for the processing and storage of radioactive waste (unless included in Appendix B);
   (f) Installations for hydroelectric energy production (Activities not included in Appendix B);
   (g) Installations for the harnessing of wind power for energy production (wind farms);
   (h) Installations for the capture of $CO_2$ streams for the purposes of geological storage (projects not included in Appendix A)
4 PRODUCTION AND PROCESSING OF METALS
   (a) Installations for the production of pig iron or steel (primary or secondary fusion) including continuous casting;
   (b) Installations for the processing of ferrous metals:
   (c) hot-rolling mills;
   (d) Ferrous metal foundries;

(e) Installations for the smelting, including the alloyage, of non-ferrous metals, excluding precious metals, including recovered products (refining, foundry casting, etc.);
(f) Installations for surface treatment of metals and plastic materials using an electrolytic or chemical process;
(g) Manufacture and assembly of motor vehicles and manufacture of motor-vehicle engines;
(h) Shipyards;
(i) Installations for the construction and repair of aircraft;
(j) Manufacture of railway equipment;
(k) Swaging by explosives;
(l) Installations for the roasting and sintering of metallic ores.

5 MINERAL INDUSTRY
(a) Coke ovens (dry coal distillation);
(b) Installations for the manufacture of cement;
(c) Installations for the production of asbestos and the manufacture of asbestos products (Activities not included in Appendix A);
(d) Installations for the manufacture of glass including glass fibre;
(e) Installations for smelting mineral substances including the production of mineral fibres;
(f) Manufacture of ceramic products by burning, in particular roofing tiles, bricks, refractory bricks, tiles, stoneware or porcelain.

6 CHEMICAL INDUSTRY (Activities not included in Appendix A)
(a) Treatment of intermediate products and production of chemicals;
(b) Production of pesticides and pharmaceutical products, paint and varnishes, elastomers and peroxides;
(c) Storage facilities for petroleum, petrochemical and chemical products.

7 FOOD INDUSTRY
(a) Manufacture of vegetable and animal oils and fats;
(b) Packing and canning of animal and vegetable products;
(c) Manufacture of dairy products;
(d) Brewing and malting;
(e) Confectionery and syrup manufacture;
(f) Installations for the slaughter of animals;
(g) Industrial starch manufacturing installations;
(h) Fish-meal and fish-oil factories;
(i) Sugar factories.

8 TEXTILE, LEATHER, WOOD AND PAPER INDUSTRIES
(a) Industrial plants for the production of paper and board (Activities not included in Appendix A);
(b) Plants for the pre-treatment (operations such as washing, bleaching, mercerization) or dyeing of fibres or textiles;
(c) Plants for the tanning of hides and skins;
(d) Cellulose-processing and production installations.

9 RUBBER INDUSTRY
(a) Manufacture and treatment of elastomer-based products.

10 INFRASTRUCTURE PROJECTS

(a) Industrial estate development projects;
(b) Urban development projects, including the construction of shopping centres and car parks;
(c) Construction of railways and intermodal transhipment facilities, and of intermodal terminals (Activities not included in Appendix A);
(d) Construction of airfields (Activities not included in Appendix A);
(e) Construction of roads, harbours and port installations, including fishing harbours (Activities not included in Appendix A);
(f) Inland-waterway construction not included in Appendix A, canalization and flood-relief works;
(g) Dams and other installations designed to hold water or store it on a long-term basis (Activities not included in Appendix A);
(h) Tramways, elevated and underground railways, suspended lines or similar lines of a particular type, used exclusively or mainly for passenger transport;
(i) Oil and gas pipeline installations and pipelines for the transport of CO 2 streams for the purposes of geological storage (Activities not included in Appendix A);
(j) Installations of long-distance aqueducts;
(k) Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties and other sea defence works, excluding the maintenance and reconstruction of such works;
(l) Groundwater abstraction and artificial groundwater recharge schemes (Activities not included in Appendix A);

11 OTHER PROJECTS
(a) Permanent racing and test tracks for motorised vehicles;
(b) Installations for the disposal of waste (Activities not included in Appendix A);
(c) Waste-water treatment plants (Activities not included in Appendix A);
(d) Sludge-deposition sites;
(e) Storage of scrap iron, including scrap vehicles;
(f) Test benches for engines, turbines or reactors;
(g) Installations for the manufacture of artificial mineral fibres;
(h) Installations for the recovery or destruction of explosive substances;
(i) Knackers' yards.

12 TOURISM AND LEISURE
(a) Ski runs, ski lifts and cable cars and associated developments;
(b) Marinas;
(c) Holiday villages and hotel complexes outside urban areas and associated developments;
(d) Permanent campsites and caravan sites;
(e) Theme parks.

13 Any change or extension of Activities listed in Appendix A or this Appendix, already authorised, executed or in the process of being executed, which may have significant adverse effects on the environment (change or extension not included in Appendix A).

14 Projects in Appendix A undertaken exclusively or mainly for the development and testing of new methods or products and not used for more than two years.

## APPENDIX C CONSIDERATIONS WHEN DETERMINING THE MATERIALITY OF AN ASPECT OF POTENTIAL SIGNIFICANT HARM

1 CHARACTERISTICS OF PROJECTS

The characteristics of projects must be considered having regard, in particular, to:

(a) the size of the project;
(b) the cumulation with other projects;
(c) the use of natural resources;
(d) the production of waste;
(e) pollution and nuisances;
(f) the risk of accidents, having regard in particular to substances or technologies used.

2 LOCATION OF PROJECTS

The environmental sensitivity of geographical areas likely to be affected by projects must be considered, having regard, in particular, to:

(a) the existing land use;
(b) the relative abundance, quality and regenerative capacity of natural resources in the area;
(c) the absorption capacity of the natural environment, paying particular attention to the following areas:
    i. wetlands;
    ii. coastal zones;
    iii. mountain and forest areas;
    iv. nature reserves and parks;
    v. areas classified or protected under ASEAN Member States' legislation;
    vi. densely populated areas;
    vii. landscapes of historical, cultural or archaeological significance.

3 CHARACTERISTICS OF THE POTENTIAL IMPACT

The potential significant effects of projects must be considered in relation to consideration set out in points 1 and 2, and having regard in particular to:

(a) the extent of the impact (geographical area and size of the affected population);
(b) the transfrontier nature of the impact;
(c) the magnitude and complexity of the impact;
(d) the probability of the impact;
(e) the duration, frequency and reversibility of the impact.

