

# Annexure 2: ZGFT Sectoral Technical Screening Criteria Annexures

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# 1. Catalogue of Sectors and Activities

Priority Sector 1: Agriculture			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Crops	Climate mitigation and climate adaptation	ISIC 01 and sub-codes	Annexure 1
Fisheries	Climate mitigation and climate adaptation	ISIC 01 and sub-codes	Annexure 1
Livestock	Climate mitigation and climate adaptation	ISIC 03 and sub-codes	Annexure 1

Priority Sector 2: Energy and Energy Efficiency

Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Renewable Energy: Solar PV, Solar CSP and Wind	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2
Renewable Energy: Hydropower	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2
Renewable Energy: Geothermal	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2
Renewable Energy: Bioenergy	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2
Renewable Energy: Nuclear	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2
Energy Efficiency	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 2

Priority Sector 3: Forestry			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Forestry, Afforestation and Reforestation	Climate mitigation and climate adaptation	ISIC 02	Annexure 3
Agroforestry	Climate mitigation and climate adaptation	ISIC 02 and sub-codes	Annexure 3
Apiculture	Climate mitigation and climate adaptation	ISIC 01 and ISIC 02	Annexure 3

Priority Sector 4: Mining			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Large-scale mining	Climate mitigation and climate adaptation	ISIC 05 – 09 and subcodes	Annexure 4
Artisanal and small-scale mining	Climate mitigation and climate adaptation	ISIC 05 – 09 and subcodes	Annexure 4

Priority Sector 5: Tourism			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Wildlife and Conservation Tourism	Climate mitigation and climate adaptation	Crosscutting	Annexure 5

Priority Sector 6: Transport			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Aviation	Climate mitigation and climate adaptation	ISIC 51 and subcodes	Annexure 6
Maritime and Inland Waterways	Climate mitigation and climate adaptation	ISIC 50 and subcodes	Annexure 6
Railway	Climate mitigation and climate adaptation	ISIC 49 and subcodes	Annexure 6
Road	Climate mitigation and climate adaptation	ISIC 49 and subcodes	Annexure 6

Priority Sector 7: Circular Economy			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
General Waste Management	Climate mitigation and climate adaptation	ISIC 36 - 39	Annexure 7
Waste to Energy	Climate mitigation and climate adaptation	ISIC 35 and sub-codes	Annexure 7

Priority Sector 8: Water Management			
Eligible Economic Activity	Substantial contribution to environmental objectives	ISIC Code	Technical Screening Criteria
Wastewater Management and Treatment	Climate mitigation, climate adaptation	ISIC 36 - 39	Annexure 8
Water supply, distribution and storage and flood management	Climate mitigation, climate adaptation	ISIC 36 - 39	Annexure 8
Water saving infrastructure and technologies	Climate mitigation, climate adaptation	ISIC 36 - 39	Annexure 8

## 2. Technical Screening Criteria Annexures

The TSC annexures outline the eligible economic activities by sector and sub-sector. Under the sector and sub-sector categories, principles, metrics, and thresholds are provided. This can be described as the MSCC. At present, MSCC is limited to climate change mitigation and climate change adaptation environmental objectives. Given the importance of biodiversity to the Zambian economy, the ZGFT has provided specific guidance under the Biodiversity, Ecosystem Protection and Restoration DNSH criteria, where possible. If specific DNSH criteria are not applicable, users are directed to generic DNSH criteria. TSC annexures by sector are as follows:

- Annexure 1: Agriculture
- Annexure 2: Energy and Energy Efficiency
- Annexure 3: Forestry
- Annexure 4: Mining
- Annexure 5: Tourism
- Annexure 6: Transportation
- Annexure 7: Waste
- Annexure 8: Water

## Annexure 1: Agriculture

<b>Sector: Agriculture</b>
<b>Sub-sector: Crops</b>
<b>Economic Activities</b>
I. Land use management in crop production
<ul style="list-style-type: none"> <li>• Protection of non-agricultural land with high carbon stock from land use change.</li> <li>• Technology and practices that enhance the biodiversity of the farming landscape including conservation, diversification and enrichment.</li> <li>• Sustainable land management technologies and practices, including conservation tillage, cover cropping, and crop rotation.</li> </ul>
II. Soil management in crop production
<ul style="list-style-type: none"> <li>• Sustainable agriculture: Matching the supply of soil nutrients with nutrient demands of crop, fodder and pasture plants for example through optimising return of crop residues and animal wastes to the land and through greater reliance on biologically fixed and recycled nutrients instead of fertiliser inputs.</li> <li>• Sustainable agriculture: Maintaining soil physical properties conducive to plant growth and to soil ecosystem functioning through decreasing or maintaining low frequency and intensity of tillage and reducing erosion and leaching.</li> <li>• Organic farming practices: Maintaining soil fertility and plant health through crop rotation, the cultivation of nitrogen fixing plants and other green manure crops to restore the fertility of the soil, the prohibition of use of mineral nitrogen fertilisers.</li> <li>• Climate-smart agriculture: Crop associations and rotations designed for specific adaptation goals use cover crops to partially or entirely replace mineral fertilizer inputs, and/or mechanical soil tillage.</li> <li>• Climate-smart agriculture: Implementing soil conservation techniques (e.g. soil mulching).</li> <li>• Conservation / Climate-smart agriculture: Minimizing mechanical soil disturbance.</li> <li>• Conservation agriculture: Organic coverage of (fallow) soil.</li> <li>• Low-emission crop management: Management of soil for net carbon sequestration for example through reduced tillage, avoidance of erosion, increase in above-ground biomass (i.e. cover crops) and residue retention.</li> </ul>
III. Nutrient management in crop production
<ul style="list-style-type: none"> <li>• Climate-smart agriculture: Increasing efficiency in fertilizer use through site-specific nutrient management practices that optimise the use of existing soil nutrients while filling deficits with mineral fertilizers.</li> <li>• Low-emission crop management: nutrient management plan which considers source, timing, rate, and placement of fertilizer.</li> <li>• Promotion of agroforestry to enhance soil fertility and the prevention of soil erosion.</li> </ul>
IV. Crop Seeds
<ul style="list-style-type: none"> <li>• Organic farming practices: choosing resistant varieties and breeds and techniques encouraging natural pest control.</li> </ul>

<ul style="list-style-type: none"> <li>• Climate-smart agriculture: Using quality seeds and planting materials, including rootstock and scion combinations, of well-adapted varieties.</li> <li>• Climate-smart agriculture: Choosing crop species and varieties adapted to the prevalent or expected impacts of climate change for the given region and farming system.</li> <li>• Climate-smart agriculture: Promoting intra- and inter-specific diversity over space (e.g. intercropping, using crop variety mixtures) and/or time (e.g. crop rotations).</li> <li>• Climate-smart agriculture: Selecting species capable of resisting specific extreme weather conditions (e.g. root and tuber crops in cyclone-prone areas) or species with short growing cycles from seed to yield.</li> <li>• Conservation agriculture: Species diversification through the design and implementation of crop rotations.</li> <li>• Conservation agriculture: Species diversification through the use of appropriate / improved seeds.</li> <li>• Promotion of conservation and management of indigenous seeds / crop varieties.</li> </ul>
V. Crop pest control and protection
<ul style="list-style-type: none"> <li>• Sustainable agriculture: Maintaining acceptable pest tolerance levels through reliance on crop rotations and biocontrol agents and hence reducing or maintaining low pesticide use.</li> <li>• Climate-smart agriculture: Protecting crops with, for example, mulch of different materials and colours, for controlling weeds and reducing evapotranspiration; nets, for bird control, insect proofing, hail protection and shading; floating mulch for protection against late frost and insects; greenhouses of different types, sizes, and different covering materials.</li> </ul>
VI. Water management in crop production
<ul style="list-style-type: none"> <li>• Climate-smart agriculture: Agronomic management decisions and practices such as selecting crop varieties that are drought tolerant and/or have a higher water productivity (i.e. that deliver more yield per Liter of water); adjusting cropping calendars; encouraging deeper rooting of crops; using conservation agriculture for higher water retention; and mulching.</li> <li>• Climate-smart agriculture: Implementing water conservation techniques (e.g. shading, rainwater harvesting, using fences or windbreaks to reduce evaporation).</li> <li>• Climate-smart agriculture: Increasing the efficiency of irrigation (e.g. through deficit irrigation, precise water applications, high-efficiency pumps), reducing water losses and improving water allocation and the management of water demand.</li> </ul>
VII. Energy management in crop production (please see energy sector for more relevant details)
<ul style="list-style-type: none"> <li>• Low-emission crop management: Use of renewable energy resources.</li> <li>• Low-emission crop management: Energy-efficiency for example energy efficient traction, irrigation, and storage.</li> <li>• Climate-smart agriculture: use of sustainable renewable energy sources.</li> <li>• Use of energy efficient machinery and technology.</li> </ul>
VIII. Agri-Business, Agri-Processing and Value Chain Development
<ul style="list-style-type: none"> <li>• Seed Production and Supply: Developing, producing, and distributing high-quality seeds and seedlings for various crops to improve yield and resilience.</li> <li>• Crop Cultivation: Growing and harvesting various crops, including grains, vegetables, fruits, and legumes, to supply raw agricultural products.</li> </ul>

- Irrigation and Water Management: Implementing and managing efficient irrigation systems and water conservation practices to ensure optimal water use for crop production.
- Pest and Disease Management: Applying integrated pest management strategies, including the use of biopesticides and sustainable practices, to control pests and diseases affecting crops.
- Promoting GHG emission reduction technologies: Economic activities will target to improve on-farm machinery, rice cultivation, nitrogen application, tillage practices, and organic fertilizer use (*Comprehensive Agricultural Transformation Support Programme – CATSP*).
- Promoting technologies and practices that enhance the resilience of crop value chains to climate-related shocks, ensuring they meet market demand, sustain productivity and profitability, and reliably support income generation (*Comprehensive Agricultural Transformation Support Programme – CATSP*).
- Investment in renewable energy-powered processing facilities, energy-efficient machinery and agro-processing, solar-powered cold storage, comprehensive training, and sustainable waste management systems to enhance productivity, reduce environmental impact, and ensure quality in agricultural value chains. (*Comprehensive Agricultural Transformation Support Programme – CATSP*).

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### Objectives:

- Implementing initiatives and activities that maintain carbon stocks in vegetation and soil.
- Reducing emissions of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) from efficient fertilizer use.
- Increasing renewable energy use and water efficiency in crop farming.

###### Metrics

Net GHG emission reductions achieved from the implementation of initiatives against a baseline measured prior to the implementation of the initiative.

No threshold applicable

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Section 5.2.2 of the ZGFT on the screening criteria for activities making a substantial contribution to climate change adaptation.

#### Do No Significant Harm assessment

The following are potential factors that must be considered during the DNSH assessment.

- Contamination of aquatic systems through increased run-off caused by soil erosion.
- Increased nutrient loads of runoff caused by increased use of fertilizers and soil enhancers.
- Increased GHG emissions as a result of improved resiliency and adaptation.

##### 1. Climate Change Mitigation

#### Climate Adaptation Economic Activities

Adaptation strategies may increase GHG emissions, for example, through intensive irrigation and heating systems. This can potentially increase the carbon inventory of a facility. Certain resilience solutions may extend into agricultural land which may result in unintended habitat conversion and habitat destruction.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2 of the ZGFT document
3. Sustainable use of water and water security
Irrigation practices must integrate sustainable water use into their design considerations. This is particularly important in water-stressed areas that can result in an over-extraction of ground and surface water thereby exacerbating water security. Run-off from agriculture practices has the potential to increase the nutrient and pesticide load in water bodies. This can compromise water quality and ecosystem health.
4. Biodiversity, Ecosystem Protection and Restoration
New land-based agriculture ventures have the potential to affect areas with high biodiversity value resulting in increased habitat loss and fragmentation. Consideration must be given to the use of biodiversity offsets. Monoculture crop farming has the potential to reduce habitat diversity in adjacent ecosystems. This can disrupt ecological balance and increase the vulnerability of areas to pests and diseases. The use of pesticides and insecticides could also be harmful to biodiversity.
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6. of the ZGFT document
6. Pollution Prevention
Increased pesticides and fertilizers must be controlled as they can increase eutrophication and contamination in aquatic ecosystems. Increased soil erosion and land degradation can increase run-off to aquatic ecosystems.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3 of the ZGFT.

# Sector: Agriculture

## Sub-sector: Fisheries

### Economic Activities

#### I. Sustainable Management

- Alignment with sustainable target fish stocks principle (1) of MSC pertaining to stock status and stock rebuilding.
- Alignment with sustainable target fish stocks principle (1) of MSC pertaining to harvest strategy management, harvest control tools and rules, harvest information and management, and assessment of stock status.
- Alignment with environmental impact of fishing principle (2) of MSC pertaining to in-scope species outcome status, management strategy and information.
- Alignment with environmental impact of fishing principle (2) of MSC pertaining to ETP/OOS species outcome status, management strategy and information.
- Alignment with environmental impact of fishing principle (2) of MSC pertaining to habitat outcome status, management strategy and information.
- Alignment with environmental impact of fishing principle (2) of MSC pertaining to eco-system outcome status, management strategy and information.
- Alignment with effective management principle (3) of MSC pertaining to governance and policy, including with legal and/or customary framework, consultation, roles and responsibilities, long-term objectives.
- Alignment with effective management principle (3) of MSC pertaining to fisheries specific management, including fishery specific objectives, decision making processes, compliance and enforcement, monitoring and management performance evaluation.

#### II. Aquaculture

- Adoption of sustainable aquaculture that applies water, energy, and nutrient efficient solutions.
- Introduction of well-proven practices such as the use of appropriate troughs, increase in efficiency of harvesting crop residues and their conversion to complete feeds, especially in the form of densified feed blocks or pellets, feeding as per the nutrient requirements.
- Operation of fish hatcheries, fish farms, and veterinary services operated that use environmentally friendly energy resources (clean energy) and manage all its waste.
- Use of novel human-inedible feed resources such as insect meals, leaf meals, protein isolates, single cell protein produced using waste streams, protein hydrolysates, spineless cactus, algae, co-products of the biofuel industry, food wastes among others.

#### III. Breeding and health

- Fish breeding, stocks and genetic types that can live and perform adequately in a wide range of environments, withstand climate extremes and are friendly to nature and biodiversity.
- Enhance the suitability and resilience of fish that are locally available and that reduce nutritional deficiency.

#### IV. Infrastructure

<ul style="list-style-type: none"> <li>• Restoration of the sustainable aquatic ecosystem in hydropower economic activities by using fish safety turbines, 3D optical and ultrasonic tracking, maintaining the water quality of the dam water, improvements in river flows, facilitating fish passage and migrations and enhancing dissolved oxygen levels in water discharges to maintain river ecology.</li> <li>• Non-use of HFCs for refrigeration.</li> </ul>
<b>Technical Screening Criteria</b>
Make Significant Contribution Criteria
1. Climate Change Mitigation
Objectives: Implementing sustainable fisheries that are able to reduce the effect of overfishing while keeping fish stocks stable thereby reducing the effects of overfishing. In addition, sustainable fisheries aim to enhance energy use and energy efficiency, reducing their carbon footprints.
Metrics and Thresholds: <b>Under development.</b>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
<ul style="list-style-type: none"> <li>• Chemical and plastic pollution from feed, fish waste and chemicals used in aquaculture. This can cause significant effects on aquatic life and ecosystem functioning. It can also lead to eutrophication, algal blooms, and oxygen depletion and water quality issues.</li> <li>• The construction of aquaculture systems can alter habitats and ecosystem functioning leading to significant downstream disruptions.</li> <li>• The introduction of non-native species could become invasive if they escape into natural waters.</li> </ul>
1. Climate Change Mitigation
Climate Adaptation Sustainable fishing practices such as aquaculture may result in a net increase in GHG emissions (if energy is fossil-fuel based) owing to the energy intensive nature of operations. The implementation of sustainable fisheries may inadvertently lead to habitat destruction. For example, the construction of artificial reefs and fishery cages may affect native assemblages.
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2. of the ZGFT document
3. Sustainable use of water and water security
Pollution from aquaculture and sustainable fisheries is a significant concern. The intensive nature of fisheries can result in nutrient and chemical discharge that can affect the water quality in the surrounding environment. Sustainable fisheries may alter flow dynamics if situated in the natural environment. This

can affect downstream users leading to water conflicts. If aquaculture facilities require freshwater abstraction, this can place pressure on other water users. This issue is heightened in water-scarce regions.
4. Biodiversity, Ecosystem Protection and Restoration
<p>Sustainable aquaculture economic activities with infrastructure such as ponds and cages can lead to the alteration of natural ecosystems such as mangroves, wetlands, and coral reefs. This may negatively impact biodiversity and ecosystem services.</p> <p>Sustainable fisheries may still face challenges regarding bycatch. The unintentional capture of keystone species may place the ecosystem under undue stress resulting in habitat transformation.</p> <p>Aquaculture facilities based solely on non-native species may place strain on native species if cultivated species escape into natural environments. These species could become invasive and outcompete native species, potentially reducing biodiversity.</p>
5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
<p>There are several pollution concerns:</p> <ul style="list-style-type: none"> <li>• The use of antibiotics, pesticides and other chemicals in aquaculture operations can lead to water pollution issues and water quality challenges.</li> <li>• Fish feed and waste may include the nutrient load in water systems (N, P) which can lead to eutrophication, algal blooms, and oxygen depletion.</li> <li>• Plastic pollution may also be a concern – the use of plastic nets, ropes, and packaging materials may be harmful to marine life.</li> </ul>
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Agriculture

### Sub-sector: Livestock

#### Economic Activities

##### I. Land use and pasture management

- Protection of non-agricultural land with high carbon stock from land use change / No conversion of high carbon stock lands.
- Sustainable land management practices: application of livestock standards to sustainably manage pastureland and to promote quality-based livestock, efficient tillage, inclusion of tress, use of better plant species, legume inter-seeding, use of earthworms.
- Climate-smart agriculture: Employ strategies for increasing the efficiency of grazing management for example through rotational grazing in which the frequency and timing of grazing is adjusted to match the livestock's needs with the availability of pasture resources.
- Pasture Management for Pollution Control and Biodiversity Protection: Keeping livestock away from water bodies like streams, lakes, ponds, and highly erodible areas, maintaining grass cover such as rotational grazing, keeping stocking rates consistent with carrying capacity of grazing area.
- Economic activities in silvo-pastoral systems (crop-livestock system) which incorporate trees into grazing land enhancing carbon storage above and below ground, improve cattle's diets with complementary tree by-products, improve soil fertility and limit expansion of weeds through periodical grazing and diversify farm income losses.
- Low-emissions livestock management / Climate-smart agriculture: Agroforestry, silvo-pastoralism or grassland/pasture management.