## APPENDIX D CRITERIA AND METHODOLOGICAL STANDARDS FOR ASSESSMENT OF UNDERWATER NOISE

| # | Criteria elements | Criteria | Methodological Standards |
|---|---|---|---|
| 1 | Anthropogenic impulsive sound in water. | The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals. | Use of criteria: The extent to which good environmental status has been achieved shall be expressed for each area assessed as follows:<br>(a) for (1), the duration per calendar year of impulsive sound sources, their distribution within the year and spatially within the assessment area, and whether the threshold values[24] set have been achieved;<br>(b) for (2), the annual average of the sound level, or other suitable temporal metric agreed at regional or subregional level, per unit area and its spatial distribution within the assessment area, and the extent (%, $km^2$) of the assessment area over which the threshold values set have been achieved. |
| 2 | Anthropogenic continuous low-frequency sound in water. | The spatial distribution, temporal extent and levels of anthropogenic continuous low-frequency sound do not exceed levels that adversely affect populations of marine animals. | |

[24] Thresholds should reflect laws, regulations and international conventions applicable in the AMS in which the Activity will take place. If no such regulations exist, guidance should be sought from reputable international bodies, such as the IMO https://www.nrdc.org/resources/imo-guidelines-reduction-underwater-noise

## APPENDIX E: CONTROLLED SUBSTANCES

| Substance category | Items within that category |
|---|---|
| a) Persistent Organic Pollutants (POPs) | • Tetrabromodiphenyl ether $C_{12}H_6Br_4O$<br>• Pentabromodiphenyl ether $C_{12}H_5Br_5O$<br>• Hexabromodiphenyl ether $C_{12}H_4Br_6O$<br>• Heptabromodiphenyl ether $C_{12}H_3Br_7O$<br>• Bis(pentabromophenyl) ether (decabromodiphenyl ether; decaBDE)<br>• Perfluorooctane sulfonic acid and its derivatives (PFOS) $C_8F_{17}SO_2X$ (X = OH, Metal salt (O-M+), halide, amide, and other derivatives including polymers)<br>• DDT (1,1,1-trichloro-2,2-bis (4-chlorophenyl)ethane)<br>• Chlordane<br>• Hexachlorocyclohexanes, including lindane<br>• Dieldrin<br>• Endrin<br>• Heptachlor<br>• Endosulfan<br>• Hexachlorobenzene<br>• Chlordecone<br>• Aldrin<br>• Pentachlorobenzene<br>• Polychlorinated Biphenyls (PCB)<br>• Mirex<br>• Toxaphene<br>• Hexabromobiphenyl<br>• 1 Hexabromocyclododecane ('Hexabromocyclododecane' means: hexabromocyclododecane, 1,2,5,6,9,10-hexabromocyclododecane and its main diastereoisomers: alpha-hexabromocyclododecane; beta-hexabromocyclododecane; and gamma-hexabromocyclododecane)<br>• Hexachlorobutadiene<br>• Pentachlorophenol and its salts and esters<br>• Polychlorinated naphthalenes (Polychlorinated naphthalenes means chemical compounds based on the naphthalene ring system, where one or more hydrogen atoms have been replaced by chlorine atoms)<br>• Alkanes $C_{10}$-$C_{13}$, chloro (short-chain chlorinated paraffins) (SCCPs) |
| b) Mercury and mercury compounds, their mixtures and mercury-added products | • 'Mercury' means metallic mercury (Hg, CAS RN 7439-97-6);<br>• 'Mercury compound' means any substance consisting of atoms of mercury and one or more atoms of other chemical elements that can be separated into different components only by chemical reactions; |

| | |
|---|---|
| | • 'Mixture' means a mixture or solution composed of two or more substances;<br>• 'Mercury-added product' means a product or product component that contains mercury or a mercury compound that was intentionally added |
| c) Substances that deplete the ozone layer | Controlled substances as defined by the Montreal Protocol on Substances that Deplete the Ozone Layer[25] |
| d) Hazardous substances in electrical and electronic equipment | • Lead<br>• Mercury<br>• Cadmium<br>• Hexavalent chromium<br>• Polybrominated biphenyls (PBB)<br>• Polybrominated diphenyl ethers (PBDE) |
| e) Carcinogenic substances | Carcinogenic substances, as classified by the World Health Organisation ("WHO")[26] |

[25] The Montreal Protocol on Substances that Deplete the Ozone Layer; https://ozone.unep.org/treaties/montreal-protocol/articles/annex-controlled-substances

[26] https://monographs.iarc.who.int/agents-classified-by-the-iarc/

## APPENDIX F: PROTECTED LAND OR LANDS WITH HIGH BIODIVERSITY PROTECTION VALUES

Generic examples of protected lands or lands with high biodiversity conservation value:

- Nature reserves;
- Nature monuments;
- Ramsar sites;
- Resource management areas;
- World Heritage Sites;
- Lands with conservation deeds;
- Marine protected areas with mangroves or forest components;
- Areas protected by Indigenous Peoples and local communities, including Community Conservation Areas;
- Areas covered by community-based resource management agreements;
- Forests recognised as being regionally significant at the bioregion or larger scale in formally recognised reports or peer-reviewed journals, due to the unusual landscape scale biodiversity values provided by size and condition of the forest relative to regional forest land cover and land use trends;
- Ridge-to-Reef ecosystems, including but not limited to those containing mangrove, freshwater swamp, and freshwater stream components.

ANNEX 3. to the ASEAN Taxonomy for Sustainable Finance

# Guidance on performing a Climate Risk and Vulnerability Assessment (CRVA)

27 March 2023

# CONTENTS

# 1 INTRODUCTION

## 1.1 Document Purpose

This Annex relates to Activities for which a Climate Risk and Vulnerability Assessment (CRVA) must be conducted under the ASEAN Taxonomy for Sustainable Finance ("ASEAN Taxonomy").

A CRVA will be required for the following Activities undergoing Assessment for Classification based on their contribution to an Environmental Objective (EO):

- Activities undergoing assessment for Classification under the Technical Screening Criteria (TSC) defined for EO2 (Climate Change Adaptation); and
- Activity undergoing assessment for Classification under another EO, but where it is necessary to show that the Activity meets Do No Significant Harm (DNSH) criteria for EO2 DNSH

Note, however, that there is a distinction between Activities which are:

1. seeking classification under EO2; or
2. seeking classification under another EO but are seeking to avoid DNSH related to EO2.

In the case of item (1), it must also be shown that the Activity is essential to providing resilience in the face of climate-change to other activities, communities or industry. In the case of item (2), it must be shown that the Activity itself will remain resilient into the future.

The guidance is based on guidance prepared by the German Environment Agency[1] for performing a taxonomy compliant CRVA,[2] based on the principles and framework of ISO 14091.

## 1.2 Application of a CRVA

For an Activity to demonstrate that it meets the TSC for EO2, or that it will do no significant harm with respect to factors related to climate change adaptation, the following must be considered:

1. The physical climate risks that are material to the Activity must be identified from those listed in Section 2, by performing a robust CRVA. This includes the following steps:
    a. Screening of the Activity to identify which physical climate risks from the list in Section 2 of this Annex may affect the performance of the Activity during its expected lifetime;
    b. Where the Activity is screened to likely be at risk from one or more of the physical climate risks in Section 2 of this Annex, conduct a CRVA to assess the significance of the physical climate risks on the Activity; and
    c. An assessment and prioritisation of adaptation solutions that can reduce the identified physical climate risk.
2. The CRVA is proportionate to the scale of the Activity and its expected lifespan, such that:

[1] German Environment Agency. How to perform a robust CRVA for EU Taxonomy reporting? Recommendations for Companies. November 2022.

[2] The EU Taxonomy refers to a CRVA as a method for identifying material impacts to the Activity, in line with both chronic and acute climate-related disasters.

a. For Activities with a lifespan of less than 10 years, the assessment is performed, at least by using climate projections at the smallest appropriate scale, which may include extrapolated past trends data; and
b. For all other Activities, the assessment is performed using the highest available resolution, state-of-the art climate projections across the existing range of future scenarios[3] consistent with the expected lifetime of the Activity, including at least, 10-to-30-year climate projections scenarios for major investments.

The climate projections and assessment of impacts are based on best practice and available guidance, issued by international bodies, national or regional authorities, standardisation bodies and other sources of equivalent trustworthiness and consider the state-of-the-art science for vulnerability and risk analysis and related methodologies in line with the most recent Intergovernmental Panel on Climate Change reports,[4] scientific peer-reviewed publications, and open source[5] or paying models.

For existing and new Activities using existing physical assets, physical and non-physical solutions ('adaptation solutions') must be identified, assessed, prioritised. An adaptation plan for the implementation of those solutions is to be drawn up accordingly. This implementation plan must cover a timeframe of up to five years and reduce the most important identified physical climate risks that are material to that Activity.

For new and existing Activities using newly built physical assets, the Activity must integrate adaptation solutions that reduce the most important identified physical climate risks that are material to that Activity at the time of design and construction and implement them before the start of operations.

## 1.3 Terminology and Concepts for a CRVA

The concepts under a CRVA are shown in Table 1.

**Table 1: Concepts under a CRVA[6]**

| Terminology | Context |
|---|---|
| Climate-related hazard | The potential occurrence of natural or human-induced physical events and changes which stem from changes to the climate caused by anthropogenic GHG emissions. Potential climate-related hazards are listed under Table 2 of Section 2 in this Annex. |
| Vulnerability | Encompasses or susceptibility to harm and lack of capacity to cope and adapt. |
| Risk | Under this context, the potential impacts as a result of exposure to hazards and level of vulnerability to specific climate-related hazards. |

[3] Future scenarios include Intergovernmental Panel on Climate Change (IPCC) representative concentration pathways RCP2.6, RCP4.5, RCP6.0, and RCP8.5.
[4] Assessments Reports on Climate Change: Impacts, Adaptation and Vulnerability, published periodically by the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change produces, https://www.ipcc.ch/reports/.
[5] Including, but not necessarily limited to the Copernicus Services managed by the European Commission.
[6] The definitions are adapted and derived from the relevant climate adaptation sections of the IPCC AR6 and ISO 14090f.

| | |
|---|---|
| Physical climate risk | A physical climate risk can occur to any Activity (or system), where the Activity is exposed to and sensitive to a climate-related hazard. For example, "potential flooding damage to buildings or infrastructure." |

## 1.4 Guidance on Conducting a CRVA

In general, there are four main steps that should be included as part of a CRVA:[7]

- **Step 1**: Identify the lifespan of the Activity under assessment, and identify the specific components (i.e., factors, processes, materials, etc., of the Activity) that would require an investigation under a risk assessment.
- **Step 2**: Screening of climate-related hazards from Table 2, Section 2 in this Annex and identify those with most potential risks to the Activity and/or objects under assessment.
- **Step 3**: Conduct the risk assessment. For current potential risks, it is recommended to use past climate trends and climate projections based on these trends. For future potential risks, it is recommended to use a range of climate projections based on future scenarios.
    - For an Activity with a lifespan of less than 10 years may use extrapolated past trends data assessment;
    - For an Activity with a lifespan of more than 10 years, an assessment of both current and future risks based on modelled data is required.
- **Step 4**: Identify adequate and effective adaptation solutions to reduce the risks that are material to the Activity, including:
    - Identifying a range of possible solutions/measures; and
    - Assessing the different solutions for their costs, benefits, effectiveness for reducing or eliminating the risk, the adaptation efforts or the level of resilience.

Adaptation solutions must:

- Not adversely affect physical climate risks of other people, of nature, of cultural heritage, of assets and of other Activities;
- Not result in any form of maladaptation, including solutions which will not achieve the intended objective or may result in unintended side effects;
- Be consistent with local, sectoral, regional or respective ASEAN Member State adaptation strategies and plans; and must consider the use of nature-based solutions[8] to the extent possible.

Proactive consultations on the proposed Activity must be conducted. This ensures that adaptation solutions do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other stakeholders (directly impacted or interested persons). The consultation process should at least:

1. Identify potentially impacted and or interested persons, assets, heritage, etc.; and

[7] Ibid.

[8] Nature-based solutions are defined as 'solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions'. Therefore, nature-based solutions benefit biodiversity and support the delivery of a range of ecosystem

2. Communicate, consult and/or provide for the participation of these persons/institutions ensuring that their concerns, desires, expectations, needs, rights, and opportunities are considered.

In this way, the adaptation solutions will ensure that there are no negative impacts as a result of implementing the Activity.

# 2 CLASSIFICATION OF CLIMATE-RELATED HAZARDS

**Table 2: Potential climate-related hazards to lead to risks and vulnerabilities**

| | Temperature related | Wind related | Water related | Solid mass related |
|---|---|---|---|---|
| Chronic | • Changing temperature (air, freshwater, marine water)<br>• Heat stress<br>• Temperature variability | • Changing wind patterns | • Changing precipitation patterns and types<br>• Precipitation or hydrological variability<br>• Ocean acidification<br>• Saline intrusion<br>• Sea level rise<br>• Water stress | • Coastal erosion<br>• Soil degradation<br>• Soil erosion<br>• Solifluction |
| Acute | • Heat wave<br>• Wildfire | • Cyclone, hurricane, typhoons<br>• Storms (including dust and sandstorms)<br>• Tornadoes | • Drought<br>• Heavy precipitation<br>• Flood (coastal, fluvial, pluvial, ground water) | • Landslide<br>• Subsidence |

# 3 EXAMPLE OF CRVA CHECKLIST

An example of a climate risk and vulnerability assessment is shown in Table 3.

**Table 3: Sample case of a CRVA being conducted on an Activity**

| Item | Proof given | Action |
|---|---|---|
| Step 1: Identify the lifespan of the Activity under assessment, and identify the specific components (i.e., factors, processes, materials, etc., of the Activity) that would require an investigation under a risk assessment. | | |
| If the lifespan of the Activity and/or components are less than 10 years. | For example, the demand for the Activity and/or components are projected to decline significantly in the next decade. | Conduct an assessment using the current IPCC climate scenarios and trends based on extrapolated current climate data. |
| If the lifespan of the Activity and/or components are more than 10 years. | For example, forecasts project that Activity and/or components will not lose demand. | Conduct current and future assessment using both IPCC climate scenarios and trends. |
| Step 2: Screen all climate-related hazards from Table 2 of Section 2 in this Annex and identify those with potential risks to the Activity and/or components under assessment. | | |
| Screen all hazards listed in Table 2 for potential risk against the Activity and/or components under assessment. | Based on the location of the Activity, evaluate most common potential risks. For example; we would not expect avalanches or snowstorms in Southeast Asia. | Matrix assessment using past and current weather patterns and identify most relevant hazards for the Activity under assessment. |
| Identify climate-related hazards with potential risk for assessment. | The climate-related hazards with potential risk is listed down for the risk assessment. | |
| Step 3: Risk assessment. It is recommended to use past climate trends and climate projections based on these trends. For future potential risks beyond 10 years, it is recommended to use a range of climate projections based on future scenarios. | | |
| How do climate-related hazards affect elements of the Activity? Direct impacts may not always occur; some may also be indirect (or impacts in succession). | Climate change impact data and solutions for climate resilience, for climate-related hazards identified in previous steps. Assessment can also use previous data on impacts to Activities from these climate-related hazards. | Use future projected weather patterns if Activity lifespan is determined to be more than 10 years. Flowchart to map the anticipated risks and impacts from each identified climate-risk hazard (example is shown in Figure 1). |
| Step 4: Identify adequate and effective adaptation solutions to reduce the risks that are material to the Activity. | | |
| List adequate and effective adaptation solutions under identified climate-related hazards. Validate identified adaptation solutions through documentation and proof of effectiveness and resiliency for intended Activity to manage changing climates. | - | - |