##### II. Soil management

- Practices that avoid or minimise compaction from the use of heavy machinery.
- Low-emissions livestock management: Limiting tillage operations with preference to minimum or non-inversion tillage.
- Adjusting stocking density to soil conditions to avoid compaction on wet soils.
- Grassland management practices that make the best possible use of grass areas used for grazing by livestock farms by optimizing pasture growth rate and pasture quality as well as its utilisation by livestock, except in extensive grazing systems, while ensuring that average grass cover rates are achieved at critical times of the year, which may include optimum grazing times based on local circumstances and grass height monitoring, implementing rotational and strip grazing, pasture renovation to improve quality.
- Low-emissions livestock management: Avoided erosion.
- Low-emissions livestock management: Increase in above-ground biomass (grassland/pasture productivity, cover crops, agroforestry) and residue retention.
- Low-emissions livestock management: Organic matter amendments to the soil.
- Low-emissions livestock management: Any practice that increases soil organic carbon or above-ground or below-ground carbon.

##### III. Animal management and herding practices

- Low-emission livestock management: All animals vaccinated against disease.
- Low-emission livestock management: Reduced herd size by at least 20% in each age and production class of animal.

- Breed selection adapted to the local conditions and according to the farm type, which may include selection of locally adapted and traditional breeds and strains, more resource-efficient breeds with higher yields with lower GHG intensities.
- Animal health management practices in order to maintain animal health, reduce the need for veterinary treatments and minimise stock morbidity and mortality.
- Practices optimizing herd/flock profile management in order to mitigate methane emissions from enteric fermentation and optimise resource efficiency by increasing productivity, including optimizing culling age, increasing longevity of animals by improving animal health, optimizing fertility rate where high fertility rates contribute to lower GHG emissions.
- Improving access and use of climate-resilient animal breeding services and breeds through investing in infrastructure, high-yielding genetics and breeding materials, knowledge, and skills, and development of breeding systems for climate-resilient indigenous breeds with higher resistance to disease and heat.
- Improvement in animal nutrition and genetics: The use of anti-methanogens, i.e., vaccines, to suppress methane emissions.
- Construction of physical structures and installation equipment to protect the livestock against heat stress (e.g., adequate cooling, air flow, evaporative systems, water misting and ventilation); elevated livestock shelters (e.g., raised foundations); protection of livestock against heat stress (e.g., shade screens or shade cloth structures).

#### IV. Feeding practices

- Low-emission livestock management: Feedlot/stall-fed and in-house livestock use feed that is sustainably sourced and from areas not recently converted from natural habitats.
- Low-emission livestock management: Use of high-quality feed (high proportion digestible dry matter).
- Low-emission livestock management: Dietary supplements for reduced emissions.
- Reduction of GHG emission through dietary reduction of nitrogen excretion, which may include using high-sugar grasses or maize silage for ruminants, applying phase feeding, using low-protein feeds, such as low dry-matter alfalfa silage, multiphase feeding with a diet formulation adapted to the specific requirements of the production period, reducing the crude protein content by using a N-balanced diet based on the energy needs and digestible amino acids.
- Dietary practices that reduce methane emissions from enteric fermentation of ruminants, which may include increasing forage digestibility and digestible forage intake; use of authorised feed additives, which reduces methane emissions from enteric fermentation.
- Improvement in animal nutrition and genetics: Balanced feed rations, increase in dietary fat and reduced protein content in the feed, provision of higher quality forage (with lower fibre content or greater fibre digestibility, greater energy content), supplementing forage with grain and other concentrate feeds, feed additives, provision of supplements (bovine somatotropin, 3-nitro-oxy propanol).

#### V. Manure/Waste Management

- Climate-smart agriculture: Increased attention to the spatial distribution of livestock production as it creates the right economic conditions for the recycling of manure as an input to other production activities. Initiatives for cost-efficient reduction of pollution from intensive waste production requires a combination of better spatial distribution of livestock production and pollution control measures.
- Climate-smart agriculture / Low-emission livestock management: Manure processed in biodigesters to produce energy.

- Low-emission livestock management: Shifts to aerobic storage or processing methods, with active aeration of stored manure and acidification of manure.
- Manure management: Treatment of slurries and manures in an on-farm facility, appropriate slurry processing and storage systems for slurry or digestate.
- Low-emissions livestock management / Manure management: Appropriate solid manure handling and storage to reduce emissions and run-offs for example the covering of ponds, tanks or lagoons in which manure is stored.
- Manure management: Application techniques to reduce ammonia emissions when slurry and solid manure are applied to agricultural soils.
- Manure management: Nutrient management practices to reduce significantly nutrient losses and the use of fertilisers.
- Removal of solids from manure using a solids separator.
- Use of bedding contingent on the land application method used, as well as use of appropriate land application methods (immediate incorporation or subsurface injection).
- Use of improved housing mechanisms to handle manure (such as perforated flooring with under-floor storage combined with short storage time).
- Adjustment of animal diets to alter the volume and composition of manure.

#### VI. Energy management (see energy section for more details)

- Low-emission crop management / Climate-smart agriculture: improved energy-efficiency in terms of traction, irrigation, and storage. For example: enhanced post-harvest technologies and practices that contribute to both energy efficiency and sustainable increases in productivity and income, such as improved crop and food storage, packaging and distribution; use of energy conservation technologies - an example for dairy farms includes heat exchangers cooled by well water, variable-speed drives on the milk pump, refrigeration heat recovery units and scroll compressors to reduce the energy consumed for cooling.
- Climate-smart agriculture: Increased production and use of renewable energy in agrifood chains, including through integrated food-energy chains), for example on-farm production of biogas can allow use of a biogas by- product as a liquid fertilizer, which can increase yields and reduce environmental pollution (FAO, Nepal, FAO).

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### Objectives:

- Reduce methane emissions: Implement strategies to lower methane production from livestock through dietary changes and feed additives.
- Reduce other air emissions from manure management (CH<sub>4</sub>, N<sub>2</sub>O, NH<sub>3</sub> and CO<sub>2</sub>)
- Improve soil management to improve its carbon sequestration capacity.
- Net GHG emission reductions from the implementation of renewable energy and energy efficiency measures.

###### Metrics and Thresholds:

- Net GHG emission reductions measured from a baseline prior to the implementation of the activity.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
<ul style="list-style-type: none"> <li>• Livestock farming is one of the primary contributors to GHG emissions globally. Negative issues arise because of the carbon- and resource-intensive nature of practices.</li> <li>• The use of water resources, non-renewable energy sources and animal wastes disposal are of particular concern.</li> </ul>
1. Climate Change Mitigation
Adaptation Economic Activities Adaptation strategies may increase GHG emissions, for example, through intensive irrigation and heating systems. This can potentially increase the carbon inventory of a facility. Certain resilience solutions may extend into agricultural land with livestock which may result in unintended habitat conversion and habitat destruction.
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
3. Sustainable use of water and water security
Sustainable water must be integrated into design considerations. This is particularly important in water-stressed areas that can result in an over-extraction of ground and surface water thereby exacerbating water security. Runoff from agriculture practices that are focused on livestock has the potential to increase the nutrient loads in water bodies. This can compromise water quality and ecosystem health.
4. Biodiversity, Ecosystem Protection and Restoration
New land-based agriculture including livestock ventures have the potential to affect areas with high biodiversity value resulting in increased habitat loss and fragmentation. Consideration must be given to the use of biodiversity offsets.
5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
Livestock must be controlled and managed. Excess animal waste can lead to elevated levels of nutrient runoff into nearby water bodies, causing eutrophication, algal blooms, and hypoxic zones that affect water quality. Air pollution concerns must be managed. Manure management can result in unintended emissions of ammonia and methane resulting in health risks.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Annexure A.

## Sector: Agriculture

### Sub-sector: Agroforestry

#### Economic Activities

##### I. Agroforestry system design and biodiversity enhancement

- Economic activities in buffer zones to demarcate boundaries, thereby reducing soil erosion, land degradation and the flow of pollutants.
- Use of native and endemic plant species to enhance biodiversity and ecosystem functioning.
- Economic activities in multispecies plantations that ensure that biodiversity is maintained, and ecosystems are less vulnerable to pests and climate change.
- Reforestation activities that enhance degraded forests, thereby enhancing sequestration and delivering other ecosystem benefits.
- Economic activities in carbon offset programmes that promote agroforestry to earn carbon credits.

##### II. Soil and water conservation

- Economic activities in plants and shrubs that can enhance water retention, soil fertility and land degradation, including economic activities that can rehabilitate riparian buffers and stabilise banks.

##### III. Sustainable Land Management

- Economic activities in organic farming methods that integrate activities that eliminate chemical use (pesticides and insecticides), enhancements to soil fertility and the promotion of ecosystem health.
- Economic activities in no-till farming that integrate activities that enhance and maintain soil fertility and avoid soil disturbance.

##### IV. Energy management in crop production (please see energy sector for more relevant details)

- Low-emission crop management: Use of renewable energy resources.
- Low-emission crop management: Energy-efficiency such as energy efficient irrigation and storage.
- Climate-smart agriculture: use of sustainable renewable energy sources.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### Objectives:

- Implementing initiatives and activities that maintain carbon stocks in vegetation and soil.
- Reducing emissions of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) from efficient fertilizer use.
- Increasing renewable energy use and water efficiency in agroforestry.

###### Metrics

Net GHG emission reductions achieved from the implementation of initiatives against a baseline measured prior to the implementation of the initiative. No threshold applicable
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
<ul style="list-style-type: none"> <li>• Contamination of aquatic systems through increased run-off caused by soil erosion.</li> <li>• Increased nutrient loads of runoff caused by increased use of fertilizers and soil enhancers.</li> <li>• Increased GHG emissions as a result of improved resiliency and adaptation.</li> </ul>
1. Climate Change Mitigation
Climate Adaptation Economic Activities Adaptation strategies may increase GHG emissions, for example, through intensive irrigation and heating systems. This can potentially increase the carbon inventory of a facility.
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
2. Sustainable use of water and water security
Irrigation practices must integrate sustainable water use into their design considerations. This is particularly important in water-stressed areas that can result in an over-extraction of ground and surface water thereby exacerbating water security.
3. Biodiversity, Ecosystem Protection and Restoration
New land-based agroforestry ventures have the potential to affect areas with high biodiversity value resulting in increased habitat loss and fragmentation. Consideration must be given to the use of biodiversity offsets. Monoculture crop farming has the potential to reduce habitat diversity in adjacent ecosystems. This can disrupt ecological balance and increase the vulnerability of areas to pests and diseases. Priority must be given native and endemic species.
4. Sustainable resource use and circularity
Generic DNSH criteria Section 5.2.6.
5. Pollution Prevention
Generic DNSH criteria Section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

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## Annexure 2: Energy and Energy Efficiency

<b>Sector: Energy</b>
<b>Sub-sector: Renewable Energy – Solar PV, Solar CSP and Wind</b>
<b>Economic Activities</b>
<p>I. Construction and operation of facilities for generating electricity using Solar Photovoltaics (PV) technology</p> <p>Solar generation; supply chain; and infrastructure facilities economic activities including:</p> <ul style="list-style-type: none"> <li>• Solar panel manufacturing: Investment in efficient, durable, and cost-effective panel production.</li> <li>• Solar installation economic activities: Residential, commercial, and utility-scale installations, including off-grid systems and mini-grids.</li> <li>• Utility-scale solar farms: Large solar PV plants for grid-connected power generation.</li> <li>• Battery energy storage systems: To store excess solar energy for use during low generation or peak demand.</li> <li>• Hybrid renewable energy systems: Solar PV combined with wind, hydro, or biomass for stable, diversified energy supply.</li> <li>• Floating solar PV installations: Solar panels deployed on water bodies to reduce land-use competition and improve cooling efficiency.</li> <li>• Solar-powered agricultural solutions: Solar irrigation, crop drying, and agro-processing to enhance agricultural productivity.</li> <li>• Off-grid and rural electrification economic activities: Solar systems for underserved and remote communities.</li> <li>• Disposal of Solar Panels: Investing in recycling processes to recover valuable materials like silicon, silver, and aluminium from end-of-life panels.</li> <li>• Green finance and carbon credit initiatives: Economic activities eligible for green bonds or carbon markets to fund solar infrastructure.</li> <li>• Research and development (R&amp;D): Innovation in solar technologies, materials, and system efficiency.</li> </ul>
<p>II. Construction and operation of facilities for generating electricity using Concentrated Solar Power (CSP) technology</p> <p>Solar generation; supply chain; and infrastructure facilities economic activities including:</p> <ul style="list-style-type: none"> <li>• Solar Field Components: Investment in high-efficiency mirrors and cost-effective support structures to maximise sunlight capture and durability.</li> <li>• Thermal Energy Storage: Investment in efficient thermal energy storage technologies using molten salts and advanced phase change materials.</li> <li>• Heat Transfer Fluids: Research &amp; development in efficient, eco-friendly heat transfer fluids using synthetic oils and molten salts.</li> <li>• Power Block Components: Investment in high-efficiency turbines, generators, and advanced heat exchangers for improved thermal energy transfer in CSP applications.</li> <li>• Control Systems and Software: Investment in smart grid integration and automated control systems for optimised CSP plant operation and efficiency.</li> <li>• Site Infrastructure: Sustainable land use practices and efficient water management technologies for CSP plants, minimizing ecosystem disruption.</li> </ul>
<p>III. Construction and operation of facilities for generating electricity from wind power</p> <p>Wind power generation; supply chain; and infrastructure facilities economic activities including:</p> <ul style="list-style-type: none"> <li>• Wind farm lifecycle management: To cover development, construction, operations, and maintenance.</li> </ul>

- Wind turbine enhancement: With focus on improving efficiency, durability, and reliability through manufacturing.
- Wind energy innovation: Research and development initiatives to advance wind energy technologies.
- Turbine component manufacturing: Producing key parts for wind turbines.
- Transportation and logistics: Efficient delivery of turbine components to project sites.
- Digitalization and data analytics: Platforms for monitoring, optimizing, and enhancing wind energy performance.
- Workforce development: Training and education programs for wind energy industry workers.

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Support a transition to a low carbon net-zero emissions economy.
- Enhance energy security by diversifying renewable energy sources and promoting decentralised, small-scale energy production.
- Protect the environment by conserving finite natural resources through renewable energy use and reducing air and water pollution from fossil fuel combustion.
- Ensure that eligible economic activities meet best practice standards.
- Ensure equal comparability within an eligible economic activity with regards to achieving low carbon net-zero emissions economy target
- Where necessary, incorporating technology-specific considerations into secondary metrics and thresholds.

###### b) Metrics and Thresholds:

- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) for solar PV or CSP technologies.
- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) for wind technologies.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

#### Do No Significant Harm assessment

The following are potential factors that must be considered during the DNSH assessment.

##### Solar photovoltaic (PV)

- The choice of site for the installation of PV systems can affect habitats, ecosystems and biodiversity if sites are not considerate of their ecological status. Caution should be taken for sites that are close to designated protected areas.
- Waste management: the construction, use and end-of-life management of PV systems must be carefully managed. Where possible, taxonomy users must consider the impacts associated with the disposal of systems through its life cycle. In addition, taxonomy users must consider the value chain and the environmental footprint of individual PV system components.

CSP

- Cooling needs associated with CSP systems can have an impact of water resources.
- As with PV, site selection is critical to ensure that habitats, ecosystems and biodiversity are not negatively affected. CSP may exist over significantly more land resources.
- Lastly, wildlife may be affected by the high temperatures generated by CSP systems.

Wind

- Noise pollution created by offshore wind turbines (both on land and underwater).
- Waste management: disposal concerns associated with the wind turbine blades and solar panels at the end-of-life cycle.
- Biodiversity issues related to loss of bird and bat species that may be negatively affected by blades.
- Water pollution caused by offshore wind farms.
- Negative visual impacts associated with wind turbines.

In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).

1. Climate Change Mitigation

N/A

2. Climate Change Adaptation

Generic DNSH criteria section 5.2.2.

3. Sustainable use of water and water security

Generic DNSH criteria section 5.2.3.

4. Biodiversity, Ecosystem Protection and Restoration

Generic DNSH criteria section 5.2.4.

5. Sustainable resource use and circularity

Solar PV, solar CSP and wind must prioritise the waste management associated with the construction, use and end-of-life phases. This includes the disposal of PV panels.

6. Pollution Prevention

N/A

Compliance with MSS

Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Energy

### Sub-sector: Renewable Energy - Hydropower

#### Economic Activities

##### I. Construction and operation of facilities for generating electricity from **hydropower**

Hydro Generation; supply chain; and infrastructure facilities investment areas including:

- Small-scale hydropower: With focus on micro-hydro systems to provide clean energy to remote and rural areas.
- Pumped Hydro Storage: This is a key complementary technology to renewable energy deployment and grid stability.
- Investment in pumped storage: Crucial for grid stability and renewable energy integration by storing and releasing energy as needed.
- Efficiency improvement: Investment in technologies like fish-friendly turbines and sediment management systems to enhance hydropower generation efficiency.
- Turbine manufacturing: To enhance efficiency, reliability, and environmental performance through turbine and associated equipment manufacturing.
- Infrastructure modernization: Upgrading existing hydropower infrastructure through dam refurbishments, turbine upgrades, and automation systems.
- Environmental mitigation: Investment in technologies and practices to minimise environmental impacts, including fish passage improvements, sediment management, and habitat restoration.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Support a transition to a low carbon net-zero emissions economy.
- Enhance energy security by diversifying renewable energy sources and promoting decentralised, small-scale energy production.
- Protect the environment by conserving finite natural resources through renewable energy use and reducing air and water pollution from fossil fuel combustion.
- Ensure that eligible economic activities meet best practice standards.
- Ensure equal comparability within an eligible economic activity with regards to achieving low carbon net-zero emissions economy target.
- Where necessary, incorporating technology-specific considerations into secondary metrics and thresholds.

###### b) Metrics and Thresholds:

- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) of hydropower.