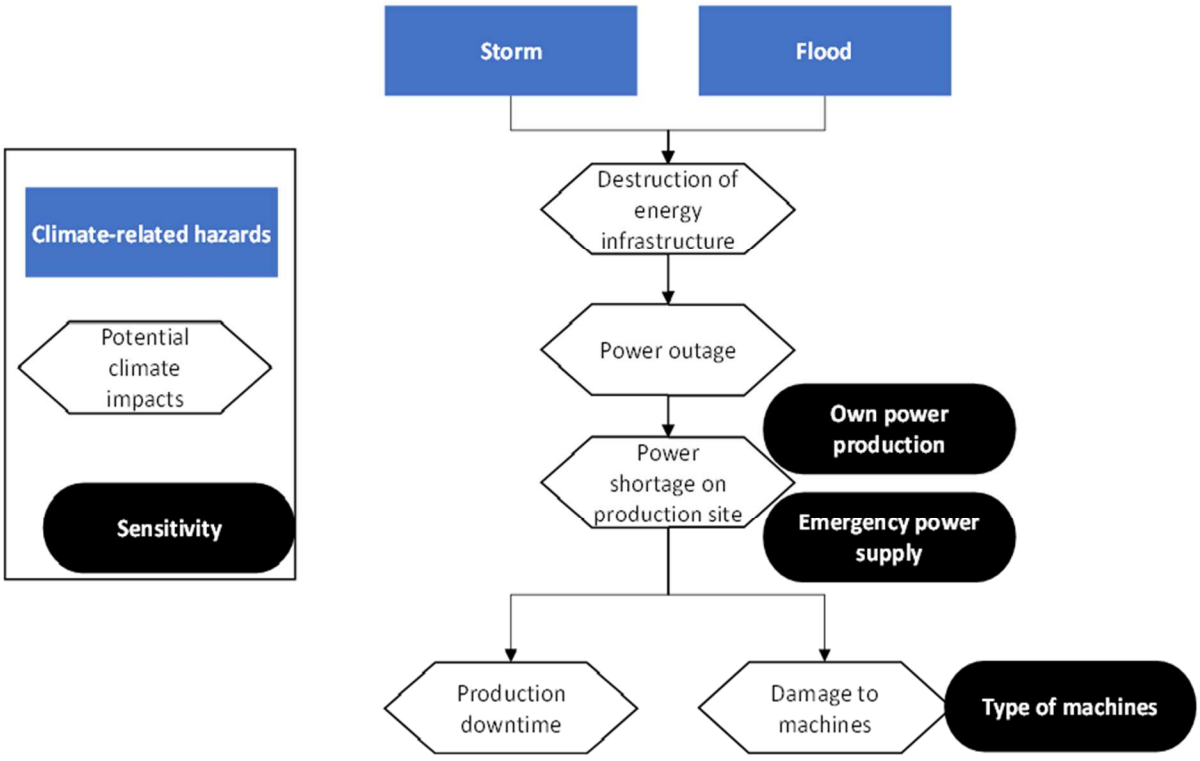


**Figure 1: Example of a flowchart highlighting a climate-related hazard and its impacts.**

ANNEX 4. to the ASEAN Taxonomy for Sustainable Finance Version 2

# AMS Policies pertaining to the ASEAN Taxonomy

27 March 2023

# 1 INTRODUCTION

It is incumbent on the Company to ensure that any proposed Activity to be conducted in ASEAN is aligned with the strategic interests of the AMS in which the Activity takes place, as well as considering any technical, permitting, and other requirements.

This Annex will be progressively updated.

# Regulations pertaining to Social Aspects listed by AMS (not exhaustive)

27 March 2023

## Key Social Aspects

| Social Aspects | Definition |
|---|---|
|  Respect human rights | Promotion of human rights and fundamental freedoms, in line with the ASEAN Human Rights Declaration (AHRD) and the Phnom Penh Statement on the Adoption of the AHRD.[1] |
|  Prevention of forced labour and child labour | Promotion of labour rights and prohibition of forced labour, including but not limited to exploitation, trafficking in persons, violence and abuse, in line with the ASEAN Declaration on the Protection of the Rights of Migrant Workers and the ASEAN Consensus on the Protection and Promotion of Rights of Migrant Workers.[2] [3] |
|  Impact on people living close to investments | Management of investment-related impacts to people (including children) living in at-risk areas by encouraging inclusive and targeted measures to reduce the impact of investments on vulnerable populations and strengthen institutional capacity to address the needs of people affected, in line with the ASEAN Declaration on Strengthening Social Protection.[4] [5] |

[1] ASEAN Human Rights Declaration, https://asean.org/wp-content/uploads/2021/01/6_AHRD_Booklet.pdf
[2] ASEAN Consensus on the Protection of the Rights of Migrant Workers, https://asean.org/wp-content/uploads/2017/11/ASEAN-Consensus-on-the-Protection-and-Promotion-of-the-Rights-of-Migrant-Workers1.pdf
[3] ASEAN Committee on the Implementation of the ASEAN Declaration on the Protection and Promotion of the Rights of Migrant Workers (ACMW), https://asean.org/wp-content/uploads/images/archive/23062.pdf
[4] ASEAN declaration on strengthening social protection, https://www.asean.org/wp-content/uploads/images/archive/23rdASEANSummit/5.%20asean%20declaration%20on%20social%20protection_final.pdf
[5] ASEAN Declaration on Strengthening Social Protection, https://nspc.gov.kh/Images/ASEAN%20Declaration%20on%20Strengthening%20Social%20Protection_2019_10_28_11_59_13.pdf