The activity complies with either of the following criteria:

<p>i) The electricity generation facility is a run-of-river plant without an artificial reservoir, and the life cycle GHG emissions from generating electricity from hydropower, including mixed pumped hydropower storage connected to a free-flowing water source, are lower than 100gCO<sub>2</sub>e/kWh. The life cycle GHG emissions are calculated using ISO 14067:2018 or ISO 14064-1:2018. Quantified life cycle GHG emissions are verified by an independent third party.</p> <p>ii) The power density of the electricity generation facility is above 5 W/m<sup>2</sup>.</p>
<p>2. Climate Change Adaptation</p> <p>Depending on the primary objective of the activity, refer to Annexure A.</p> <p>In addition, taxonomy users must assess the impact of drought, extreme heat, rainfall and other driver variables on hydropower generation under future climate scenarios. This is critical to ensure the long-term operation of hydropower facilities.</p>
<p>Do No Significant Harm assessment</p> <p>The main environmental impacts associated with hydropower installations are:</p> <ul style="list-style-type: none"> <li>• Emissions to water and generation of waste during construction.</li> <li>• Impacts on biodiversity associated with fragmentation of ecosystems and changes to habitat, to hydrological and hydrogeological regimes, water chemistry, and interference with species migration pathways as a result of the establishment of the installation and its operation.</li> </ul> <p>In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).</p>
<p>1. Climate Change Mitigation</p> <p>The direct GHG emissions of the activity are lower than 270gCO<sub>2</sub>e/kWh.</p>
<p>2. Climate Change Adaptation</p> <p>Climate Mitigation</p> <p>Generic DNSH criteria Section 5.2.2.</p>
<p>3. Sustainable use of water and water security</p> <p>Generic DNSH criteria Section 5.2.3.</p> <p>New Economic Activities:</p> <ul style="list-style-type: none"> <li>• Compliance with national legislation through a full environmental and social impact assessment to ensure that regional or catchment-level impacts are minimised including upstream and downstream dynamics. This includes a public participation process that includes all relevant stakeholders.</li> <li>• The environmental and social impact assessment must include mitigation measures to reduce impacts; suggest alternative forms of the project to reduce impacts or demonstrate why there is no better environmentally friendly option.</li> <li>• The construction of new hydropower must not result in the fragmentation of river systems as this may alter flow dynamics.</li> <li>• The construction of small hydro or mini hydro should be avoided (&lt; 10 MW).</li> <li>• Nature-based solutions that can reduce negative impacts of hydropower should be prioritised.</li> </ul>

<ul style="list-style-type: none"> <li>• Operation of the hydro power plant must adhere to the principles of the UNECE Convention on the Protection and Use of Transboundary, Watercourses and International Lakes.</li> </ul>
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria Section 5.2.4.
5. Sustainable resource use and circularity
Hydropower must prioritise the waste management associated with the construction, use and end-of-life phases.
6. Pollution Prevention
Taxonomy users must consider if hydropower installations results in any unintended consequences in terms of water pollution.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Energy

### Sub-sector: Renewable Energy - Geothermal

#### Economic Activities

##### 1. Construction and operation of facilities for generating electricity from **Geothermal**

Geothermal Generation; Supply Chain; and infrastructure facilities investment areas including:

- New geothermal power plants: Involving exploration, drilling, and plant construction to increase renewable energy capacity.
- Geothermal heat pump systems: Used for heating, cooling, and hot water in various buildings, including residential, commercial, and industrial.
- Investment in geothermal technologies: With focus on resource assessment, exploration, and reservoir characterization to identify and develop new geothermal sites.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Support a transition to a low carbon net-zero emissions economy.
- Enhance energy security by diversifying renewable energy sources and promoting decentralised, small-scale energy production.
- Protect the environment by conserving finite natural resources through renewable energy use and reducing air and water pollution from fossil fuel combustion.
- Ensure that eligible economic activities meet best practice standards.
- Ensure equal comparability within an eligible economic activity with regards to achieving low carbon net-zero emissions economy target.
- Where necessary, incorporating technology-specific considerations into secondary metrics and thresholds.

###### b) Metrics and Thresholds:

- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) of geothermal energy.
- Life cycle GHG emissions from the generation of electricity from geothermal energy are lower than 100gCO<sub>2</sub>e/kWh.
- Life cycle GHG emission savings are calculated using ISO 14067:2018 or ISO 14064-1:2018.
- Quantified life cycle GHG emissions are verified by an independent third party.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

##### Do No Significant Harm assessment

The following are potential factors that must be considered during the DNSH assessment.

<ul style="list-style-type: none"> <li>• Geothermal gases may have significant environmental impacts. Geothermal impacts of concern include H<sub>2</sub>S, CO<sub>2</sub> and CH<sub>4</sub> associated with steam and dry-steam power plants.</li> <li>• Waste heat emissions to surface and groundwater reserves.</li> </ul>
In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).
1. Climate Change Mitigation
For adaptation economic activities If the activity operates at above the threshold for substantial contribution to climate change mitigation, there should be:
<ul style="list-style-type: none"> <li>• no increase in emissions intensity of the activity as a result of the adaptation; and</li> <li>• no activity can have emissions intensity above the average emissions intensity of all electricity generation facilities in the respective region.</li> </ul>
Do no significant in the context of mitigation should not affect Zambia’s mitigation targets as outlined in the country NDC. Activities which operate below the 100g threshold provide a significant contribution, and activities that operate above the regional average of 475g would cause significant harm. Therefore, while activities below this 475g threshold are not considered to be providing a substantial contribution, they are also not considered to be doing significant harm.
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
3. Sustainable use of water and water security
N/A
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria Section 5.2.4.
5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
<ul style="list-style-type: none"> <li>• Discharge to water bodies and chemical use must adhere to domestic legislation and guidelines.</li> <li>• Air emissions must ensure the appropriate installation of mitigation measures and adherence to domestic legislation. Limits are set at &lt; 1 µg/Nm<sup>3</sup> Hg.</li> <li>• Discharge of waste heat should not exceed 3°K for groundwater and 1.5°K for surface water.</li> </ul>
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 5.

## Sector: Energy

### Sub-sector: Renewable Energy - Bioenergy

#### Economic Activities

##### I. Construction and operation of facilities for generating electricity from **bioenergy (biofuels, biogas, and biomass-based power generation)**

Bioenergy generation; supply chain; and infrastructure facilities economic activities including:

- Biofuel production and refining: Investment in facilities producing biodiesel, ethanol, and biogas from agricultural residues, organic waste, and energy crops (e.g., Jatropha).
- Biogas plants: Support for anaerobic digestion facilities converting organic waste into renewable biogas.
- Biomass power plants: Development of small-, medium-, and utility-scale plants using wood pellets, agricultural waste, and forestry by-products for electricity and heat.
- Waste-to-energy facilities: Infrastructure for processing municipal solid waste and industrial organic waste into energy via thermal or biological methods.
- Co-generation and tri-generation systems: Deployment of CHP and CCHP technologies to improve energy efficiency in biomass systems.
- Feedstock supply chain development: Investment in sustainable feedstock cultivation, harvesting, storage, and logistics infrastructure.
- Research and development (R&D): Innovation to improve biomass conversion technologies, increase feedstock yields, and lower emissions.
- Carbon capture and storage (CCS): Integration of CCS in biomass power plants to support carbon-negative energy generation.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Support a transition to a low carbon net-zero emissions economy.
- Enhance energy security by diversifying renewable energy sources and promoting decentralised, small-scale energy production.
- Protect the environment by conserving finite natural resources through renewable energy use and reducing air and water pollution from fossil fuel combustion.
- Ensure that eligible economic activities meet best practice standards.
- Ensure equal comparability within an eligible economic activity with regards to achieving low carbon net-zero emissions economy target
- Where necessary, incorporating technology-specific considerations into secondary metrics and thresholds.

###### b) Metrics and Thresholds:

- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) of bioenergy.

<ul style="list-style-type: none"> <li>• The production of electricity, heating, and cooling from biofuels shall be assessed against a relative fossil fuel comparator. Facilities achieving over 80% GHG emissions reduction compared to the fossil fuel comparator, with a target of reaching 100% by 2050, are eligible.</li> <li>• This threshold will be reduced every five years in alignment with Zambia’s 2050 net-zero CO2e climate mitigation target. Economic activities must comply with the threshold at the time taxonomy approval is sought.</li> <li>• For activities which go beyond 2050, it must be technically feasible to reach net-zero emissions.</li> </ul> <p>For Anaerobic Digestion of Biowaste and Sewage Sludge, refer to relevant activities within the ZGFT. Any other anaerobic digestion of organic material (not covered within the ZGFT) is eligible provided that:</p> <ul style="list-style-type: none"> <li>• Methane leakage from relevant facilities (e.g. for biogas production and storage, energy generation, digestate storage) is controlled by a monitoring plan.</li> <li>• The digestate produced is used as fertiliser/s oil improver directly or after composting or any other treatment.</li> </ul>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
<p>Some of the key DNSH issues include:</p> <ul style="list-style-type: none"> <li>• Water quality and pollution related issues.</li> <li>• Waste management challenges across the construction, use and end-life phases and reuse and recycling criteria.</li> <li>• Possible SO<sub>2</sub>, NO<sub>x</sub>, and dust emissions.</li> <li>• Avoiding direct impacts of ecosystems, habitats and biodiversity.</li> </ul> <p>In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).</p>
1. Climate Change Mitigation
<p>If the activity operates at above the threshold for substantial contribution to climate change mitigation, there should be:</p> <ul style="list-style-type: none"> <li>• no increase in emissions intensity of the activity as a result of the adaptation; and</li> <li>• no activity can have emissions intensity above the average emissions intensity of all electricity generation facilities in the respective region.</li> </ul> <p>Do no significant in the context of mitigation should not affect Zambia’s mitigation targets as outlined in the country NDC. Activities which operate below the 100g threshold provide a significant contribution, and activities that operate above the regional average of 475g would cause significant harm. Therefore, while activities below this 475g threshold are not considered to be providing a substantial contribution, they are also not considered to be doing significant harm.</p>
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
3. Sustainable use of water and water security

Generic DNSH criteria Section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria Section 5.2.4.
5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
Taxonomy users must ensure that air and water emissions are in compliance with national and domestic legislation.
Emissions of concern include:
Biomass for large combustion plants: SO <sub>2</sub> , NO <sub>x</sub> , dust, CO, Mercury, HCl, HF.
Biomass and for liquid biofuels in medium combustion plants: SO <sub>2</sub> , NO <sub>x</sub> , dust.
Biogas in medium combustion plants: SO <sub>2</sub> , NO <sub>x</sub> .
Anaerobic digestion (AD) plants treating over 100 t/day: SO <sub>x</sub> , NO <sub>x</sub> .
Digestate must meet requirements for soil enhancers, fertilisers as outlined in national and domestic legislation.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Energy

### Sub-sector: Renewable Energy - Nuclear

#### Economic Activities

##### 1. Construction and operation of facilities for generating electricity from **nuclear energy**

Use of nuclear technologies for power generation, supply chain development, and infrastructure investment, including:

- Construction of nuclear power plants to diversify Zambia's energy mix.
- Investment in nuclear energy research and development.
- Development of the Centre for Nuclear Science and Technology (CNST), including gamma irradiation, a nuclear medical centre, and a research reactor.
- Uranium mining and processing for nuclear fuel supply.
- Manufacturing of components and infrastructure for nuclear technologies.
- Development of logistics and transport services for nuclear materials.
- Access to green bonds and tax incentives for nuclear-related economic activities.
- Engagement in public-private partnerships (PPPs) for infrastructure development.
- Investment in human capital through training, scholarships, and international cooperation.

#### Technical Screening Criteria

##### Make Significant Contribution (MSC) Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Support climate change mitigation through low-carbon nuclear energy.
- Enhance energy security and grid reliability.
- Promote sustainable use of natural resources in sectors like agriculture, health, and industry.
- Drive green industrialization and clean-tech infrastructure development.
- Foster innovation and technological advancement in nuclear science.
- Create skilled jobs and support human capital development.
- Ensure compliance with environmental and social safeguards (DNSH and social criteria).

###### b) Metrics and Thresholds:

- Installed capacity (e.g. MW) and electricity generated (e.g. KWh) of nuclear energy.

**Further guidance under development.**

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

Do No Significant Harm (DNSH) assessment
Some of the key DNSH issues include: <ul style="list-style-type: none"> <li>• Prevent harmful radiation exposure to workers, communities, and the environment.</li> <li>• Ensure safe and secure management of radioactive waste to avoid long-term contamination.</li> <li>• Implement robust safety systems and emergency preparedness to manage nuclear accident risks.</li> <li>• Avoid water resource depletion and thermal pollution from plant operations.</li> <li>• Protect biodiversity and prevent disruption of sensitive ecosystems during construction and operation.</li> </ul>
In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).
1. Climate Change Mitigation
Generic DNSH criteria Section 5.2.1.
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria Section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria Section 5.2.4.
5. Sustainable resource use and circularity
Generic DNSH criteria Section 5.2.6.
6. Pollution Prevention
Generic DNSH criteria Section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Energy

### Sub-Sector: Energy Efficiency<sup>1</sup>

#### Economic Activities

##### I. Residential Sector

- Sustainable Cooking Technologies: includes cooking with LPG or electricity (energy-efficient cooking), using energy-efficient stoves with pellets or briquettes and installing biogas capacity.
- Building Code: Developing and enforcing an Energy-Efficient Building Code that includes innovating with local materials and upgrading building envelopes to enhance insulation, windows, doors, and sealing to minimise heat loss and gain.
- Heating, Ventilation, and Air Conditioning (HVAC) Systems: Installing high-efficiency heating and cooling systems, smart thermostats, and maintaining HVAC systems regularly.
- Lighting: Using LED bulbs and smart lighting controls to reduce energy consumption.
- Develop an Energy Labelling Code for Home Appliances to help end-users evaluate and choose appliances based on their energy performance.
- Water Heating: Upgrading to energy-efficient water heaters and insulating water heater tanks and pipes.
- Renewable Energy Integration: Installing solar panels and solar water heaters to generate and use renewable energy.
- Home Energy Management Systems: Implementing energy monitoring and smart home systems for optimised energy use.
- Behavioural Changes and Education: Promoting energy-saving practices and utilizing incentives for energy-efficient upgrades.

##### II. Industrial Sector

- Process Optimization: Improve efficiency in manufacturing operations and industrial processes.
- Energy Management Systems (EMS): Implement ISO 50001-aligned systems to monitor and control energy usage across industries.
- High-Efficiency Equipment and Technologies: Upgrade to energy-efficient machinery, lighting solutions, and heat recovery systems.
- Building Improvements and Renewable Integration: Enhance insulation, windows, HVAC systems, and integrate renewable energy sources like solar and wind.
- Energy Service Company (ESCO) Model: Invest in the ESCO model to support and de-risk energy-saving economic activities.
- Capacity Building and Certification Programs: Develop skills through training programs and establish certifications for optimizing energy systems.
- Audits, Benchmarks, and DSM Programs: Conduct energy audits, establish consumption benchmarks, and implement Demand Side Management programs to reduce energy use.

*Please refer to the sector annexures guidelines for mining, agriculture, and water for further information.*

<sup>1</sup> The 2022 Ministry of Energy's "Energy Efficiency Strategy and Action Plan (EESAP)" proposes actions in three (3) key sectors, based on their energy consumption patterns. These include the residential sector; the transport sector; and the industrial sector. The Ministry of Energy will work closely with other stakeholders through inter-sectoral collaboration to implement the activities proposed in the EESAP.

<p>III. Transport Sector</p> <ul style="list-style-type: none"> <li>• Vehicle Tuning and Maintenance Programs: Regular vehicle tuning and maintenance enhance combustion efficiency and reduce fuel consumption.</li> <li>• Fuel Efficiency Technologies: Investing in advanced engine technologies and lightweight materials improves vehicle fuel economy.</li> <li>• Electric and Hybrid Vehicles: Promoting electric and hybrid vehicles reduces reliance on fossil fuels and emissions.</li> <li>• Biofuels and Alternative Fuels: Supporting biofuel blending and alternative fuel development lowers carbon emissions.</li> <li>• Public Transportation Systems: Enhancing public transport infrastructure reduces the need for individual car trips.</li> <li>• Railway Development: Expanding and upgrading rail infrastructure increases the use of fuel-efficient rail transport.</li> <li>• Smart Transportation Systems: Implementing intelligent transportation systems optimises traffic flow and reduces congestion.</li> <li>• Eco-Driving Programs: Educating drivers on eco-driving techniques reduces fuel consumption and emissions.</li> <li>• Freight and Logistics Optimization: Efficient logistics and intermodal transport reduce energy use in freight transportation.</li> <li>• Infrastructure for Active Transport: Developing bike lanes and pedestrian pathways encourages energy-efficient cycling and walking.</li> </ul> <p><i>Please refer to the Sector Guidelines for Transport for further information.</i></p>
<p><b>Technical Screening Criteria</b></p>
<p>Make Significant Contribution Criteria</p>
<p>1. Climate Change Mitigation</p> <p>a) Objectives:</p> <ul style="list-style-type: none"> <li>• Reduction in Energy Consumption: Achieve significant reductions in energy consumption across various sectors.</li> <li>• Decarbonization: Promote technologies and practices that lower the carbon footprint.</li> <li>• Enhancement of Energy Efficiency in Buildings: Encourage the construction and renovation of energy-efficient buildings.</li> <li>• Efficiency in Industrial Processes: Improve energy efficiency in industrial processes through advanced technologies.</li> <li>• Transportation Sector Improvements: Promote energy-efficient and low-emission transportation solutions.</li> </ul> <p>b) Metrics and Thresholds:</p> <ul style="list-style-type: none"> <li>• Energy Savings: Measure the amount of energy saved through efficiency improvements, typically in kilowatt-hours (kWh) or megawatt-hours (MWh).</li> <li>• Greenhouse Gas Emissions Reduction: Measure the reduction in greenhouse gas emissions due to energy efficiency measures, usually in metric tons of CO<sub>2</sub> equivalent (CO<sub>2</sub>e).</li> <li>• Energy Performance Improvement: Measure the improvement in energy performance of buildings or industrial processes using indicators like energy use intensity (EUI) or specific energy consumption (SEC).</li> <li>• Renewable Energy Integration: Measure the extent of renewable energy integration into systems as a percentage of total energy consumption or generation.</li> <li>• Energy Efficiency Ratings and Certifications: Achieve recognised energy efficiency ratings or certifications like LEED, BREEAM, or ENERGY STAR.</li> <li>• Cost Savings: Measure financial savings from reduced energy consumption in monetary terms.</li> </ul>

<ul style="list-style-type: none"> <li>• Reduction in Peak Energy Demand: Measure the reduction in peak energy demand, typically in kilowatts (kW).</li> <li>• Improved System Efficiency: Measure the overall improvement in system efficiency, such as in HVAC systems, lighting, or industrial processes, through system-specific metrics.</li> </ul>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
<b>Do No Significant Harm assessment</b>
<p>The following are potential factors that must be considered during the DNSH assessment.</p> <ul style="list-style-type: none"> <li>• Climate Resilience: Ensure energy efficiency measures are resilient to climate change impacts.</li> <li>• Environmental Protection: Avoid significant adverse effects on water, marine resources, biodiversity, and ecosystems.</li> <li>• Pollution Control: Prevent and minimise pollution through clean technologies and best environmental practices.</li> <li>• Resource Efficiency: Promote resource efficiency and sustainable sourcing of materials.</li> </ul> <p>In addition to general DNSH criteria, site-specific factors should be developed during the environmental impact assessments (EIAs).</p>
1. Climate Change Mitigation
N/A
2. Climate Change Adaptation
Generic DNSH criteria Section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria Section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria Section 5.2.4.
5. Sustainable resource use and circularity
Generic DNSH criteria Section 5.2.6.
6. Pollution Prevention
Generic DNSH criteria Section 5.2.5.
<b>Compliance with MSS</b>
Taxonomy users must comply with the criteria set out in Section 3.