## Social Regulations by ASEAN Member State (AMS)

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| Brunei | | • Anti-Trafficking in Persons Order, 2019<br>• Trafficking and smuggling of Persons Order, 2004 | • Children and Young Persons Act, 2006<br>• Environmental Protection and Management Order, 2016 |
| Cambodia | • Constitution of the Kingdom of Cambodia<br>• Cambodia Democracy and Human Rights Act | • Law on Suppression of Kidnapping, Trafficking and Exploitation of Human Persons<br>• Cambodian Labour Law 1997, amended 2007<br>• CAMFEBA Plan of Action on the Elimination of Child Labour<br>• National Plan of Action on the Elimination of the Worst Forms of Child Labour (NPA-WFCL) 2008-2012<br>• Prakas No. 002 of 2008 on Categories of Occupation and Light Work Permitted for Children Aged from 12 to 15 (MoSALVY)<br>• Prakas No. 106 of 2004 on the Prohibition of Hazardous Child Labour (MoSALVY)<br>• Prakas No. 305 of 2007 on Work in Sea Fishing (MLVT) | • Constitution of the Kingdom of Cambodia<br>• Law on Environmental Protection and Natural Resource Management 1996<br>• Sub-Decree on Environmental Impact Assessment 1999 |
| Indonesia | **Law** | | |
| | • Constitution of the Republic of Indonesia Year 1945 | • Labour Law (No. 13/2003) Article 74 | • Law on Occupational Safety (No. 1/1970)<br>• Law on Roads (No 38 of 2004) |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | • Law on Human Rights (No. 39/1999)<br>• Law on Disabilities (No. 8/2016)<br>• Law on the Ratification of Convention on The Rights of Persons with Disabilities (No. 19/2011)<br>• Law on Witness and Victim Protection (No. 13/2006)<br>• Law on Protection of Migrant Workers (No. 18/2017)<br>• Law on the Child Criminal Justice System (No. 11/2012)<br>• Law on Social Worker (14/2019)<br>• Law on Crime of Sexual Violence (12/2022)<br>• Law on Employment (No. 13/2003)<br>• Law on the National Social Security System (No. 40/2004)<br>• Law on National Social Security System (No. 40/2004)<br>• Law on Trade Union/Labour Union (No. 21/2000)<br>• Law on Occupational Safety (No. 1/1970) | • Law on the Ratification of ILO Convention on The Prohibition and Immediate Action for Elimination Of The Worst Forms Of Child Labour, 1999 (No. 182) (No. 1/2000)<br>• Ratification of ILO Convention No. 29/1930 concerning Forced Labour Convention<br>• Law on Elimination of Human Trafficking Crimes (Law No. 21/2007)<br>• Law No. 35/2014 on Amendment to Law No. 23/2002 on Child Protection<br>• Law on the Ratification of the ILO Minimum Age Convention No. 138 (No. 20/1999)<br>• Law on the Ratification of the Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organised Crime (No. 14/2009)<br>• Law on the Child Criminal Justice System (No. 11/2012) | • Law on Environmental Protection and Management (No. 32/2009)<br>• Law on Mineral and Coal Mining (No. 3/2020 on Amendment to Law No. 4/2009)<br>• Law No. 21/2001 concerning Special Autonomy for Papua Province as amended by Government Regulation in Lieu of Law No. 1/2008 and Law No. 2/2021 |
| | **Government Regulations** | | |
| | • Government Regulation No. 52/2019 concerning Social | • Government Regulation No. 9/2008 on the Procedure and | |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | Welfare for Persons with Disabilities<br>• Government Regulation No. 70/2019 on Planning, Implementation, and Evaluation of Respect, Protection, and Fulfillment of Rights of Persons with Disabilities<br>• Government Regulation No. 75/2020 concerning Habilitation and Rehabilitation Services for Persons with Disabilities<br>• Government Regulation No. 39/2020 on Adequate Accommodation for Persons with Disabilities in the Judicial Process<br>• Government Regulation No. 43/ 2017 on the Implementation of Restitution for Child Victim of Criminal Act | Mechanism of Integrated Services for Witnesses and/or Victims of Human Trafficking<br>• Government Regulation No. 78/2021 on Special Protection for Children<br>• Government Regulation No. 52/2019 on Social Welfare for Persons with Disabilities | |
| | **Presidential Regulations** | | |
| | • Ratification of international treaties regulated by Presidential Regulation No. 1/2020 on The Marrakesh Treaty to Facilitate Access to Published Works for Persons Who Are Blind, Visually | • Presidential Regulation No. 101/2022 on the 2021 - 2025 National Action Plan for Human Rights<br>• Presidential Regulation No. 25/2021 on Child Friendly Regency/City Policies | |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | Impaired, or Otherwise Print Disabled<br>• Presidential Regulation No. 67/2020 on Terms and Procedures for Giving Awards in Respect, Protection and Fulfilment of the Rights of Persons with Disabilities<br>• Presidential Regulation No. 25/2021 on Child Friendly Regency/City Policies<br>• Presidential Regulation No. 22/2021 on Amendment to Presidential Regulation No. 69/2008 on the Task Force for the Prevention and Control of Human Trafficking | | |
| | **Presidential Decree** | | |
| | • Presidential Decree No. 36/1990 on Ratification of the Convention on the Rights of the Child<br>• Presidential Decree No. 53/2021 concerning the 2021 - 2025 National Action Plan for Human Rights | • Presidential Decree No. 59/2002 on the National Action Plan for the Elimination of the Worst Forms of Child Labour<br>• Presidential Decree on the National Action Plan for the Elimination of the Worst Forms of Child Labour (No. 59/2002) & (No. 12/2001) | |
| | **Ministerial Regulations** | | |
| | • Minister of Social Affairs Regulation No. 102/2007 on the Establishment and | • Minister of Manpower and Transmigration Decree No. Kep.235/MEN/2003 concerning | • Minister of Environment Decree No. 17/2012 on Guidelines for Community |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | Implementation of Services at Home Protection and Trauma Center (RPTC)<br>• Minister of Social Affairs Regulation No. 30/2017 concerning the repatriation of Migrant Nationals of Human Trafficking from Malaysia to their Regions of Origin<br>• Minister of Social Affairs Regulation No. 26/2018 on Social Rehabilitation and Social Reintegration for Children in Conflict with the Law<br>• Minister of Social Affairs Regulation No. 4/2020 on Social Rehabilitation for Neglected Children | Jobs that Jeopardise the Health, Safety and Morals of Children<br>• Minister of Home Affairs and Regional Autonomy Decree on Control of Child Workers (No. 5 of 2001)<br>• Minister of Manpower and Transmigration Decree No. KEP.115/MEN/VII/2004 on Protection of Children undertaking jobs to develop talent and interest<br>• Minister of Manpower and Transmigration Decree No. 7/2012, The Realization of Activities for the Reduction of Child Labour to Support Hopeful Family Program of 2012<br>• Minister of Social Affairs Regulation No. 13/2015 on Social Services for Children with Disabilities | Involvement in the Process of Impact Assessment and Environmental Permit<br>• Minister of Environment and Forestry Regulation No. P.70/MENLHK/SETJEN/KUM. 1/12/2017 concerning Procedures for Reducing Emissions from Deforestation and Forest Degradation, Role of Conservation, Sustainable Management of Forest and Enhancement of Forest Carbon Stocks<br>• Minister of Environment and Forestry Regulation No. 2/2021 concerning Assignment of Part of Government Affairs in Environment and Forestry to 7 (Seven) Governors for Peat Restoration Activities for Fiscal Year 2021<br>• Minister of Agriculture Regulation No. 38/2020 on Certification of Sustainable Indonesian Palm Oil Plantations<br>• Regulation of the Minister of Agrarian Affairs and Spatial Planning/National Land Agency Number 7 of 2017 concerning Regulations and |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | | | Procedures for Establishing Business Rights |
| | **Local Government Regulations** | | |
| | | | • Central Sulawesi Governor Regulation No. 37/2012 concerning General Guidelines for the Implementation of Free, Prior and Informed Consent on Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) in Central Sulawesi<br>• East Kalimantan Governor Regulation No. 43/2021 concerning Management of Areas with High Conservation Value in Plantation Areas |
| Lao PDR | • Constitution of the Lao People's Democratic Republic | • Anti-Trafficking Law, 2015 (No. 73 of 2015) | • Law on the Protection of the Rights and Interests of Children<br>• Resistance and Prevention of Violence Against Women and Children Law, 2014 (Law No. 56/NA of 2014)<br>• Decree No 192/PM on Compensation and Resettlement of People Affected by Development Projects<br>• Decree 112/PM on Environmental Impact Assessment |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| Malaysia | • Federal Constitution of Malaysia | • Anti-Trafficking in Persons (Amendment) Act 2010. [P.U.(B) 500/2010]<br>• Anti-Trafficking in Persons and Anti-Smuggling of Migrants Act 2007 [Act 670]<br>• Children And Young Persons (Employment) Act 1966<br>• National Action Plan on Forced Labour | • Child Act<br>• Sexual Offences Against Children Act 2017 [Act 792]<br>• Environmental Quality Act, 1974<br>• Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015<br>• Town and Country Planning Act, 1976<br>• Town and Country Planning (Amendment) Act, 2017 |
| Myanmar | • Constitution of the Republic of the Union of Myanmar | • Order supplementing Order No. 1/1999 | • Law on the Rights of the Child, 2019 (Pyidaungsu Hluttaw Law No. 22/2019) the 7th Waning Day of Waso, 1381 ME (23rd July 2019)<br>• Maternity and Child Care Law (Pyidaungsu Hluttaw Law No 34 of 2018)<br>• The Child Law (Law No. 9/93)<br>• Environmental Conservation Law |
| Philippines | • Constitution of the Philippines | • Expanded Anti-Trafficking in Persons Act of 2012 (R.A. No. 10364)<br>• Anti-Trafficking of Persons Act, 2003 (R.A. No. 9208)<br>• Department Order No. 149-A of 2017 amending the Guidelines on Assessing and | • Child and Youth Welfare Code<br>• Special Protection of Children Against Child Abuse, Exploitation and Discrimination Amendment Act (R.A No. 9231)<br>• Executive Order No. 310 authorising the adoption and |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | | Determining Hazardous Work in the Employment of Persons Below the Age of 18 Years<br>• Department Order No. 149 of 2016 on the Guidelines on Assessing and Determining Hazardous Work in the Employment of Persons Below the Age of 18 Years<br>• Expanded Anti-Trafficking in Persons Act of 2012 (R.A. No. 10364)<br>• Special Program for Employment of Students (R.A. 9547)<br>• Rules and Regulations implementing Republic Act No. 9231, Amending R.A. 7610, as amended (Department Order 65-04)<br>• Department Order No. 04 on hazardous work and activities to persons below 18 years of age<br>• Department Order No. 18 of 12 May 1994 on Rules and Regulations implementing Republic Act No. 7658<br>• Act prohibiting the employment of children below 15 years of age in public and private undertakings, amending for this purpose Section 12, Article | implementation of the Philippine National Strategic Framework for plan development for children, 2000-2025<br>• Proclamation No. 855 proclaiming the adoption and implementation of the Philippine Program of Action for Children in the 1990s<br>• Department of Natural Resources and Environment Administrative Order No. 30 Series of 2003<br>• Indigenous Peoples' Rights Act 1997 |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | | VIII of R.A. 7610 (R.A. No. 7658)<br>• Rules implementing Republic Act No. 6727 (Wage Rationalization Act)<br>• List of Hazardous Occupations to Young Workers, 1973 (Department Order No. 4)<br>• Department Order No. 5. Rules XIV of the Rules Implementing Book III of the Labour Code on Employment of Homeworkers, 1992 | |
| Singapore[6] | • Constitution of the Republic of Singapore | • Children and Young Persons Act 1993<br>• Employment Act 1968<br>• Prevention of Human Trafficking Act 2014<br>• The Penal Code<br>• Vulnerable Adults Act 2018<br>• Women's Charter 1961 | • Children and Young Persons Act 1993<br>• Environmental Protection and Management Act 1999<br>• Planning Act 1998 |
| Thailand | • Constitution of the Kingdom of Thailand | • Prevention and Suppression of Human Trafficking (2008, amended 2015)<br>• Prevention and Suppression of White Slavery Act<br>• Measures in the Prevention and Suppression of Trafficking in Women and Children Act B.E. 2540 (1997) | • Child Protection Act<br>• Act Relating to the National Child and Youth Development Promotion B.E. 2550 [2007]<br>• Enhancement and Conservation of National Environmental Quality Act (No. 2) B.E. 2561 |