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## Annexure 3: Forestry

<b>Sector: Forestry</b>
<b>Sub-sector: Forestry, Afforestation and Reforestation</b>
<b>Economic Activities</b>
I. Forest Management
<ul style="list-style-type: none"> <li>• Afforestation by establishing forest land through planting, deliberate seeding, or natural regeneration leading to a transformation of land use from non-forest to forest land.</li> <li>• Reforestation and rehabilitation as aligned with national law (e.g. Zambia’s Forests Act, 2015). No change of land occurs and occurs on degraded land matching the forest definition as per mentioned national law / FAO definition of forests.</li> <li>• Sustainable forest management as defined by national law (e.g. Zambia’s Forests Act, 2015).</li> <li>• Existing forest management and assisted regeneration as defined by national law (e.g. Zambia’s Forests Act, 2015). Assumes no change in land use and occurs on land matching the definition of forest as per Zambian law.</li> <li>• REDD+ (Reduced emissions from deforestation and forest degradation) activities.</li> </ul>
II. Conservation
<ul style="list-style-type: none"> <li>• Conservation forestry including eligible economic activities with the objective of preserving one or more habitats or species. No change in land category occurs, and occurs on land matching the forest definition as set out by relevant national law (e.g. Zambia’s Forests Act, 2015)</li> <li>• In situ and ex-situ genetic conservation of rare and threatened plant species.</li> <li>• Leasing of forest land for conservation purposes.</li> <li>• Conservation economic activities (e.g. the establishment of green parks, botanical gardens, zoological gardens, museum, herbarium, planetarium).</li> <li>• Facilities and infrastructure for grassland preservation of natural grassland, restoration of degraded grassland, and retention activities.</li> <li>• Biosphere conservation economic activities through protection and/ or remediation of degraded ecosystems; wetland conservation, construction, and maintenance of ecological function areas, like specific wildlife habitats, wetlands, and desert.</li> <li>• Community Forest Management (CFM)<sup>2</sup> through promotion of sustainable forest use, biodiversity conservation, carbon sequestration, enhanced livelihoods, reduced deforestation, forest restoration, good governance, and environmental awareness, thereby significantly contributing to the greening of the sector.</li> </ul>
III. Carbon Sequestration Economic Activities:

<sup>2</sup> The Forests (Community Forest Management) Regulations, 2018, Statutory Instrument No. 11 of 2018.

<ul style="list-style-type: none"> <li>• Carbon Credits: Investing in economic activities that focus on carbon sequestration through sustainable forest management, reforestation, and afforestation, generating carbon credits that can be sold in carbon markets.</li> <li>• Agroforestry: Integrating trees into agricultural landscapes to enhance carbon storage in biomass and soils.</li> </ul>
IV. Timber and Wood Products:
<ul style="list-style-type: none"> <li>• Facilities for sustainable timber production and pulp production (e.g. production facilities incorporating efficient pulping process, biorefineries, use of recycles.)</li> <li>• Harvesting that enhances/improves seed generation and avoids seed loss from forest products/wood products due to disease or wildfire.</li> <li>• Tree Plantations: Establishing and managing tree plantations that are sustainably managed for timber production<sup>3</sup>.</li> <li>• Agroforestry: Combining forestry and agriculture to create more sustainable land-use systems that produce timber alongside crops or livestock</li> <li>• Sustainable Furniture and Crafts: Supporting businesses that produce furniture and crafts from sustainably sourced timber.</li> <li>• Innovative Timber Products: Investing in research for developing new, sustainable timber products and improving existing ones.</li> </ul>
V. Non-timber Forest Products (NTFPs):
<ul style="list-style-type: none"> <li>• Promotion of sustainable and eco-certified NTFPs to support the creation of market linkages and certification for improved marketability and access (eg. Honey products).</li> <li>• Nursery establishment of multipurpose trees and NTFPs, sustainable processing and marketing.</li> <li>• Sustainable Harvesting Practices: Training and regulations to ensure long-term availability of NTFPs (eg. fruits, nuts, mushrooms, and honey)</li> <li>• Biodiversity Conservation: Funding conservation economic activities and involving communities in sustainable resource management.</li> <li>• Eco-tourism and Educational Programs: Developing eco-tourism initiatives and educational programs to promote conservation and generate income.</li> <li>• Climate resilience and adaptation, through promotion of climate-smart practices and diversification of NTFP species.</li> </ul>
VI. Other Provisioning Services:
<ul style="list-style-type: none"> <li>• Fuelwood and Charcoal: Developing improved cookstoves and efficient charcoal kilns, along with producing biomass briquettes and promoting renewable energy solutions.</li> <li>• Water: Implementing reduced impact logging and agroforestry systems, investing in rainwater harvesting and efficient irrigation, and restoring and protecting wetlands.</li> <li>• Food: Integrating trees with crops and livestock to enhance biodiversity and food production, developing sustainable harvesting and processing of edible forest products, and cultivating food crops like medicinal plants, herbs, and spices under the forest canopy.</li> <li>• Fibers: Supporting sustainable and organic certification programs while investing in eco-friendly processing facilities and innovative fiber products such as bamboo, rattan, and other plant materials used for weaving and construction.</li> </ul>
VII. Information and Monitoring

<sup>3</sup> The Forest Concession Regulations, Statutory Instrument No. 50 of 2016.

- Setting-up and maintaining of protection measures (e.g. rangers and monitoring equipment). Includes measures such as GIS analysis, satellite data collection and data analysis.
- Enhance forest information, research, and technology development, including early fire warning systems (e.g. fire detection, monitoring).
- Obtaining and maintaining green certification from the FSC.

#### Make Significant Contribution Criteria

##### 6. Climate Change Mitigation

###### a) Objectives:

The implementation of afforestation and reforestation efforts must increase the forest carbon stocks (below and above ground) when compared to the baseline (no afforestation or reforestation). The taxonomy user is responsible for the development and verification of a GHG baseline prior to undertaking the activity. Other certifications and standards that could be used include:

- The Forest Stewardship Council.
- Climate Bonds Initiative's Forestry and Land Conservation & Restoration Criteria.

Afforestation or reforestation efforts should not include the inclusion of the introduction of invasive alien species. The harmful effects of alien invasive species and their harmful effects on biodiversity are well noted in academic literature sources. The implementation of afforestation and reforestation must abide by the Forest Act of 2015, the Zambia National Strategy to Reduce emissions from Deforestation and Forest Degradation (REDD+) (2015), National Forest Policy (2014). In addition, activities must comply with the National Policy on Environment (2007) and the Second National Biodiversity Strategy and Action Plan 2015-2025.

###### b.) Metrics and Thresholds:

- Afforestation and reforestation activities are calculated by using growth-yield curves by species per m<sup>3</sup>/year/ha. Baseline development can integrate the use of accepted CDM and REDD+ methodologies under the UNFCCC. Growth-yield curves may require an understanding of the local terrain, species and the number of trees. Above ground carbon stocks must increase relative to the baseline for a period of not less than 20 years.
- Should the project developer adopt the use of the CBI's Forestry and Land Conservation & Restoration Criteria, a forest management plan is required or independent third-party verification.

##### 7. Climate Change Adaptation

Any forestry activity being implemented must review Annexure A for screening criteria for activities making a substantial contribution to climate change adaptation. Forest-related activities must consider climate resilient and adaptation solutions. It is difficult to provide an extensive list of climate resilient initiatives as measures are often context specific. The following examples are provided for demonstrative purposes:

- Forestry-related activities jointly implemented with firebreaks to reduce the spread of wildfires.

- Use of drought-resistant species/indigenous tree species that are less susceptible to drier conditions under future climate change scenarios.
- The use of species that do not alter groundwater availability promoting sustainable water management.

**Do No Significant Harm assessment**

There are several environmental aspects that must be taken into consideration when implementing forest-related activities:

- Forest-related activities must be resilient to future climate change such that they are able to maximise their carbon sequestration potential.
- Forest-related activities should not affect water resources. This is especially significant in the Southern African region where climate change is expected to affect water security.
- Forest-related activities should not pollute water, soil and water resources. This must be a consideration for the use of pesticides and fertilizer.
- Land conversion for forest-related activities that result in the destruction of sensitive ecosystems leading to illegal logging activities.

As noted with the MSC, the DNSH must be evaluated with implementation of afforestation and reforestation must abide by the Forest Act of 2015, the Zambia National Strategy to Reduce emissions from Deforestation and Forest Degradation (REDD+) (2015), National Forest Policy (2014). In addition, activities must comply with the National Policy on Environment (2007) and the Second National Biodiversity Strategy and Action Plan 2015-2025.

**1. Climate change mitigation**

For adaptation economic activities

Despite the ability of forest-related activities to deliver climate mitigation benefits, they are potentially at risk under future climate change. Therefore, it is critical that forest-related activities must be considered over the lifetime of the activity while considering the social safeguards and management systems to avoid carbon leakage.

**2. Climate change adaptation**

For mitigation economic activities

The activity complies with the criteria set out in Section 5.2.2.: Generic Criteria for DNSH to Climate Change Adaptation.

**3. Sustainable use of water and water security**

The activity complies with the criteria set out in Section 5.2.3.: Generic Criteria for DNSH to sustainable use of water and water security.

**4. Biodiversity, Ecosystem Protection and Restoration**

Forest-related activities must consider ecosystem functionality at a landscape level. Conservation efforts must be considered in the context of the Forest Act of 2015 and other environmental national legislation and policies. Restoration efforts must ensure that the introduction of new alien invasive species is avoided, and that the removal of alien species is undertaken if activities relate to forest rehabilitation. The prevention and control of alien invasive species should be undertaken in accordance with Zambia’s National Forest Policy (2014) and the National Policy on Environment (2007) and international best practice such as the Forest Stewardship Council. Afforestation must not include the conversation of ecosystems that are at risk to biodiversity loss or represent areas of high conservation value or areas that have been designated by national authorities for protected areas. As noted under MSC, forest-related activities must allow for consistent monitoring over the lifetime of the project. This includes the development of a forest management plan and

biodiversity impact measurement and accounting in line with the Biological Diversity Protocol. In addition, forest-related activities must include safeguards to avoid carbon leakage through harmful activities such as illegal logging. Forest activities must not include the conversion of high-biodiverse areas for ones that are less diverse. Therefore, a detailed assessment of the habitats and their linkages within the ecosystem must be undertaken to ensure the diversity of forest-related environment.

5. Sustainable resource use and circularity

Application of core principles of a circular economy; eliminating waste, keeping materials in use and regenerating natural systems. An investment must promote the circular economy model of production and consumption which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible.

6. Pollution Prevention

Forest-related activities must minimise the use of pesticides and fertilizers that can potentially harm water, soil and air resources. There are cases when the use of pesticides is required to avoid the large-scale outbreaks of infestations. In this case, mitigation measures should be developed to avoid or minimise negative consequences while the management of pollution outbreaks should also be prioritised (if they occur).

Minimum Social Safeguards

Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Forestry

### Sub-sector: Apiculture

#### Economic Activities

##### I. Sustainable Beekeeping Operations

- Smart technologies that are able to monitor bee health and improve hive management, thereby reducing colony deaths.
- Integrating the use of precision agriculture techniques for the delivery of organic pesticides. This can potentially reduce chemical use, thereby enhancing crop yields.
- Adopting the use of organic inputs such as organic feed to reduce chemical exposure and pollution. This includes the use of natural materials that are sustainably sourced and non-toxic.
- Gaining organic/sustainable agriculture-related certifications for honey and apiculture-related products.

##### II. Biodiversity Restoration and Conservation

- Increasing plant diversity and flowering species that are native to the areas surrounding apiaries. This can also create new varieties of apiculture products.
- Creating corridors for bee populations to move safely in apiculture areas.
- Integrating beekeeping with agroforestry practices enhances bee health and forest biodiversity by providing diverse forage, resulting in higher-quality honey and bee products.

##### III. Pest Management

- Pest management measures such as integrated pest management that promote biological initiatives and barriers that are not harmful to the broader environment and avoid the use of chemicals.
- Enhanced monitoring to ensure that measures have the intended benefit and are not resulting in unintended consequences.
- Investing in wild bee conservation and their habitats helps maintain biodiversity and ecosystem health by creating protected areas, planting native flowering plants, and reducing pesticide use.

##### IV. Water use and renewable energy use

- Creating water sources in close proximity to apiculture facilities, thereby reducing movement times of colonies and enhancing productivity.
- Water efficient and drip irrigation technologies to reduce water losses. This is especially important in drier regions.
- Renewable energy technologies can be used to power equipment, facilities, and other apiculture-related activities.
- Integrating energy efficiency technologies to promote energy saving and reduction in apiculture activities.

##### V. Sustainable Hive Management

- Integrating measures that promote sustainable hive spacing to avoid overcrowded colonies.
- Investing in the infrastructure and certification needed for organic honey production to meet the growing demand for chemical-free products.
- Developing and manufacturing sustainable beekeeping equipment, such as natural or recycled material hives and non-toxic pest treatments, to support eco-friendly beekeeping.

VI. Waste Reduction and Recycling
<ul style="list-style-type: none"> <li>Integrating the use of waste materials for new product development (such as the use of beeswax in soaps and candles).</li> <li>Creating a value chain that adopts the use of biodegradable and recyclable materials for apiculture processes.</li> </ul>
VII. Education and Community Engagement
<ul style="list-style-type: none"> <li>Awareness raising and training to enhance the knowledge of sustainable apiculture operations.</li> <li>Research into sustainable apiculture practices that can assist in mainstreaming activities.</li> <li>Supporting community-based beekeeping initiatives promotes sustainable livelihoods, reduces deforestation pressures, and empowers local communities.</li> <li>Establish demonstration pilots of apiaries to promote sustainable apiculture and inclusivity.</li> </ul>
<b>Technical Screening Criteria</b>
Make Significant Contribution Criteria
1. Climate Change Mitigation
Objectives: <ul style="list-style-type: none"> <li>Implementing initiatives and activities that maintain carbon stocks in vegetation and soil.</li> <li>Increasing the carbon sequestration potential of the environment by enhancing biodiversity in the surrounding environment.</li> <li>Increasing renewable energy use, energy efficiency and water efficiency activities that reduces GHG emissions.</li> <li>Reducing any air emissions from harmful chemical use.</li> </ul> Metrics Net GHG emission reductions achieved from the implementation of initiatives against a baseline measured prior to the implementation of the initiative. No threshold applicable
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment. <ul style="list-style-type: none"> <li>Practices that result in the removal of natural vegetation or deforestation, leading to habitat loss for apiculture</li> <li>Increased nutrient loads of runoff caused by the use of chemicals (pesticides, insecticides and antibiotics) in apiculture practices.</li> <li>Increased GHG emissions as a result of improved resiliency and adaptation.</li> </ul>
1. Climate Change Mitigation
Climate Adaptation Economic Activities The breeding of bee colonies to be more resilient to future climate scenarios must ensure that practices do not have any unintended consequences for other bee species and the broader environment.
2. Climate Change Adaptation

Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
New apiculture ventures have the potential to affect areas with high biodiversity value resulting in increased habitat loss and fragmentation. Consideration must be given to the use of biodiversity offsets. Restoration for the enhancement of apiculture activities must consider species that are native to the area.
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
Increased pesticides, insecticides and antibiotics must be controlled as they can increase eutrophication and contamination in aquatic ecosystems. Increased soil erosion and land degradation can increase run-off to aquatic ecosystems.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

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## Annexure 4: Mining

<b>Sector: Mining</b>
<b>Sub-sector: Large-Scale Mining</b>
<b>Economic Activities</b>
I. Exploration
Preliminary Surveys and Geological Mapping: <ul style="list-style-type: none"><li>• Remote Sensing and GIS Technologies: Investing in advanced remote sensing and Geographic Information Systems (GIS) to reduce the need for extensive ground disturbance during initial surveys.</li><li>• Use of Drones: Employing drones for aerial surveys to minimise environmental footprint and improve data accuracy without extensive fieldwork.</li><li>• Digital Mapping Tools: Utilizing digital mapping tools to reduce paper waste and improve data accuracy, facilitating better environmental management in later stages.</li><li>• Environmentally Sensitive Techniques: Applying techniques that minimise disruption to vegetation and wildlife, such as low-impact sampling methods.</li></ul> Geochemical and Geophysical Surveys <ul style="list-style-type: none"><li>• Non-Invasive Sampling: Implementing non-invasive or low-impact sampling techniques to reduce soil disturbance and habitat destruction.</li><li>• Implement revegetation and rehabilitation programs to restore disturbed land and help mitigate the impacts of land disturbance on biodiversity and ecosystems. (Srivani Maddala et al. 2021).</li><li>• Biogeochemical Methods: Using biogeochemical methods, where plant and microbial life are analyzed to detect mineral anomalies, thereby minimizing ground disturbance.</li><li>• Invest in energy-efficient, non-invasive geophysical equipment powered by renewable energy to reduce the environmental and carbon footprints of survey processes.</li></ul> Drilling <ul style="list-style-type: none"><li>• Water Management: Implementing water recycling systems in drilling operations to minimise water usage and contamination.</li><li>• Eco-friendly Drilling Fluids: Using biodegradable and non-toxic drilling fluids to reduce environmental impact.</li><li>• Low-Impact Drilling Techniques: Employing techniques that minimise surface disturbance and habitat disruption.</li><li>• Implement waste management practices such as proper disposal, recycling, and reuse of exploration waste to minimise environmental impacts and reduce the need for new raw materials. (Veriforce., 2024).</li></ul> Resource Estimation <ul style="list-style-type: none"><li>• Use of new generation technology such as Artificial Intelligence, in exploration activities to identify specific metal deposits (African Business, 2024).</li></ul>

- Data Integration and Simulation: Using advanced data integration and simulation tools to optimise exploration and reduce unnecessary drilling, thus minimizing environmental impact.
  - Sustainable Modeling Practices: Incorporating sustainability metrics into resource estimation models to account for environmental and social impacts.
- ESG and Responsibility Mining Practices
- Invest in *environmental stewardship* by protecting biodiversity, mitigating climate change, managing water resources, implementing sustainable waste management, and adopting pollution control technologies.
  - Invest in *social responsibility* by fostering strong community relationships, respecting Indigenous rights, upholding human rights, and prioritizing health and safety for workers and communities.
  - *Strengthen governance* by ensuring accountability, transparency, and ethical decision-making, while enforcing compliance, preventing corruption, and maintaining a sustainable and responsible supply chain.
  - Facilitate *ongoing stakeholder dialogue*, transparency, and reporting while forming sustainable partnerships to address concerns and collaborate on achieving development goals.
  - Invest in sustainable innovation, circular economy practices, and digitalization to reduce environmental impact, improve resource efficiency, and enhance ESG performance.