[6] References to Singapore Acts include any subsidiary legislation made under the Act

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | | • Ministerial Regulation No. 6 issued under the Labour Protection Act<br>• Notification of the Ministry of Interior Regarding Description of Work and Working Place for Young Persons<br>• Notification of the Ministry of Interior Regarding Labour Protection (No. 12)<br>• Announcement of the Ministry of the Interior respecting the employment of children of 12 and under 15 years of age<br>• Homeworkers Protection Act B.E. 2553 | |
| Vietnam | • Constitution of the Socialist Republic of Vietnam | • Circular No. 35/2013/TT-BLDTBXH providing guidelines for the implementation of Decree No. 09/2013/ND-CP of January 11, 2013, detailing a number of articles of the Anti-Trafficking Law<br>• Decree No. 09/2013/ND-CP of January 11, 2013, detailing a number of articles of the Anti-Trafficking Law<br>• Decision No. 1427/QD-TTg approving the Program of Action to prevent and combat human trafficking crimes during 2011-2015 | • Law on Children (Law No. No. 102/2016/QH13)<br>• Decree No. 91/2011/ND-CP regulating the sanction of administrative violation on protection, care for and education of children<br>• Decree No.114/2006/ND-CP defining the sanction of administrative violations on population and children<br>• Youth Law (Law No. 53/2005/GH11)<br>• Instructions of the Prime Minister to implement the Law on Child Protection |

| AMS | Respect human rights | Prevention of forced and child labour | Impact on people living close to investments |
|---|---|---|---|
| | | • Law on the Prevention of and Combat against Human Trafficking (No. 66/2011/QH12)<br>• Circular No. 11/2013/TT-BLDTBXH promulgating the list of light tasks permitted for persons under 15 years old<br>• Circular No. 10/2013/TT-BLDTBXH promulgating the list of jobs and workplaces prohibited to young workers<br>• Decision No. 19/2004/QD-TTg ratifying the 2004-2010 program on prevention of, and solution to, the situation of street children, sexually abused children and children subjected to heavy labour or working under noxious and hazardous conditions<br>• Directive on the strengthening of the task of protecting children, preventing and tackling the problem of street children and child labour abuse (No. 6/1998/CT-TTg) | • Law on Environmental Protection<br>• Decree No. 18/2015 |

# Laws established by AMS on environmental protection and efficient use of natural resources (not exhaustive)

27 March 2023

## Brunei

Environmental policy directions and strategies are included in the Brunei Five Year National Development Plans (NDP), where the Government has continued to address the need to protect and conserve the country's environment from pollution and excessive exploitation of natural resources and maintain the country's biodiversity heritage. Further on, the country has embraced sustainable development as central to socio-economic development.

1. Environmental Protection and Management Order 2016
2. Hazardous Waste (Control of Export, Import and Transit) Order 2013
3. Brunei Darussalam Fishery Limits Act Cap 130
4. Disaster Management Order, 2006
5. Fisheries Order, 2009
6. Forest Act Cap 46
7. Plant Varieties Protection Order, 2015
8. Prevention of Pollution of the Sea Order, 2005
9. Wild Flora and Fauna Order 2007
10. Wildlife Protection Act Cap 102
11. Water Supply Act

## Cambodia

Cambodia's environmental laws generally revolve on providing regulations and policy impositions on protecting and conserving biodiversity. The Royal Decree on the establishment of Natural Protected Areas was promulgated in 1993 designating 23 protected areas covering around 18 percent of the country's total land area. In 1996, Law on Environmental Protection and Natural Resource Management was passed providing policy guidelines in assessing all projects that potentially impacts the environment and encourages public participation in environmental activities. Towards the new millennium, laws on forestry, water resources management including fisheries, mineral resources, protected areas, and animal health and production provide comprehensive policy on the management and conservation of natural resources for its sustainability. As response to the impact of climate change, in 2015, Law on Disaster Management lays down important principles in the mitigation, adaptation, and immediate response to natural or man-made causes.