#### VIII. Mine Development Phase

##### Mine Siting and Land Disruption

- Prioritise land acquisition strategies that minimise displacement and environmental disruption while developing environmentally friendly access routes with eco-friendly materials and minimal road footprints.
- Minimise land disruption through minimizing the mining area's footprint, reducing waste generation and storage, preserving biodiversity by relocating endangered plants, and strategically planning mines near existing infrastructure. (IOC Company. (n.d.)).
- Implement lower-impact mining practices- techniques that seek to dramatically lessen surface disturbance at mining sites, cut soil erosion, and transport less backfilled material, thereby lowering energy use, water pollution, and habitat degradation. (Veriforce., 2024). Techniques may include:
  - In-situ Mining. Extracting certain minerals from ore bodies without removing the ore from the ground.
  - Selective Mining. Extracting only high-grade materials, leaving lower-grade ones in place, thereby reducing waste generation and minimizing the overall environmental impact.
  - Solution Mining. Dissolving minerals underground using water or brine, and the resulting solution is pumped to the surface for processing.

##### Infrastructure Development and Mine Construction

- Renewable Energy Infrastructure: Invest in renewable energy sources, such as solar, wind, or hydro power, to supply electricity to the mine site.
- Water Conservation Systems: Implement water recycling and conservation systems to reduce water usage and manage wastewater effectively.
- Green Construction Practices: Use eco-friendly construction materials and techniques, such as low-carbon concrete, and implement dust and noise control measures.
- Waste Minimization: Develop strategies for reducing, reusing, and recycling construction waste materials.

Machinery and Equipment

- Energy-Efficient Equipment: Invest in energy-efficient and low-emission machinery to reduce the mine’s carbon footprint.
- Automation and Smart Technology: Implement automation and smart technologies to optimise operations, reduce energy consumption, and lower emissions.

ESG and Responsibility Mining Practices

- Invest in *environmental stewardship* by protecting biodiversity, mitigating climate change, managing water resources, implementing sustainable waste management, and adopting pollution control technologies.
- Invest in *social responsibility* by fostering strong community relationships, respecting Indigenous rights, upholding human rights, and prioritizing health and safety for workers and communities.
- *Strengthen governance* by ensuring accountability, transparency, and ethical decision-making, while enforcing compliance, preventing corruption, and maintaining a sustainable and responsible supply chain.
- Facilitate *ongoing stakeholder dialogue*, transparency, and reporting while forming sustainable partnerships to address concerns and collaborate on achieving development goals.
- Invest in sustainable innovation, circular economy practices, and digitalization to reduce environmental impact, improve resource efficiency, and enhance ESG performance.

**Technical Screening Criteria**

Make Significant Contribution Criteria

1. Climate Change Mitigation

a.) Objectives:

- Reducing greenhouse gas emissions by adopting energy-efficient technologies, transitioning to renewable energy sources, and optimizing fuel use.
- Improving energy efficiency by enhancing management practices, upgrading energy-efficient equipment, and implementing best practices throughout the mining lifecycle.
- Promoting sustainable mining practices by restoring ecosystems, reducing water usage, and minimizing waste through recycling and reuse.
- Developing low-carbon technologies by investing in R&D and collaborating with stakeholders to innovate sustainable solutions.
- Enhancing carbon sequestration by capturing and storing CO<sub>2</sub> emissions and exploring both natural and artificial sequestration methods.

b) Metrics and Thresholds:

Net reduction in GHG emissions as a result of energy, energy efficiency, waste management, waste reuse and other low-carbon carbon technologies relative to a business-as-usual baseline. The taxonomy user is responsible for the development of the baseline prior to the implementation of taxonomically aligned initiatives. The baseline will require verification from the Ministry of Green Economy and Environment.

2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
1. Climate Change Mitigation
Emissions from organic waste management practices are controlled by a monitoring plan. The selection of dissolving minerals and solvents must consider the broader environmental impact criteria and be subject to a full chemical risk assessment. See waste sub-sectors.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
The relocation of endangered species or removal of keystone species should not affect the biodiversity of new locations. A landscape approach must be adopted to ensure that new ecosystems are unaffected by relocations. Generic DNSH criteria section 5.2.4.
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
In addition, mining practices must undertake assessments to ensure that the use of solvents and chemicals do not have unintended consequences for groundwater resources or the pollution of surface water resources during the waste disposal phases. Mining practices must be aligned with Environmental Management Act and Mines and Minerals Development Act.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3. For mining economic activities, social safeguards must include mitigation measures regarding the resettlement of displaced communities, occupational and health safety of workers in mining and adjacent operations, and equitable access to green jobs to facilitate the just transition.

## Sector: Mining (Cont.)

### Sub-sector: Large-Scale Mining

#### Economic Activities

##### I. Mining Operations Phase

###### Ore Extraction and Materials Handling

- Invest in low-impact mining techniques, such as precision mining and reduced surface disturbance methods, alongside electric or hybrid equipment to minimise environmental disruption, reduce greenhouse gas emissions, and decrease reliance on fossil fuels.
- Energy-Efficient Transport Systems: Implement energy-efficient conveyors and haulage systems, such as electric trucks, to reduce energy consumption and emissions.
- Dust Suppression Technologies: Use eco-friendly dust control methods to minimise air pollution during material transport.

###### Ore Processing and Beneficiation

- Adoption of *geometallurgical approaches* that allows for the processing of ore deposits that were previously uneconomical by reducing production risks associated with geological and mineralogical complexities, low-grade ores, and higher costs of consumables such as energy, water, and chemicals. (Viktor Lishchuk et al. 2020)
- Utilization of *biotechnologies* in mineral processing, such as bioleaching and microbially induced flotation, presents low-cost, environmentally friendly alternatives to traditional techniques for the beneficiation of low-grade ores. (Zhang, M. et al. 2015)
- In Coal mining, investment in methods to produce *cleaner coal* with reduced silicon content. This has several implications for climate risk mitigation and adaptation in terms of reduced emissions and improved energy efficiency. (Yang, Y. et al. 2019).

###### Water Management and Conservation

- Use of innovative water recycling, treatment, and conservation technologies in reducing both water consumption and the pollution of water sources (Aggregates Equipment Inc. ,2021).
- Use of sampling, test-work and modelling in identifying potential acid mine drainage (AMD) pollution, which can have severe negative impacts on aquatic life and overall river health. (Pan African Resources., 2020).

###### Reduced Energy Consumption

- Adoption of alternative energy sources like solar, wind, and hydroelectric power to promote efficiency, cost-effectiveness, and reliability in power supply. Additionally, integrating modern technology, such as high-efficiency motors, compressors, and pumps, offers further avenues for energy savings across mining operations. (Pan African Resources., 2020).
- Grid Strengthening: modernizing electricity infrastructure to manage the increased demand and variability from renewable energy sources through upgrades to transmission lines, smart grid technologies, energy storage<sup>4</sup>, grid resilience solutions, and interconnection economic activities.

<sup>4</sup> Developing and deploying advanced energy storage technologies like lithium-ion batteries, flow batteries, and pumped hydro storage to manage the intermittency of renewable energy sources.

- Use of advanced High-Pressure Grinding Rolls (HPGR) and Stirred Mills to significantly enhances grinding efficiency in mineral ore processing. These technologies reduce energy consumption and associated greenhouse gas emissions, lowering operational costs and improving the overall sustainability of mining operations. (Ballantyne, G.R. & Powell, M.S. 2014)
- Energy efficiency through use of electric vehicles and energy-efficient machinery. Further, reduce reliance on fossil fuels through use of other renewable energy sources like biodiesel (Aggregates Equipment Inc.,2021)
- Installed heat and power plant, at the Mining site, running on renewable energy sources. Further, switch to more eco-friendly electric equipment. (Massachusetts Institute of Technology – MIT, 2016).
- Upgrade the concentration of the ore body (before crushing and grinding)- through resource energy efficient blasting, ore sorting, and waste-rock rejection. (Dr Michael H. Smith (Australian National University)).
- Additional measures to enhance energy efficiency of mineral separation processes like mixers, agitators, and froth flotation cells, optimizing drying and dewatering procedures, improving underground mine air conditioning and ventilation systems, and addressing energy usage in above-ground office and staff accommodations. (Dr Michael H. Smith (Australian National University)).
- Enhance the energy efficiency of materials movement through investing in and retrofitting electric draglines for better energy performance; opting for overburden slushers instead of conventional draglines; improving haul truck efficiency through methods like light-weighting, reducing travel distances, and optimizing driving practices. (Dr Michael H. Smith (Australian National University)).
- Additionally, replacing diesel trucks with hybrid diesel-electric models, utilizing conveyor belts instead of haul trucks where feasible, and implementing mobile "In-Pit-Crusher-Conveyor" (IPCC) systems to minimise reliance on haul trucks whenever possible. (Dr Michael H. Smith (Australian National University)).

#### Mining Waste Management

- Re-treat tailings to recover minerals and trace elements left over from previous generations of processing technology and capabilities thus ensuring that mining waste is managed safely and efficiently to prevent disasters. (Pan African Resources., 2020)
- Adoption of innovative extraction technologies from mine tailings, such as bioleaching and phytomining, hydrometallurgical processes, and electrochemical methods, which offers a more energy-efficient and environmentally friendly way to recover metals. (Falagán, C. 2017)
- Waste water removal and recycling, from tailings dams, to create an impermeable layered paste in the dam that prevents seepage of toxic materials that may pollute water within the surrounding areas (Massachusetts Institute of Technology- MIT., 2016).
- Depending on the mineral and chemical composition of the tailings, can incorporate tailings into brick manufacturing processes, employ them as additives to extend paint, or integrate them into agroforestry practices (Future Bridge Mining., 2022).
- Implement waste recycling equipment that reprocesses waste materials from mining operations, minimises environmental impact, and fosters a circular economy. (Veriforce., 2024).
- Improvement of the saponification step, during the refining process, to reduce the toxicity of the wastewater. (Massachusetts Institute of Technology- MIT., 2016)

- Adoption of rigorous *monitoring and risk management* that aligns with global best practices, to mitigate the environmental and climate-related risks associated with tailings dams. (Clarkson, L. & Williams, D. 2019)
- Utilization of *acid mine drainage (AMD) prevention techniques*. In the context of mining, sulfides (Pyrite) are significant because their oxidation can lead to AMD, a major environmental issue where acidic water containing dissolved metals contaminates ecosystems. By creating oxygen barriers and passivating sulfide minerals, AMD formation may be prevented. (Park, I. et al. 2019)
- *Mine tailings recycling* which involves repurposing waste materials from mining as industrial and geopolymer materials. These materials serve as eco-friendly alternatives to traditional cement and concrete, offering benefits such as reduced carbon emissions, high thermal stability, and superior durability. They are utilised in construction, waste management, and various industrial applications, contributing to more sustainable and environmentally friendly practices in these sectors. (Park, I. et al. 2019).

#### Pollution and land degradation

- Use of sonic drills, which is a rapid and fluid-free drilling method, that significantly reduces environmental impact. (Srivani Maddala et al. 2021)
- Use of dust suppression techniques to minimise the large amounts of dust released into the atmosphere during the mining process, especially in Open Pit Mines, by pre-wetting the areas to be blasted with high volume sprinklers. (Massachusetts Institute of Technology- MIT., 2016).
- Installation of Treatment Plants to minimise CO<sub>2</sub> emissions and other harmful chemicals. (Massachusetts Institute of Technology- MIT., 2016).

#### ESG and Responsibility Mining Practices

- Invest in *environmental stewardship* by protecting biodiversity, mitigating climate change, managing water resources, implementing sustainable waste management, and adopting pollution control technologies.
- Invest in *social responsibility* by fostering strong community relationships, respecting Indigenous rights, upholding human rights, and prioritizing health and safety for workers and communities.
- *Strengthen governance* by ensuring accountability, transparency, and ethical decision-making, while enforcing compliance, preventing corruption, and maintaining a sustainable and responsible supply chain.
- Facilitate *ongoing stakeholder dialogue*, transparency, and reporting while forming sustainable partnerships to address concerns and collaborate on achieving development goals.
- Invest in sustainable innovation, circular economy practices, and digitalization to reduce environmental impact, improve resource efficiency, and enhance ESG performance.

## II. Mine Closure Phase

#### Decommissioning and Dismantling

- Invest in recycling and repurposing materials from dismantled infrastructure to reduce waste and support circular economy practices.
- Use eco-friendly demolition techniques to minimise dust, noise, and emissions.

#### Biodiversity Conservation

- Implement responsible land reclamation and habitat restoration plans that involves restoring mining sites to their original natural condition post-extraction, thereby supporting the revival of ecosystems for enhanced biodiversity conservation. (Aggregates Equipment Inc. ,2021)

- Use of phytoextraction and phytostabilisation for heavy metal remediation in acid mine drainage (AMD). Phytoextraction employs plants to absorb and concentrate heavy metals, reducing soil and water contamination and enhancing ecosystem resilience to climate change. Phytostabilisation involves using plants to immobilise heavy metals in the soil, preventing their migration, controlling erosion, and protecting soil, which is crucial for land stability under changing climatic conditions. Additionally, these approaches support ecosystem restoration by reestablishing vegetation, enhancing biodiversity, and restoring habitats to better withstand climate-related stresses. (Mang, K.C.& Ntushelo, K. 2019)
- Land rehabilitation through reforestation and waste management, and by working more closely with surrounding communities to minimise the adverse effects of mining on the community. (International Energy Agency, 2024).
- Establishment of nurseries aimed at restoring natural ecosystems, and in addition planting of trees, which effectively capture and reduce carbon dioxide emissions (Srivani Maddala et al., 2021)
- Repurposing municipal biosolid waste to revitalise old mining sites, thereby enhancing soil organic content and mitigating environmental effects.
- Utilizing biosurfactants derived from bacteria, fungi, or plants in soil washing processes aids in the removal of heavy metals, offering a nontoxic and biodegradable solution. (Srivani Maddala et al. 2021)

#### Community Transition and Social Programs

- Invest in community projects that promote renewable energy, eco-tourism, and sustainable agriculture as alternative livelihoods.
- Provide green skills training programs in green jobs and sustainable practices to support community resilience post-closure.

#### ESG and Responsibility Mining Practices

- Invest in *environmental stewardship* by protecting biodiversity, mitigating climate change, managing water resources, implementing sustainable waste management, and adopting pollution control technologies.
- Invest in *social responsibility* by fostering strong community relationships, respecting Indigenous rights, upholding human rights, and prioritizing health and safety for workers and communities.
- *Strengthen governance* by ensuring accountability, transparency, and ethical decision-making, while enforcing compliance, preventing corruption, and maintaining a sustainable and responsible supply chain.
- Facilitate *ongoing stakeholder dialogue*, transparency, and reporting while forming sustainable partnerships to address concerns and collaborate on achieving development goals.
- Invest in sustainable innovation, circular economy practices, and digitalization to reduce environmental impact, improve resource efficiency, and enhance ESG performance.

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives

- Reducing greenhouse gas emissions by adopting energy-efficient technologies, transitioning to renewable energy sources, and optimizing fuel use.

<ul style="list-style-type: none"> <li>Improving energy efficiency by enhancing management practices, upgrading energy-efficient equipment, and implementing best practices throughout the mining lifecycle.</li> <li>Promoting sustainable mining practices by restoring ecosystems, reducing water usage, and minimizing waste through recycling and reuse.</li> <li>Developing low-carbon technologies by investing in R&amp;D and collaborating with stakeholders to innovate sustainable solutions.</li> <li>Enhancing carbon sequestration by capturing and storing CO<sub>2</sub> emissions and exploring both natural and artificial sequestration methods.</li> </ul>
<p>b) Metrics and Thresholds:  Net reduction in GHG emissions as a result of energy, energy efficiency, waste management, waste reuse and other low-carbon carbon technologies relative to a business-as-usual baseline. The taxonomy user is responsible for the development of the baseline prior to the implementation of taxonomically aligned initiatives. The baseline will require verification from the Ministry of Green Economy and Environment.</p>
<p>2. Climate Change Adaptation</p>
<p>Depending on the primary objective of the activity, refer to Annexure A.</p>
<p>Do No Significant Harm assessment</p>
<p>The following are potential factors that must be considered during the DNSH assessment.</p>
<p>1. Climate Change Mitigation</p>
<p>Emissions from organic waste management practices are controlled by a monitoring plan. The selection of dissolving minerals and solvents must consider the broader environmental impact criteria and be subject to a full chemical risk assessment. See waste sub-sectors.</p>
<p>2. Climate Change Adaptation</p>
<p>Generic DNSH criteria section 5.2.2.</p>
<p>3. Sustainable use of water and water security</p>
<p>Generic DNSH criteria section 5.2.3.</p>
<p>4. Biodiversity, Ecosystem Protection and Restoration</p>
<p>Biodiversity conservation within the mine closure phase must be undertaken at a landscape level. Conservation efforts must be considered in the context of the Environmental Management Act and the Zambia Wildlife Act and other environmental national legislation and policies. Restoration efforts must ensure that the introduction of new alien invasive species is avoided. In addition, restoration efforts must assess the potential negative consequences for adjacent ecosystems especially on sensitive habitats and river systems. Biodiversity conservation efforts must ensure that the introduction of pests and diseases are avoided during the rehabilitation phase.</p>
<p>5. Sustainable resource use and circularity</p>
<p>Generic DNSH criteria section 5.2.6.</p>
<p>6. Pollution Prevention</p>
<p>Generic DNSH criteria section 5.2.5.</p>
<p>Compliance with MSS</p>

Taxonomy users must comply with the criteria set out in Section 3.