1. Law on Environmental Protection and Natural Resource Management 1996
2. Royal Decree on Establishment of Natural Protected Areas 1993
3. Law on Mineral Resource Management and Exploitation 2001

4. Law on Forestry 2002
5. Law on Water Resources Management of the Kingdom of Cambodia 2007
6. Law on Fisheries 2007
7. Law on Protected Area 2008
8. Law on the Management of Pesticides and Fertilizers
9. Law on Disaster Management 2015
10. Law on Animal Health and Animal Production 2016

## Indonesia

The primal source of authority for State control over the natural environment stems from the 1945 Constitution which states that land and water and the natural resources shall be controlled by the State and be utilized for the greatest welfare of the people. Indonesia's laws and regulations allocate natural resources access, control and use, establish the mechanism of management and articulate principles and norms of the State pertaining the natural resources and environment.

1. Law on Disaster Management, no. 24 of 2007, dated 26 April 2007
2. Law on Forestry, No. 41 of 1999, dated 30 September 1999
3. Law Environmental Protection and Management, No. 32 of 2009, dated 3 October 2009
4. Law on Water Resources, No. 17 of 2019, dated 16 October 2019
5. Law on Fisheries, Amendments to Law Number 31 of 2004, No. 45 of 2009, dated 29 October 2009
6. Law on Geothermal Management No. 21 of 2014; dated 17 September 2014
7. Law on Livestock and Animal Health No. 18 of 2009; dated 4 June 2009
8. Law on Mineral and Coal Mining, Number 3 of 2020 Concerning Amendment to Law Number 4 of 2009, dated 10 June 2020
9. Law on Energy, no 30 of 2007, dated August 10, 2007
10. Government Regulation Number 46 of 2017 Environmental Economic Instruments, dated 10 November 2017
11. Government Regulation on Environmental Impact Analysis, No.27/1999, 7 May 1999
12. Government Regulation Number 12 Year 2021 Concerning Amendment to Government Regulation Number 14 Year 2016 Concerning Implementation of Housing and Settlement Area, dated 2 February 2021

13. Regulation of the Minister of Energy and Mineral Resources Number 5 of 2021 concerning Standards for Business Activities and Products in the Implementation of Risk-Based Business Licensing in the Energy and Mineral Resources Sector, dated 1 April 2021
14. Regulation of the Minister of Energy and Mineral Resources Number 22 of 2019 concerning Guidelines for the Implementation of Greenhouse Gas Investment and Mitigation in the Energy Sector, dated 19 November 2019
15. Presidential Regulation Number 83 of 2018 concerning Marine Debris Management (National Plan of Action on Marine Plastic Debris), dated 21 September 2018
16. Regulation of the Minister of Environment and Forestry Number 75 of 2019 concerning Roadmap to Waste Reduction by Producers, dated 5 December 2019
17. Presidential Regulation Number 55 of 2019 concerning the Acceleration of the Battery Electric Vehicle Program for Road Transportation, dated 8 August 2019.
18. Regulation of the Minister of Environment and Forestry Number 21 of 2022 concerning the Implementation of Carbon Economic Value, dated 21 September 2022.
19. Presidential Regulation Number 98 of 2021 concerning Implementation of Carbon Economic Values for Achieving Nationally Determined Contribution Targets and Control of Greenhouse Gas Emissions in National Development, dated 29 October 2021, which also regulates carbon market.
20. Law Number 7 of 2021 concerning the Harmonization of Tax Regulations (UU HPP), which also regulates carbon tax policy (not yet implemented)[1].
21. Presidential Regulation Number 112 of 2022 Concerning the Acceleration of Renewable Energy Development for Power Supply, dated 13 September 2022.

## Lao PDR

Lao PDR's environmental regulations are greatly anchored on its Law on Environmental Protection, which defines principles, regulations and measures related to environmental management, monitoring of protection, control, preservation and rehabilitation. It also aims to provide balance between social and natural environment, to sustain and to protect natural resources and public health.

1. Decree on The Environmental Impact Assessment
2. Law on Environmental Protection, revised version
3. Decision on environmental risk rating of manufacturing industry
4. Decision on the Pollution Control No. 1687/MONRE

[1] For additional information, its implementation was postponed considering the global and domestic economic situation.

## Malaysia

Malaysia has been rigorous in introducing laws and regulations concerning protection of the environment and natural resources, both at the State and Federal Government levels. Coordinating mechanisms between State and Federal governments are established through councils and committees to consider particular issues, policy formulation and legislative changes. In the development of environmental laws and regulations, the Malaysian government takes into consideration several international environmental principles as well as English common law principles.

1. Environmental Quality Act 1974
2. Wildlife Conservation Act 2010
3. Protection of Wildlife Act 1972
4. Fisheries Act 1985
5. National Forestry Act 1984
6. National Parks Act 1980
7. Town and Country Planning Act 1976
8. Land Conservation Act 1960
9. National Land Code 1965
10. Local Government Act No. 171 of 1976
11. Sarawak National Resources and Environment Ordinance 1997
12. Sarawak Biodiversity Ordinance 1998
13. Sabah Biodiversity Enactment 2001
14. Public Cleansing Management Act 2007
15. Atomic Energy Licensing Act 1984
16. Biosafety Act 2007
17. Drainage Works Act 1954
18. International Trade In Endangered Species Act 2008
19. Irrigation Areas Act 1953
20. Merchant Shipping Ordinance 1952
21. Merchant Shipping (Oil Pollution) Act 1994
22. Plant Quarantine Act 1976
23. Pesticides Act 1974

24. Sewerage Services Act 1993
25. Town and Country Planning Act 1976
26. Waters Act 1920 (Revised 1989)
27. Water Services Industries Act 2006
28. Sabah Pearl Oyster Shell Fishery Ordinance Cap.95 1962
29. Sabah Parks Enactment 1984
30. Sabah Animal Ordinance 1962
31. Sabah Drainage and Irrigation Ordinance 1956
32. Sabah Environment Protection Enactment 2002
33. Sabah Forest Enactment 1968
34. Sabah Mining Ordinance 1960
35. Sabah Wildlife Conservation Enactment 1997
36. Sarawak Forest Ordinance 1954
37. Sarawak Wild Life Protection Ordinance 1998
38. Turtles Enactment (Terengganu) 1951
39. River Terrapin Enactment (Kedah) 1972

## Myanmar

Myanmar's environmental laws focus on the establishment of national and institutional committees as well as policy frameworks in preparation for the implementation of conservation and protection efforts towards uplifting the country's environmental integrity. The Environmental Conservation Law was passed to provide fundamental principles and pathways for systemic integration of relevant actions towards sustainable development. As a result, the Environmental Conservation Rule was enacted creating an environmental conservation committee to prepare and develop key policies relating environmental conservation to different sectors. In 2019, National Environmental Policy of Myanmar and Myanmar Climate Change Policy was pushed into law aiming to widen the scope in environmental conservation not only on resources but also in the future impacts of human activities as well as mitigating and responding to the impacts of climate change.