For mining economic activities, social safeguards must include mitigation measures regarding the resettlement of displaced communities, occupational and health safety of workers in mining and adjacent operations, and equitable access to green jobs to facilitate the just transition.

## Sector: Mining

### Sub-sector: Artisanal and Small-Scale Mining (ASM)<sup>5</sup>

#### Economic Activities

##### I. Prospecting and Exploration

- Implement revegetation and rehabilitation programs to restore disturbed land and help mitigate the impacts of land disturbance on biodiversity and ecosystems. (Srivani Maddala et al. 2021).
- Investment in portable tools and non-invasive sampling methods to minimise environmental disturbance during prospecting.
- Community-Led Exploration through training and involvement of local communities in sustainable exploration practices to ensure respect for ecosystems.
- Use of remote sensing, GIS, and drones to identify mineral deposits with minimal environmental impact.
- Environmental Baseline Studies: Conduct early environmental assessments and biodiversity studies to plan for and mitigate potential impacts.
- Implement waste management practices such as proper disposal, recycling, and reuse of exploration waste to minimise environmental impacts and reduce the need for new raw materials. (Veriforce., 2024).

##### II. Site Preparation

- Minimise land disruption through minimizing the mining area's footprint, reducing waste generation and storage, preserving biodiversity by relocating endangered plants, and strategically planning mines near existing infrastructure. ((HC Company. (n.d.)).
- Use of manual clearing methods and selective vegetation removal to minimise environmental disruption.
- Sustainable Infrastructure Development: Build infrastructure using renewable materials and low-impact construction methods to reduce environmental impact.
- Implement lower-impact mining practices- techniques that seek to dramatically lessen surface disturbance at mining sites, cut soil erosion, and transport less backfilled material, thereby lowering energy use, water pollution, and habitat degradation. (Veriforce., 2024).

##### III. Mining and Processing

###### Low Impact Mining

- Precision Mining Techniques: Use technologies like precision drilling and blasting to target mineral-rich areas with minimal surface disturbance.
- Reduced Surface Disturbance: Implement methods such as underground mining or shallow digging to minimise the impact on the landscape.
- Vegetation Preservation: Invest in techniques that protect surrounding vegetation and avoid unnecessary clearing.
- Soil Stabilization: Use soil stabilization techniques to prevent erosion and maintain the integrity of the land during and after mining.

<sup>5</sup> Artisanal and small-scale mining (ASM) typically involves simpler and less capital-intensive methods of mineral extraction and may be undertaken by individuals or small groups. As more research is still required to formalise it, the ASM sector is aligned to large-scale mining. Enabling conditions to promote sustainability could include: the development of a legal framework; formation of joint ventures and ASM associations; enhancing access to finance and credit; capacity building and training; promoting access to technology and equipment; and creating partnerships with large scale mining (LSM) partnerships.

- Rehabilitation During Mining: Integrate ongoing rehabilitation efforts, such as backfilling and replanting, during the mining process to reduce environmental impact.
- Energy-Efficient Equipment: Use low-impact, energy-efficient machinery to minimise fuel consumption and emissions during mining operations.

#### Water Management and Conservation

- Use of innovative water recycling, treatment, and conservation technologies in reducing both water consumption and the pollution of water sources (Aggregates Equipment Inc. ,2021).
- Rainwater Harvesting: Implement rainwater harvesting systems to supplement water supply and reduce dependence on local water sources.
- Sediment Control: Develop measures such as sediment ponds or silt traps to prevent sediment runoff from mining sites into nearby water bodies.
- Efficient Water Use Practices: Promote techniques and equipment that minimise water use in extraction and processing activities.
- Groundwater Protection: Invest in measures to prevent contamination of groundwater sources, such as lining ponds and monitoring water quality.

#### Reduced Energy Consumption

- Adoption of alternative energy sources like solar, wind, and hydroelectric power to promote efficiency, cost-effectiveness, and reliability in power supply. Additionally, integrating modern technology, such as high-efficiency motors, compressors, and pumps, offers further avenues for energy savings across mining operations. (Pan African Resources., 2020).
- Energy efficiency through use of electric vehicles and energy-efficient machinery. Further, reduce reliance on fossil fuels through use of other renewable energy sources like biodiesel (Aggregates Equipment Inc.,2021)
- Upgrade the concentration of the ore body (before crushing and grinding)- through resource energy efficient blasting, ore sorting, and waste-rock rejection. (Dr Michael H. Smith (Australian National University)).
- Additionally, replacing diesel trucks with hybrid diesel-electric models, utilizing conveyor belts instead of haul trucks where feasible, and implementing mobile "In-Pit-Crusher-Conveyor" (IPCC) systems to minimise reliance on haul trucks whenever possible. (Dr Michael H. Smith (Australian National University)).
- Energy Storage Solutions: Implement battery storage systems to optimise the use of renewable energy and ensure a reliable energy supply.
- Energy Management Systems: Invest in systems that monitor and optimise energy use across mining operations to reduce waste and improve efficiency.

#### Mercury-Free Processing:

- Alternative Extraction Methods: Invest in safer, mercury-free techniques such as gravity concentration, flotation, or cyanide leaching for gold extraction.
- Cyanide Management Systems: Implement strict cyanide management practices, including proper storage, handling, and detoxification, to minimise environmental risks.
- Retort Technology: Provide access to retort technology for miners to safely capture and reuse mercury in cases where mercury is still being phased out.
- Training and Education: Educate miners on the environmental and health benefits of mercury-free processing and provide training on alternative methods.
- Access to Mercury-Free Equipment: Subsidise or facilitate access to affordable, efficient, and mercury-free processing equipment for small-scale miners.
- Community Awareness Programs: Develop community outreach initiatives to raise awareness about the dangers of mercury use and the benefits of transitioning to mercury-free methods.

### Mining Waste Management

- Tailings Management: Invest in safe tailings storage facilities that prevent leaks and contamination and promote the use of thickened or dry tailings disposal methods.
- Re-treat tailings to recover minerals and trace elements left over from previous generations of processing technology and capabilities thus ensuring that mining waste is managed safely and efficiently to prevent disasters. (Pan African Resources., 2020)
- Depending on the mineral and chemical composition of the tailings, can incorporate tailings into brick manufacturing processes, employ them as additives to extend paint, or integrate them into agroforestry practices (Future Bridge Mining., 2022).
- Implement waste recycling equipment that reprocesses waste materials from mining operations, minimises environmental impact, and fosters a circular economy. (Veriforce., 2024).
- *Mine tailings recycling* which involves repurposing waste materials from mining as industrial and geopolymer materials. These materials serve as eco-friendly alternatives to traditional cement and concrete, offering benefits such as reduced carbon emissions, high thermal stability, and superior durability. They are utilised in construction, waste management, and various industrial applications, contributing to more sustainable and environmentally friendly practices in these sectors. (Park, I. et al. 2019).
- Safe Disposal Practices: Establish protocols for the safe disposal of hazardous waste, ensuring it does not contaminate soil, water, or air.
- Community-Based Waste Management: Support community-driven initiatives to manage and reduce mining waste, such as collective waste management programs or local recycling economic activities.

### Pollution and land degradation

- Use of sonic drills, which is a rapid and fluid-free drilling method, that significantly reduces environmental impact. (Srivani Maddala et al. 2021)
- Use of dust suppression techniques to minimise the large amounts of dust released into the atmosphere during the mining process, especially in Open Pit Mines, by pre-wetting the areas to be blasted with high volume sprinklers. (Massachusetts Institute of Technology- MIT., 2016).
- Installation of Treatment Plants to minimise CO<sub>2</sub> emissions and other harmful chemicals. (Massachusetts Institute of Technology- MIT., 2016).

### Worker Safety and Training:

- Safety Training Programs: Invest in comprehensive safety training programs that educate miners on safe mining practices, hazard identification, and emergency response.
- Personal Protective Equipment (PPE): Provide access to high-quality PPE, such as helmets, gloves, masks, and boots, to protect workers from injury and exposure to hazardous substances.
- Health and Safety Monitoring: Implement systems to monitor and assess health and safety conditions at mining sites, ensuring compliance with safety standards and identifying areas for improvement.
- Sustainable Mining Techniques Training: Offer training in sustainable and low-impact mining techniques that prioritise worker safety and environmental protection.
- Community-Based Safety Initiatives: Support community-driven safety initiatives that promote collective responsibility for safe mining practices and the well-being of all workers.

<ul style="list-style-type: none"> <li>• Worker Health Programs: Invest in programs that monitor and improve the health of workers, including regular medical check-ups, vaccinations, and education on occupational health risks.</li> </ul>
<h4>IV. Transportation and Marketing</h4>
<ul style="list-style-type: none"> <li>• Eco-Friendly Transportation: Invest in low-emission or electric vehicles for transporting minerals to reduce carbon footprints and environmental impact.</li> <li>• Efficient Logistics Planning: Develop efficient transportation routes and logistics systems to minimise fuel consumption and reduce travel distances.</li> <li>• Sustainable Packaging: Use biodegradable or recyclable packaging materials for transporting and marketing minerals to reduce waste.</li> <li>• Fair Trade and Certification: Support initiatives that certify sustainably mined products, ensuring that minerals meet environmental and social standards in the market.</li> <li>• Digital Marketing Platforms: Promote the use of digital platforms for marketing and selling minerals, reducing the need for physical travel and paper-based transactions.</li> <li>• Local Market Development: Encourage the development of local markets to reduce transportation distances and support sustainable economic growth within mining communities.</li> </ul>
<h4>V. Mine Closure and Site Rehabilitation</h4>
<h5>Biodiversity Conservation</h5> <ul style="list-style-type: none"> <li>• Implement responsible land reclamation and habitat restoration plans that involves restoring mining sites to their original natural condition post-extraction, thereby supporting the revival of ecosystems for enhanced biodiversity conservation. (Aggregates Equipment Inc. ,2021)</li> <li>• Use of phytoextraction and phytostabilisation for heavy metal remediation in acid mine drainage (AMD). Phytoextraction employs plants to absorb and concentrate heavy metals, reducing soil and water contamination and enhancing ecosystem resilience to climate change. Phytostabilisation involves using plants to immobilise heavy metals in the soil, preventing their migration, controlling erosion, and protecting soil, which is crucial for land stability under changing climatic conditions. Additionally, these approaches support ecosystem restoration by reestablishing vegetation, enhancing biodiversity, and restoring habitats to better withstand climate-related stresses. (Mang, K.C.&amp; Ntushelo, K. 2019)</li> <li>• Land rehabilitation through reforestation and waste management, and by working more closely with surrounding communities to minimise the adverse effects of mining on the community. (International Energy Agency., 2024).</li> <li>• Establishment of nurseries aimed at restoring natural ecosystems, and in addition planting of trees, which effectively capture and reduce carbon dioxide emissions. (Srivani Maddala et al. 2021)</li> </ul> <h5>Land Degradation</h5> <ul style="list-style-type: none"> <li>• Repurposing municipal biosolid waste to revitalise old mining sites, thereby enhancing soil organic content and mitigating environmental effects.</li> <li>• Utilizing biosurfactants derived from bacteria, fungi, or plants in soil washing processes aids in the removal of heavy metals, offering a nontoxic and biodegradable solution. (Srivani Maddala et al. 2021)</li> </ul>
<h4>VI. Regulation and Formalisation</h4>
<ul style="list-style-type: none"> <li>• Legal Framework Development: Support the creation and enforcement of environmental regulations tailored to ASM operations, ensuring sustainable practices.</li> </ul>

- Invest in programs that help ASM operators transition from informal to formal status, providing them with resources, training, and market access, similar to the ENAMI<sup>6</sup> model in Chile.
- Environmental Compliance Monitoring: Implement systems to monitor and ensure compliance with environmental laws and regulations within ASM activities.
- Capacity Building for Regulators: Provide training and resources to regulatory bodies such as ZEMA, to effectively oversee and manage ASM activities, focusing on environmental stewardship.
- Access to Green Financing: Facilitate access to financing options that incentivise sustainable practices and environmental responsibility among ASM operators.
- Community Awareness and Education: Promote awareness campaigns and educational programs to inform miners and communities about the benefits of formalization and adherence to environmental regulations.

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Reducing greenhouse gas emissions by adopting energy-efficient technologies, transitioning to renewable energy sources, and optimizing fuel use.
- Improving energy efficiency by enhancing management practices, upgrading energy-efficient equipment, and implementing best practices throughout the mining lifecycle.
- Promoting sustainable mining practices by restoring ecosystems, reducing water usage, and minimizing waste through recycling and reuse.
- Developing low-carbon technologies by investing in R&D and collaborating with stakeholders to innovate sustainable solutions.
- Enhancing carbon sequestration by capturing and storing CO<sub>2</sub> emissions and exploring both natural and artificial sequestration methods.

###### b) Metrics and Thresholds:

Net reduction in GHG emissions as a result of energy, energy efficiency, waste management, waste reuse and other low-carbon carbon technologies relative to a business-as-usual baseline. The taxonomy user is responsible for the development of the baseline prior to the implementation of taxonomically aligned initiatives. The baseline will require verification from the Ministry of Green Economy and Environment.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

#### Do No Significant Harm assessment

The following are potential factors that must be considered during the DNSH assessment.

<sup>6</sup> ENAMI (MSCC) is a state-owned mining company in Chile that primarily supports and promotes the development of the artisanal and small-scale mining (ASM) sector by serving as an off-taker, offering technical assistance, and providing financing options. ENAMI plays a critical role in enabling small miners to access global markets, ensuring fair pricing, and supporting the legal formalization of their operations, thereby advancing sustainable mining practices throughout the sector (Revistas Chilenas) (Glencore).

1. Climate Change Mitigation
Emissions from organic waste management practices are controlled by a monitoring plan. The selection of dissolving minerals and solvents must consider the broader environmental impact criteria and be subject to a full chemical risk assessment. See waste sub-sectors.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
The relocation of endangered species or removal of keystone species should not affect the biodiversity of new locations. A landscape approach must be adopted to ensure that new ecosystems are unaffected by relocations. Generic DNSH criteria section 5.2.4.
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
In addition, mining practices must undertake assessments to ensure that the use of solvents and chemicals do not have unintended consequences for groundwater resources or the pollution of surface water resources during the waste disposal phases. Mining practices must be aligned with Environmental Management Act and the Mines and Minerals Development Act.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3. For mining economic activities, social safeguards must include mitigation measures regarding the resettlement of displaced communities, occupational and health safety of workers in mining and adjacent operations, and equitable access to green jobs to facilitate the just transition.

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## Annexure 5: Tourism

<b>Sector: Tourism</b>
<b>Sub-sector: Wildlife and Conservation Tourism</b>
<b>Economic Activities</b>
<b>Enabling Environment</b>
I. Tourism-related accommodation
<ul style="list-style-type: none"> <li>• Developments for tourism-related accommodations, including eco-lodges could integrate the following measures to enhance their sustainability objectives:</li> <li>• Renewable energy use and energy efficiency within buildings. Initiatives could include LED lighting, energy efficiency appliances and the use of thermally efficient building materials and micro-renewable energy systems such as rooftop solar PV.</li> <li>• Green building certifications: Integrating the use of green building certification schemes (e.g. LEED, BREEAM and Green Star).</li> <li>• Sustainable building materials: Supporting the use of sustainable materials within building structures, such as bamboo and recycled metal.</li> <li>• Adopting the use of sustainable water and waste management practices.</li> </ul>
II. Transportation and transportation networks for tourism-related activities
<ul style="list-style-type: none"> <li>• Economic activities in electric and hybrid vehicles that can act as public transportation for tourists. This includes all vehicle types.</li> <li>• Integration of sustainable fuel options for transportation modes. This may include biofuels, if they are deemed to be sustainable.</li> <li>• Adopting the use of non-emission transportation modes such as bicycle sharing programmes to reduce the reliance on emission-intensive transport. The support of non-emission transportation may include the support for vehicles and the enabling infrastructure (e.g. building of cycling pathways).</li> <li>• Low-emission public transportation options such as trams, trains and buses that reduce the reliance on personal high-emission transportation options.</li> </ul>
III. Renewable energy generation and supply
<ul style="list-style-type: none"> <li>• Renewable energy supply and generation-associated installations for new tourism-related activities. This could include the use of solar, wind, geothermal, biomass and hydropower to conservation sites, eco-lodges, and tourist facilities. Please see the energy sector ZGFT classification (Annexure 2).</li> </ul>
IV. Water Conservation and Management
<ul style="list-style-type: none"> <li>• Water saving technologies that are integrated into the design of tourism-related accommodation. Water saving technologies could include rainwater harvesting, greywater recycling systems and water-efficient showerheads.</li> <li>• Restoration and rehabilitation of aquatic ecosystems that may have been disturbed by the construction of tourism-related activities. For example, supporting the restoration of wetlands and estuaries, which provide critical nursery habitats for fish and the provision of natural water filtration services.</li> </ul>
V. Waste Management

<ul style="list-style-type: none"> <li>Waste initiatives could include composting and compostable infrastructure (toilets), reuse and recycling programmes and waste-to-energy technologies. Additional guidance is provided in the waste sector ZGFT classification (Annexure 7).</li> </ul>
VI. Activities promoting the integration of the green economy principle in the tourism sector
<ul style="list-style-type: none"> <li>Compliance with environmental social safeguards.</li> <li>Promotion of green business development and green growth initiatives.</li> </ul>
<b>Service Offerings to Tourists</b>
VII. Tourism Operators and Agencies
<ul style="list-style-type: none"> <li>Integrating eco-friendly tourism packages to drive demand towards sustainable tourism. This may include packages based on the use of eco-lodges, green transportation and the promotion of green activities.</li> <li>Tourism packages should be developed that promote carbon offsetting of tourism activities, allowing for financial compensation to support mitigation activities.</li> <li>Partnership creation with local communities, conservation authorities and organisations to create tourism programmes that drive demand for green activities.</li> </ul>
VIII. Food and beverages for tourism-related activities
<ul style="list-style-type: none"> <li>Promoting the use of local ingredients that reduce the carbon footprint associated with the production and transportation of food products.</li> <li>Support for the use of organic and sustainably certified products.</li> <li>Programmes that aim to reduce food waste associated with tourism-related facilities where food-waste can be used for donation programmes and composting. This may include the use of sustainable packages such as those that are biodegradable or reusable.</li> </ul>
IX. Tourist souvenir offerings
<ul style="list-style-type: none"> <li>Programmes that support the production of souvenirs that are locally made from sustainable materials. The souvenirs could be fair-trade products.</li> <li>Encourage souvenir shopping that does not promote the use of plastics or any non-biodegradable packaging.</li> <li>Facilities selling souvenirs should align with enabling conditions that promote green activities.</li> <li>Promoting the use of souvenirs that are produced using second-hand or up-cycled materials.</li> </ul>
<b>Wildlife and conservation specific tourism</b>
X. Wildlife and Conservation
<ul style="list-style-type: none"> <li>Incorporation of anti-poaching initiatives that reduce the potential for loss of wildlife. This may include the use of drone technologies and surveillance equipment.</li> <li>Developing initiatives that allow tourists to support wildlife indirectly through donations. For example, the “adopt an animal” initiative where tourists are able to provide financial assistance for wildlife in a particular region that is endangered or under threat.</li> <li>Development of wildlife sanctuaries and rehabilitation centres for abandoned or injured wildlife that can be used to support the education of tourists.</li> <li>Sustainable wildlife viewing programmes that reduce disturbances to the natural environment and wildlife located in these environments.</li> </ul>
XI. Protected Areas

<ul style="list-style-type: none"> <li>Protected area infrastructure that aligns with the enabling conditions that adopt the use of green buildings, renewable energies, energy efficiency and sustainable water and waste management.</li> <li>Integration of restoration activities in protected areas that can be offered to tourists, such as mangrove replanting.</li> <li>Incorporation of low-impact, environmentally friendly tourism that allows for positive tourism experiences but reduces waste and general environmental impacts (camping).</li> </ul>
<b>Technical Screening Criteria</b>
<b>Make Significant Contribution Criteria</b>
1. Climate Change Mitigation
Objectives: <ul style="list-style-type: none"> <li>Renewable energy and energy efficiency to support tourist facilities and activities.</li> <li>Promoting biodiversity restoration activities by tourists that could deliver emission reductions, such as tree planting.</li> <li>Incorporating low-carbon transportation options and networks that can be integrated into tourism activities.</li> </ul>
Metrics: Net GHG emission reductions achieved from the implementation of initiatives against a baseline measured prior to the implementation of the initiative. No threshold applicable
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
<b>Do No Significant Harm assessment</b>
The following are potential factors that must be considered during the DNSH assessment: <ul style="list-style-type: none"> <li>Tourism activities and their associated infrastructure can have significant impacts on habitat loss, habitat fragmentation and wildlife populations.</li> <li>Tourism activities can increase the interactions between humans and wildlife. This can alter the behavioural characteristics of wildlife.</li> <li>Tourism activities can result in significant increases in waste and pollution to the natural environment. This must be controlled to reduce habitat degradation and wildlife losses.</li> </ul>
1. Climate Change Mitigation
Large-scale climate mitigation economic activities for tourism developments can lead to the displacement of local populations; this can exacerbate the poverty cycle. In addition, economic activities may result in habitat fragmentation and can increase human-wildlife conflicts, which affect communities and conservation efforts.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security

<p>Taxonomy users must consider where tourism developments are located. For example, tourism facilities located in water-stressed areas can result in an over-abstraction of surface water which could have downstream effects to local communities and the agriculture sector. In addition, it can also reduce the water availability for wildlife leading to stress for wildlife populations.</p> <p>Tourism facilities and accommodations can lead to habitat fragmentation. This can cause the diversion of water courses that may affect riverine flow and therefore downstream communities. A hydrological assessment must be considered to ensure tourism facilities do not affect natural water systems. In addition, tourism infrastructure must consider potential impacts on groundwater and wetland systems, which support wildlife.</p>
<p>4. Biodiversity, Ecosystem Protection and Restoration</p>
<p>Tourism can have significant effects on the natural environment. The development of tourist facilities and infrastructure and high visitor numbers can result in habitat loss and fragmentation that can affect wildlife populations. Tourism activities may also result in the introduction of invasive alien species that could outcompete local species and cause ecosystem and population collapse. Tourism can also increase the likelihood of road kills or vehicle collisions with animals, hunting or poaching. Lastly, wildlife tourism can affect wildlife migration patterns as well as general behaviour.</p>
<p>5. Sustainable resource use and circularity</p>
<p>Tourism facilities must consider the potential impacts of waste on the natural environment. Improper waste disposal facilities can result in harmful effects on wildlife and ecosystem functionality. Tourism can increase waste, such as single-use plastics and other litter. Waste disposal in aquatic systems must be monitored and avoided.</p>
<p>6. Pollution Prevention</p>
<p>Generic DNSH criteria section 5.2.5.</p>
<p>Compliance with MSS</p>
<p>Taxonomy users must comply with the criteria set out in Section 3.</p> <p>In addition, project developers must recognise and respect the realities of land tenure systems in Zambia. This context is situated in the Lands Act of 1995. The Lands Act makes provision for the role of customary land ownership and traditional leadership. It is essential that a project developer understand this context before any project implementation is undertaken. Social safeguards must ensure that buy-in or permission is gained from traditional communities and leadership regarding tourism economic activities.</p>

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## Annexure 6: Transport

<b>Sector: Transport</b>
<b>Sub-sector: Aviation</b>
<b>Economic Activities</b>
<p>I. Low carbon airport infrastructure</p> <ul style="list-style-type: none"> <li>• Sustainable airport design: Investment in green building materials and energy-efficient design for new infrastructure economic activities and renovations.</li> <li>• Sustainable aviation fuels (SAFs): Infrastructure investment for production, distribution, and storage of renewable fuels like biofuels and synthetic fuels.</li> <li>• Airport infrastructure upgrades: Measures to reduce ground-based emissions, enhance energy efficiency, and improve overall sustainability.</li> <li>• Zero-emission ground handling equipment: Investment in electric aircraft tugs, ground power units, and air conditioning units to minimise emissions.</li> <li>• Advanced air traffic management: Investment in technologies to optimise flight routes, reduce congestion, and decrease fuel consumption.</li> <li>• Airport ground transportation: Investment in electric shuttle buses, charging infrastructure, and improved public transit connections for passengers and staff.</li> <li>• Waste management infrastructure: Investment in recycling programs and waste management facilities to reduce environmental impact from airport waste.</li> </ul>
<b>Technical Screening Criteria</b>
<b>Make Significant Contribution Criteria</b>
<p>1. Climate Change Mitigation</p> <p>a) Objectives:</p> <ul style="list-style-type: none"> <li>• Reduce greenhouse gas emissions by encouraging the use of sustainable aviation fuels (SAFs) and developing electric and hybrid propulsion systems to decrease fossil fuel dependence.</li> <li>• Enhance energy efficiency by upgrading airport infrastructure and optimizing flight routes, air traffic management, and ground operations.</li> <li>• Integrate renewable energy at airports with on-site generation and energy storage technologies.</li> </ul> <p>b) Metrics and Thresholds:</p> <ul style="list-style-type: none"> <li>• The activity complies with one or more of the following criteria:</li> </ul>

<ul style="list-style-type: none"> <li>a) The infrastructure is dedicated to the operation of aircraft with zero tailpipe CO<sub>2</sub> emissions: electricity charging and hydrogen refuelling.</li> <li>b) The infrastructure is dedicated to the provision of fixed electrical ground power and preconditioned air to stationary aircrafts.</li> <li>c) The infrastructure is dedicated to the zero direct emissions performance of the airport's own operations: electric charging points, electricity grid connection upgrades, hydrogen refuelling stations.</li> </ul>
<ul style="list-style-type: none"> <li>• The infrastructure is not dedicated to the transport of fossil fuels.</li> </ul>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
1. Climate Change Mitigation
Generic DNSH criteria section 5.2.1.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria section 5.2.4.
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

<b>Sector: Transport</b>
<b>Sub-sector: Maritime and Inland Waterways Sector</b>
<b>Economic Activities</b>
<p>1. Inland passenger and freight water transport</p> <ul style="list-style-type: none"> <li>• Hybrid and electric propulsion systems: With focus on developing and implementing systems for passenger ferries and freight barges to reduce emissions.</li> <li>• Alternative fuels investment: To support the adoption of biodiesel, biofuels, and hydrogen in inland waterway vessels to decrease reliance on fossil fuels.</li> <li>• Digitalization and automation: Investment in technologies like autonomous vessels and smart navigation systems to enhance efficiency, safety, and sustainability, while reducing fuel consumption and emissions.</li> <li>• Innovative logistics solutions: Investment in containerization, multimodal transport networks, and intermodal terminals to optimise freight flows and cut transportation costs.</li> <li>• Environmental monitoring and management: Investment in programs like water quality monitoring and habitat restoration to protect ecosystems and biodiversity along inland waterways.</li> <li>• Capacity building and training: Investment in programs to enhance the skills and awareness of inland waterway operators, crews, and industry professionals, promoting responsible and sustainable water transport operations.</li> </ul>
<b>Technical Screening Criteria</b>
<b>Make Significant Contribution Criteria</b>
<p>1. Climate Change Mitigation</p> <p>a) Objectives: Demonstrate substantial GHG emission reduction by:</p> <ul style="list-style-type: none"> <li>• Increasing the number of low- and zero emission fleets and improving fleet efficiency.</li> <li>• Increasing substitution of fossil fuels with sustainable alternative and net-zero carbon fuels.</li> <li>• Improvement in efficiency of the overall transport/mobility system.</li> </ul> <p>b) Metrics and Thresholds: The activity complies with one or more of the following criteria:</p> <ul style="list-style-type: none"> <li>• Zero direct emissions inland waterway vessels are eligible subject to review every 5 years.</li> <li>• Vessels that are dedicated to the transport of fossil fuels or any blended fossil fuels are not eligible even if meeting the criteria above.</li> </ul>
<p>2. Climate Change Adaptation</p> <p>Depending on the primary objective of the activity, refer to Annexure A.</p>

Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment.
<ul style="list-style-type: none"> <li>• Direct air emissions of carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter (PM) and noise emissions.</li> <li>• Both hazardous and non-hazardous waste generation during maintenance and end-of-life of vessels.</li> </ul>
1. Climate Change Mitigation
For adaptation economic activities Emissions performance threshold of 95g CO2 e /per km should not be exceeded. Fleets dedicated to the transport of fossil fuels are ineligible
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Maritime and inland water transport can result in the spread of alien invasive species through ballast water. The release of ballast water must be undertaken in a controlled manner to avoid the spread of alien invasive species. From a hydro-geomorphological perspective, vessels should not disrupt ecosystem functioning or have any effect on the biotic components of aquatic systems.
5. Sustainable resource use and circularity
The use and end-of-life phase of vessels should adhere with management, treatment, generation and disposal of waste as outlined in Annexure 7.
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

<b>Sector: Transport</b>
<b>Sub-sector: Railway Sector</b>
<b>Economic Activities</b>
<p>I. Passenger rail and freight rail transport</p> <p>i.) Passenger Rail Transport:</p> <ul style="list-style-type: none"> <li>• Investment in electric and fuel-efficient trains: With focus on introducing trains powered by electricity or fuel-efficient engines to minimise gas emissions.</li> <li>• Rail infrastructure maintenance and modernization: Investment in upgrading tracks, bridges, and signalling systems to enhance safety, efficiency, and reliability of rail transportation.</li> </ul> <p>ii.) Freight Rail Transport:</p> <ul style="list-style-type: none"> <li>• Investment in efficient freight technologies: Focus on lightweight materials, aerodynamic designs, and energy-efficient locomotives and wagons to enhance freight transportation efficiency.</li> <li>• Development of intermodal freight terminals: Creation of terminals facilitating seamless transfer of goods between rail, road, and maritime transport modes, aiming to reduce emissions and congestion.</li> <li>• Investment in digital freight management: Implementation of systems for efficient freight management, predictive maintenance technologies, and automation of cargo handling equipment to streamline operations.</li> </ul>
<b>Technical Screening Criteria</b>
<b>Make Significant Contribution Criteria</b>
<p>1. Climate Change Mitigation</p> <p>a) Objectives:</p> <p>Demonstrate substantial GHG emission reduction by:</p> <ul style="list-style-type: none"> <li>• Increasing the number of low- and zero emission fleets and improving fleet efficiency.</li> <li>• Improving efficiency of the overall transport/mobility system.</li> <li>• Increasing substitution of fossil fuels with sustainable alternative and net-zero carbon fuels.</li> </ul> <p>b) Metrics and Thresholds:</p> <p>For Passenger Rail - The activity complies with one or more of the following criteria:</p> <p>i. The trains and passenger coaches have zero direct (tailpipe) CO<sub>2</sub> emissions.</p>

<p>ii. Trains and passenger coaches have zero direct tailpipe CO<sub>2</sub> emissions when operated on tracks with the necessary infrastructure and use a conventional engine where such infrastructure is unavailable (bimodal).</p> <p>For Freight Rail - The activity complies with one or more of the following criteria:</p> <ul style="list-style-type: none"> <li>• The trains and wagons have zero direct tailpipe CO<sub>2</sub> emission.</li> <li>• Trains and wagons have zero direct tailpipe CO<sub>2</sub> emissions when operated on tracks with the necessary infrastructure and use a conventional engine where such infrastructure is unavailable (bimodal).</li> </ul> <p>The trains and wagons are not dedicated to the transport of fossil fuels.</p>
<p>2. Climate Change Adaptation</p> <p>Depending on the primary objective of the activity, refer to Annexure A.</p> <p>Do No Significant Harm assessment</p> <p>The following are potential factors that must be considered during the DNSH assessment.</p> <p>The main potential significant harm to other environmental objectives from the operation of rail transport activities are attributed to air pollution, noise and vibration, water use. Direct emissions of air pollutants are not an issue of concern in the case of electrified rail, but only where (very efficient) diesel or hybrid engines would meet the CO<sub>2</sub>e-threshold defined to ensure substantial mitigation of GHG emissions.</p>
<p>1. Climate Change Mitigation</p> <p>For passenger rail adaptation economic activities N/A</p> <p>For freight rail adaptation economic activities Trains and wagon infrastructure should not be used to transport fossil fuels.</p>
<p>2. Climate Change Adaptation</p> <p>Generic DNSH criteria section 5.2.2.</p>
<p>3. Sustainable use of water and water security</p> <p>N/A</p>
<p>4. Biodiversity, Ecosystem Protection and Restoration</p> <p>Generic DNSH criteria section 5.2.4.</p>
<p>5. Sustainable resource use and circularity</p> <p>The taxonomy user has an appropriate waste management protocol in place especially during the maintenance phase.</p>
<p>c.) Pollution Prevention</p> <p>Noise pollution is a significant concern. Vibrations and noise pollution of trains should be reduced in line with international best practice.</p>
<p>Compliance with MSS</p> <p>Taxonomy users must comply with the criteria set out in Section 5.</p>

## Sector: Transport

### Sub-sector: Railway Sector (Cont.)

#### Economic Activities

##### I. Infrastructure enabling low-carbon rail transport

- Electrification infrastructure investment: Crucial for expanding electric rail networks, including overhead catenaries or third rail systems.
- Rail infrastructure maintenance and modernization: Investment in tracks, bridges, and signalling systems to enhance safety, efficiency, and reliability.
- Track maintenance and modernization investment: Aimed at improving safety, reliability, and efficiency of rail transportation.
- Freight rail operations efficiency investment: With focus on infrastructure and technologies like dedicated freight corridors, intermodal terminals, and electrification to enhance freight rail operations efficiency.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

- Reduce emissions by transitioning to electric trains and using low-emission fuels for non-electrified routes.
- Improve energy efficiency by upgrading trains and optimizing operations.
- Promote sustainability in rail transport through eco-friendly infrastructure and enhanced network connectivity.
- Increasing substitution of fossil fuels with sustainable alternative and net-zero carbon fuels.

###### b) Metrics and Thresholds:

The activity complies with one or more of the following criteria:

###### i. The infrastructure, as defined by the relevant international standard, is either:

- electrified trackside infrastructure and associated subsystems: infrastructure, energy, on-board control-command and signalling, and trackside control-command and signalling subsystems.
- new and existing trackside infrastructure and associated subsystems, where there is a plan for electrification or, the infrastructure will be fit for use by zero tailpipe CO<sub>2</sub> emission trains within 10 years from the beginning of the activity: infrastructure, energy, onboard control-command and signalling, and trackside control-command and signalling subsystems.

###### ii. The infrastructure and installations are dedicated to transshipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transshipment of goods.

iii. Infrastructure and installations are dedicated to the transfer of passengers from other modes to rail. The infrastructure is not dedicated to the transport of fossil fuels
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
<b>Do No Significant Harm assessment</b>
The following are potential factors that must be considered during the DNSH assessment. Most concerns are related to noise and vibration pollution, water pollution, waste generation and disposal, potential effects on biodiversity and habitat destruction and land use change. <ul style="list-style-type: none"> <li>• Water quality issues and sustainable water use associated with construction and operations.</li> <li>• Concerns of high waste production with a lack of recycling and waste disposal protocols especially during the construction of freight networks.</li> <li>• Noise pollution is a concern both in terms of rolling stock and physical railway infrastructure. Noise can be exacerbated depending on the type of rolling stock and the conditions of the railway.</li> <li>• The railway network being constructed may infringe on sensitive biodiversity hotspots and result in the destruction of ecosystems outside protected areas.</li> <li>• From a landscape perspective, railway network can also cause habitat fragmentation resulting in unintended consequences for species and ecosystems. This can result in wildlife collisions placing strain on populations. Railway infrastructure may also affect aquatic ecosystems.</li> </ul>
1. Climate Change Mitigation
Infrastructure must not be dedicated to the freight or storage of fossil fuels. If new infrastructure is being planned, it must be conscious of future climate scenarios. This includes undertaken a full carbon inventory that assesses the value chain of carbon emissions (scope 1, 2 and 3). Mitigation measures should be planned to reduce carbon emissions across the lifecycle of the project.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
New transport networks must account for invasive species that may be spread by the network. See studies by Hulme et al. (2009). Species loss through wildlife collisions can be a concern to transport networks. Solutions that minimise crossings of species must be prioritised. For example, early warning systems with heat sensors, fences along high-risk crossing zones, tunnels, overpasses, bridges and viaducts. In addition, warning signs should be constructed to alert traffic controllers and drivers.
5. Sustainable resource use and circularity
The re-use of parts and recycled material during the renewal, upgrade and construction phases of transport networks must be prioritised to minimise waste generation. A threshold of 25% of non-hazardous construction and demolition waste is recommended. This excludes naturally occurring material. Operators responsible for the construction of transport networks must limit waste generation as far as possible and implement best practice to ensure the safe removal of hazardous material while providing sorting systems to facilitate the reuse and recycling of non-hazardous materials.