1. Environmental Conservation Law (2012)
2. Environmental Conservation Rule (2014)
3. National Environmental Policy of Myanmar (2019)
4. Myanmar Climate Change Policy (2019)

## Philippines

The Philippines is considered as one of the forerunners in the region in terms introducing laws on environmental protection, with the concept of sustainable development already institutionalized as a policy even before the said term was internationally recognized. Managing the environment and natural resources by the Philippine government is enshrined in the 1987 Constitution, which expressly recognizes the right of the people "to a balanced and healthful ecology in accord with the rhythm and harmony of the nature." Environment and natural resources laws and regulations are geared threefold: environmental protection, economic development and poverty alleviation, and the promotion of social justice and equity.

1. Presidential Decree No. 1152 - Philippine Environment Code.
2. Republic Act 9275 Philippine Clean Water Act of 2004.
3. Republic Act 8749 Philippine Clean Air Act of 1999.
4. Republic Act No. 11038 – Enhanced National Integrated Protected Areas System Act.
5. Republic Act No. 9147 - Wildlife Resources Conservation and Protection Act.
6. Republic Act 9003 Ecological Solid Waste Management Act of 2000.
7. Republic Act 6969 Toxic Substances, Hazardous and Nuclear Waste Control Act of 1990.
8. Presidential Decree 1586 Environmental Impact Statement (EIS) Statement of 1978.
9. Presidential Decree No. 705 – Revised Forestry Code.
10. Republic Act No. 7942 - Philippine Mining Act of 1995.
11. Presidential Decree No. 1899 - Small-Scale Mining Law.
12. Republic Act No. 4003 - The Fisheries Act.
13. Republic Act No. 9175 – Chain Saw Act of 2002
14. Republic Act No. 9168 – Philippine Plant Variety Protection Act of 2002
15. Republic Act No. 9072 – National Caves and Cave Resources Management and Protection Act
16. Republic Act No. 8550 – Philippine Fisheries Code of 1998
17. Republic Act No. 8435 – Agriculture and Fisheries Modernization Act of 1997
18. Republic Act No. 8048 – Coconut Preservation Act of 1995
19. Republic Act No. 7900 – High Value Crops Development Act of 1995
20. Republic Act No. 7308 – Seed Industry Development Act of 1992

## Singapore

Singapore's environmental laws are diverse from institutional, resource utilization, public welfare and biodiversity. Laws such as the Resource Sustainability Act, Hazardous Waste Act, Radiation Protection Act (as amended), Sewerage and Drainage Act, Public Utilities Act, Energy Conservation Act, and Deep Seabed Mining Act, among others, impose and regulate resouce-use and keeping environmental infrastructures as part of their economic agenda. Moreover, the country has developed sound economic and land-use planning policies that guarantees the protection of green places for conservation. There are also laws focused on public and commercial spaces to ensure protection of human ecology from chemicals, haze and the harmful effects of smoking. The references to the Singapore Acts here include any subsidiary legislation made under those Acts.

1. Animals and Birds Act 1965
2. Building Control Act 1989
3. Carbon Pricing Act 2018
4. Control of Plants Act 1993
5. Control of Vectors and Pesticides Act 1998.
6. Deep Seabed Mining Act 2015.
7. Endangered Species (Import and Export) Act 2006
8. Energy Conservation Act 2012
9. Environmental Protection and Management Act 1999
10. Environmental Public Health Act 1987
11. Fisheries Act 1966
12. Hazardous Waste (Control of Export, Import and Transit) Act 1997
13. Merchant Shipping (Civil Liability and Compensation for Oil Pollution) Act 1998
14. National Environment Agency Act 2002
15. National Parks Board Act 1996
16. Parks and Trees Act 2005
17. Plant Varieties Protection Act 2004.
18. Prevention of Pollution of the Sea Act 1990
19. Public Utilities Act 2001.
20. Radiation Protection Act 2007

21. Resource Sustainability Act 2019
22. Road Traffic Act 1961
23. Sewerage and Drainage Act 1999
24. Smoking (Prohibition in Certain Places) Act 1992
25. Transboundary Haze Pollution Act 2014
26. Wildlife Act 1965
27. Workplace Safety and Health Act 2006.

## Thailand

Environmental laws in Thailand have been in place to provide for the establishment of protected areas such as national parks and forest reservations; resource-use regulation and prohibitions such as, but not limited to those related to fisheries, forest resources, mineral resources and hazardous substances; and biodiversity conservation, given the diverse and rare species of flora and fauna of the country. These laws have greatly contributed to the attainment of the nation's vision to sustain its resources and potentially preserve them for future generations.

1. Enhancement and Conservation of National Environmental Quality Act, (No.2) B.E. 2561 (2018)
2. National Park Act, B.E. 2504 (1961)
3. Provincial Waterworks Authority Act B.E. 2522 (1979)
4. Fisheries Act B.E. 2490 (1947)
5. Factory Act B.E. 2535 (1992)
6. Public Health Act B.E. 2535 (1992)
7. Hazardous Substance Act, B.E. 2535 (1992)
8. Wild Animal Reservation and Protection Act, B.E. 2535 (1992)
9. Wild Elephant Protection Act, B.E. 2464 (1921)
10. Elephant Ivory Act, B.E. 2558 (2015)
11. National Reserved Forest Act, B.E. 2507 (1964)
12. Forest Plantation Act, B.E. 2535 (1992)
13. Chain Saws Act, B.E. 2545 (2002)
14. Emergency Decree on Control and Operation Gold Mining, B.E. 2483 (1940)
15. Land Excavation and Land Filling Act B.E.2543 (2000)

16. Tin Control Act B.E. 2514 (1971)
17. Fossil Protection Act, B.E. 2551 (2008)
18. Act on Offences Relating to Offshore Petroleum Production Places, B.E. 2530 (1987)
19. Mines Act B.E.2510 (1967)
20. Minerals Act, B.E. 2560 (2017)
21. Arrest of Ship Act B.E.2534 (1991)

## Viet Nam

Environmental laws of Vietnam provide comprehensive and institutional implementation of national policies on the management and utilization of natural resources. For example, the Law on Water Resources and Law of the Sea was passed in 2012 to ensure transboundary operations on maritime disputes as well as internal use of water resources. Similarly, for inland water usage, a legal framework was created for the investigation/exploration, usage, management, and maximization of freshwater resources for agricultural purposes. Meanwhile, laws have been also passed on disaster management and energy conservation to impose national to local-level prevention and responsive measures on the effects of climate change. Just recently, the Environmental Protection Law communicates principles, rights, and obligations of the public towards involvement in environmental-related activities.

1. Law on Environmental Protection 2020 (Chapter II)
2. Law on Biodiversity 2008
3. Law on Energy Efficiency and Conservation 2010
4. Law on Water Resources 2012
5. Law of the Sea 2012
6. Law on Natural Disaster Prevention and Preparedness 2013
7. Law on Irrigation 2017
8. Decree Detailing a Number of Articles of the Law on Environmental Protection 2022
9. Circular Detailing the Implementation of the Law on Environmental Protection in Response to Climate Change 2022
10. Law on Reducing Greenhouse Gas Emissions and Protecting the Ozone Layer 2022
11. Law on Preliminary Environmental Impact Assessment 2022
12. Decision by the Prime Minister on Forecasting, Warning, Transmitting Information on Disaster and Disaster Risk Levels 2022