6. Pollution Prevention

Noise pollution is a significant concern. Vibrations and noise pollution of trains should be reduced in line with international best practice. Dust emissions must also be controlled during the construction and maintenance phase.

Compliance with MSS

Taxonomy users must comply with the criteria set out in Section 5.

# Sector: Transport

## Sub-sector: Road Sector

### Economic Activities

#### 1. Commuter Road Transport

- Investment in low- and zero-emission public vehicles: With focus on electrification of public transportation to reduce emissions.
- Development of EV charging infrastructure: Building charging stations along commuter routes and in urban centres to support electric vehicle adoption.
- Investment in Smart Traffic Management Systems: Implementing systems to enhance traffic flow efficiency, reduce congestion, and lower emissions.
- Construction of pedestrian-friendly pathways, bike lanes, and sidewalks: Creating infrastructure to promote safe walking and cycling as sustainable commuting options, reducing reliance on cars.

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

Demonstrate substantial GHG emission reduction by:

- Increasing the number of low- and zero emission fleets and improving fleet efficiency.
- Improving efficiency of the overall transport/mobility system.
- Increasing substitution of fossil fuels with sustainable alternative and net-zero carbon fuels.

###### b) Metrics and Thresholds:

- The direct (tailpipe) CO<sub>2</sub> emissions of the vehicles are zero.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A.

#### Do No Significant Harm assessment

The following are potential factors that must be considered during the DNSH assessment.

##### 1. Climate Change Mitigation

The activity does not include purchasing vehicles with CO<sub>2</sub> emissions higher than average for the category.

##### 2. Climate Change Adaptation

Generic DNSH criteria section 5.2.2.

##### 3. Sustainable use of water and water security

N/A
4. Biodiversity, Ecosystem Protection and Restoration
N/A
5. Sustainable resource use and circularity
Taxonomy users must integrate waste management measures to assist during both the use phase and end-of-life phase of vehicles. In particular, fleets that are battery controlled must be managed for the reuse and recycling of batteries, electronics, raw materials and other non-hazardous waste.
6. Pollution Prevention
Taxonomy users must integrate waste management measures to assist during both the use phase and end-of-life phase of vehicles. In particular, fleets that are battery controlled must be managed for the reuse and recycling of batteries, electronics, raw materials and other non-hazardous waste.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Transport

### Sub-sector: Road Sector (Cont.)

#### Economic Activities

#### II. Passenger cars, road commercial vehicles and road freight transport

##### b. Passenger cars:

- Plug-in hybrid vehicles development: With focus on vehicles combining electric and internal combustion engine propulsion as a transitional solution until full electrification is achieved.
- Investment in EV subsidies and incentives: Providing financial support to encourage consumers to switch from conventional gasoline and diesel cars to zero-emission electric vehicles.
- Deployment of EV charging infrastructure: Building public charging stations, workplace charging stations, and residential charging solutions to support the adoption of electric vehicles.
- Investment in advanced battery R&D: Researching solid-state batteries and fast-charging solutions to enhance the performance, range, and affordability of electric vehicles.

##### c. Road Commercial Vehicles:

- Investment in commercial vehicle fleet electrification: With focus on transitioning delivery vans, trucks, and buses to electric power.
- Development of commercial vehicle charging infrastructure: Creation of fast-charging stations for trucks and depots with overnight charging facilities to support the needs of commercial fleets.
- Investment in fleet management software and telematics systems: Implementation of technology for better operational efficiency, vehicle performance optimization, and reduction in fuel consumption.

##### d. Road Freight Transport:

- Development and adoption of fuel-efficient and low-emission freight vehicles: With focus on electric trucks, hybrid trucks, and alternative fuel-powered vehicles like biodiesel for reducing emissions.
- Development of commercial vehicle charging infrastructure: Establishment of fast-charging stations for trucks and depots with overnight charging facilities to support electric and hybrid vehicles.
- Investment in logistics optimization technologies: Implementation of tools to improve freight transportation efficiency, reduce empty miles, and lower emissions.
- Investment in modal shift infrastructure and incentives: Development of infrastructure and offering incentives to encourage the shift of freight from road to rail and intermodal transport modes for enhanced efficiency.
- Investment in last-mile delivery solutions: Optimizing the final leg of the delivery process with electric cargo bikes, micro-depots, and urban consolidation centres to reduce emissions and improve efficiency.

#### Technical Screening Criteria

<b>Make Significant Contribution Criteria</b>
1. Climate Change Mitigation
a) Objectives: Demonstrate substantial GHG emission reduction by: <ul style="list-style-type: none"> <li>Increasing the number of low- and zero emission fleets and improving fleet efficiency.</li> <li>Increasing substitution of fossil fuels with sustainable alternative and net-zero carbon fuels.</li> </ul>
b) Metrics and Thresholds: <b>Under Development</b>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
<b>Do No Significant Harm assessment</b>
The following are potential factors that must be considered during the DNSH assessment.
1. Climate Change Mitigation
Generic DNSH criteria section 5.2.1.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
N/A
4. Biodiversity, Ecosystem Protection and Restoration
N/A
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
<b>Compliance with MSS</b>
Taxonomy users must comply with the criteria set out in Section 3.

# Sector: Transport

## Sub-sector: Road Sector (Cont.)

### Economic Activities

#### III. Infrastructure enabling low-carbon road transport

- Investment in electrification and decarbonization infrastructure: Supporting electric truck charging depots, last-mile delivery hubs, and dedicated freight corridors for low-emission vehicles in freight transportation.
- Infrastructure investment for low-carbon public transportation: Building dedicated bus lanes and improving accessibility for cyclists and pedestrians to promote low-carbon public transit.
- Development of EV charging infrastructure: Establishment charging stations along commuter routes and in urban centres to facilitate widespread adoption of electric cars and trucks.
- Investment in smart grid technologies: Implementation infrastructure to integrate EV charging with renewable energy sources, grid balancing, and demand response programs.
- Construction of pedestrian-friendly pathways and bike lanes: Creation of infrastructure to promote safe walking and cycling as sustainable commuting options.
- Development of intermodal freight terminals: Building terminals for seamless transfer of goods between rail, road, and maritime transport modes to reduce emissions and congestion.
- Investment in Smart Traffic Management Systems: Implementation of systems to improve traffic flow efficiency, reduce congestion, and lower emissions.
- Investment in energy-efficient transportation facilities: Implementation of energy-efficient design and technologies in train stations, bus depots, and transit hubs to reduce energy consumption and operating costs.

### Technical Screening Criteria

#### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### a) Objectives:

Demonstrate substantial GHG emission reduction by:

- Increasing the number of low- and zero emission fleets and improving fleet efficiency.
- Improving efficiency of the overall transport/mobility system

###### b) Metrics and Thresholds:

Infrastructure for personal mobility, cycling logistics:

The infrastructure that is constructed and operated is dedicated to personal mobility or cycle logistics: pavements, bike lanes and pedestrian zones, electrical charging and hydrogen refuelling installations for personal mobility devices.

Infrastructure enabling low-carbon road transport and public transport:

<p>The activity complies with one of the following criteria:</p> <ul style="list-style-type: none"> <li>• the infrastructure is dedicated to the operation of vehicles with zero tailpipe CO2 emissions: electric charging points, electricity grid connection upgrades, hydrogen fuelling stations or electric road systems (ERS).</li> <li>• the infrastructure and installations are dedicated to transshipping freight between the modes: terminal infrastructure and superstructures for loading, unloading and transshipment of goods.</li> <li>• the infrastructure and installations are dedicated to urban and suburban public passenger transport, including associated signalling systems for metro, tram and rail systems.</li> </ul> <p>The infrastructure is not dedicated to the transport or storage of fossil fuels.</p>
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
<p>The following are potential factors that must be considered during the DNSH assessment.</p> <p>The following are potential factors that must be considered during the DNSH assessment. Most concerns are related to noise and vibration pollution, water pollution, waste generation and disposal, potential effects on biodiversity and habitat destruction and land use change.</p> <ul style="list-style-type: none"> <li>• Water quality issues and sustainable water use associated with construction and operations.</li> <li>• Concerns of high waste production with a lack of recycling and waste disposal protocols especially during the construction of freight networks.</li> <li>• Noise pollution is a concern both in terms of rolling stock and physical railway infrastructure. Noise can be exacerbated depending on the type of rolling stock and the conditions of the railway.</li> <li>• The railway network being constructed may infringe on sensitive biodiversity hotspots and result in the destruction of ecosystems outside protected areas.</li> <li>• From a landscape perspective, railway network can also cause habitat fragmentation resulting in unintended consequences for species and ecosystems. This can result in wildlife collisions placing strain on populations. Railway infrastructure may also affect aquatic ecosystems.</li> </ul>
1. Climate Change Mitigation
Infrastructure must not be dedicated to the freight or storage of fossil fuels. If new infrastructure is being planned, it must be conscious of future climate scenarios. This includes undertaken a full carbon inventory that assesses the value chain of carbon emissions (scope 1, 2 and 3). Mitigation measures should be planned to reduce carbon emissions across the lifecycle of the project.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration

New transport networks must account for invasive species that may be spread by the network. See studies by Hulme et al. (2009). Species loss through wildlife collisions can be a concern to transport networks. Solutions that minimise crossings of species must be prioritised. For example, early warning systems with heat sensors, fences along high-risk crossing zones, tunnels, overpasses, bridges and viaducts. In addition, warning signs should be constructed to alert traffic controllers and drivers.

#### 5. Sustainable resource use and circularity

The re-use of parts and recycled material during the renewal, upgrade and construction phases of transport networks must be prioritised to minimise waste generation. A threshold of 25 % of non-hazardous construction and demolition waste is recommended. This excludes naturally occurring material. Operators responsible for the construction of transport networks must limit waste generation as far as possible and implement best practice to ensure the safe removal of hazardous material while providing sorting systems to facilitate the reuse and recycling of non-hazardous materials.

#### 6. Pollution Prevention

Noise pollution is a significant concern. Vibrations and noise pollution of trains should be reduced in line with international best practice. Dust emissions must also be controlled during the construction and maintenance phase.

#### Compliance with MSS

Taxonomy users must comply with the criteria set out in Section 3.

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## Annexure 7: Waste

<b>Sector: Waste</b>
<b>Subsector: General Waste Management</b>
<b>Economic Activities</b>
I. Digestion and Composting
<ul style="list-style-type: none"> <li>Anaerobic digestion of bio-waste.</li> <li>Anaerobic digestion of sewage sludge.</li> <li>Composting of bio-waste.</li> <li>Recovery of bio-waste by anaerobic digestion or composting.</li> <li>Anaerobic digestion facilities- Facilities to produce biogas from green waste- Total methane emissions <math>\leq 1285\text{g CH}_4/\text{tonne}</math> of waste input. Woody waste must be segregated before or after processing and sent to an eligible EfW or composting plant. Monitoring, sampling, and control of the following is carried out following PAS110 guidance. The solid and liquid products are not landfilled and replace non-waste materials in the market.</li> <li>Phosphorus recovery from wastewater.</li> </ul>
II. Recycling and reuse
<ul style="list-style-type: none"> <li>Renewable energy waste such as the disposal and recycling of solar panels and wind turbines.</li> <li>Reuse, redistribution, refurbishment, recycling storage and handling infrastructure.</li> <li>Waste collection, sorting and material recovery, reuse, and recycling facilities- Facilities for collection, sorting, material recovery, re-use, and recycling of materials facilities for the recycling of building materials, metals, plastics, glass, paper, and scrap electronics.</li> <li>Material recovery from non-hazardous waste.</li> <li>Material reuse.</li> <li>Material recycling.</li> <li>Pre-sorting- Facilities for segregating mixed recyclables into separate, saleable streams, e.g. material recovery facilities (MRFs).</li> </ul>
III. Remediation
<ul style="list-style-type: none"> <li>Remediation of contaminated sites and areas.</li> <li>Remediation of legally non-conforming landfills and abandoned or illegal waste dumps.</li> </ul>
IV. Education and community engagement
<ul style="list-style-type: none"> <li>Technical support and awareness on waste segregation and dumping sites.</li> </ul>
<b>Technical Screening Criteria</b>
Make Significant Contribution Criteria

## 1. Climate Change Mitigation

### Digestion and Composting

**Objective:** Net GHG emission reduction gains through sewage sludge management that results in the capture and use of biogas (displacement of fossil fuels).

**Metric:** The produced biogas is used directly for the generation of electricity or heat or upgraded to bio-methane for injection in the natural gas grid or used as vehicle fuel or as feedstock in chemical industry.

Threshold: N/A

### Recycling and reuse

**Objective:** Net GHG reductions through the displacement of common waste management practices (landfilling and incineration) with reuse and high-quality recycling of waste, which are enabled by the separate collection and transport of source-segregated non-hazardous waste fractions.

**Metric:** All separately collected and transported non-hazardous waste that is segregated at source is intended for preparation for reuse or recycling operations.

Threshold: N/A

### Digestion and Composting

**Objective:** Net GHG emission reduction through the displacement of traditional fertilisers and peat with compost produced from biowaste.

**Metric:** Biowaste is source segregated and collected separately. The alternative use such as anaerobic digestion is not viable, and the use of compost is demonstrated for use as a fertilizer.

Threshold: N/A

### Digestion and Composting

**Objective:** Net GHG emission reduction through the avoidance of GHG emissions compared to the baseline of the alternatives; production and utilization of biogas that displaces fossil fuels; and production and use of digestate as fertiliser that displaces traditional synthetic fertilisers.

#### Metrics:

- A monitoring and contingency plan is in place in order to minimise methane leakage at the facility.
- The produced biogas is used directly for the generation of electricity or heat or upgraded to bio-methane for injection in the natural gas grid or used as vehicle fuel or as feedstock in chemical industry.
- The bio-waste that is used for anaerobic digestion is source segregated and collected separately.
- The produced digestate is used as fertiliser, either directly or after composting or any other treatment.
- In the dedicated bio-waste treatment plants, the share of food and feed crops used as input feedstock, measured in weight, as an annual average, is less than or equal to 10% of the input feedstock.

### Recycling and reuse

**Objective:** Sorting and processing of separately collected non-hazardous waste streams into secondary raw materials involving a mechanical transformation process.

**Metric:** Material recovery from separately collected non-hazardous waste is eligible provided that:

- It used for the production of secondary raw materials suitable for substitution of virgin materials in production processes.

Threshold: At least 50%, in terms of weight, of the processed separately collected non-hazardous waste is converted into secondary raw materials.
2. Climate Change Adaptation
Depending on the primary objective of the activity, refer to Annexure A.
Do No Significant Harm assessment
The following are potential factors that must be considered during the DNSH assessment. <b>Digestion and Composting</b> <ul style="list-style-type: none"> <li>• emissions to water from wastewater treatment.</li> <li>• combined sewer overflow in case of heavy rainfall.</li> <li>• sewage sludge treatment.</li> <li>• possible detrimental effects to ecosystems.</li> </ul> <b>Recycling and reuse</b> <ul style="list-style-type: none"> <li>• emissions of collection vehicles that cause harm to human health and the environment.</li> <li>• mixing source segregated waste fractions that could impair subsequent material recovery and recycling.</li> </ul> <b>Digestion and Composting</b> <ul style="list-style-type: none"> <li>• emissions to air, soil and water from the operation of the anaerobic digestion plant which may lead to emissions of pollutants that have significant impacts on human respiratory systems and on ecosystems through acidification and/or eutrophication. The most relevant emissions are resulting from the sludge storage as well as from the subsequent combustion of biogas, such as sulphur dioxide, nitrous oxide and particulates.</li> <li>• the subsequent use of the resulting digestate as fertiliser / soil improver which may also result in soil and water pollution due to contaminants in the digestate.</li> </ul> <b>Recycling and reuse</b> <ul style="list-style-type: none"> <li>• emissions to air, soil and water from the operation of the plant.</li> <li>• the use of the resulting compost as fertiliser which may also result in soil and water pollution due to contaminants in the compost.</li> </ul>
1. Climate Change Mitigation
Methane leakages from relevant facilities (e.g. for biogas production and storage, energy generation, digestate storage) is controlled by a monitoring plan.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria section 5.2.4. Ensure an Environmental Impact Assessment (EIA) has been completed as prescribed by the Environmental Management Act and other national legislation including the implementation of required mitigation measures for protecting biodiversity/eco-systems, in particular UNESCO World Heritage and Key Biodiversity Areas, have been implemented. For sites/operations located in or near to biodiversity-sensitive areas, additional measures should be included.

5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 5.

## Sector: Waste

### Subsector: Waste to Energy

#### Economic Activities

##### I. Capture and Storage

- Landfill gas capture and utilisation.
- Direct air capture of CO<sub>2</sub>.
- Transport and capture of greenhouse gas emissions.
- Permanent sequestration of captured CO<sub>2</sub>.
- Capture of anthropogenic emissions.
- Underground permanent geological storage of CO<sub>2</sub>.
- Waste Incineration or Gasification & Energy Recovery – i.e. facility producing electric and/or heat via the combustion of municipal solid waste or mixed residual waste; facility producing electric and/or heat via gasification of residual municipal solid waste.
- Decommissioned landfill only, with gas capture & energy generation- Project to capture biogas from non-operational landfill (ceased receiving waste except inert restoration materials).

##### II. Collection and Transportation

- Collection Infrastructure – containers provided for waste.
- Collection and transport of hazardous waste.
- Collection and transport of non-hazardous and hazardous waste.
- Collection and transport of non-hazardous waste in source segregated fractions.
- Transport of CO<sub>2</sub>.
- Separate collection and transport of non- hazardous waste in source segregated fractions.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

###### Landfill gas capture and utilisation

Landfill gas capture and utilization is eligible under the following conditions:

- The landfill has not been opened after the date the Taxonomy came into force.
- The landfill (or landfill cell) where the system is newly installed, extended, and/or retrofitted is permanently closed and no longer accepts waste.
- The produced landfill gas is used directly for generating electricity and/or heat, upgraded to biomethane for injection into the natural gas grid, used as vehicle fuel (e.g., bioCNG), or as feedstock in the chemical industry (e.g., for the production of H<sub>2</sub> and NH<sub>3</sub>).
- Methane emissions from the landfill and leakages from the landfill gas collection and utilization facilities are controlled by a monitoring plan.

**Direct air capture of CO<sub>2</sub>**

Owing to the emission intensive nature of direct air capture of CO<sub>2</sub>, energy usage must be derived from low emission energy sources. As a guide, the life cycle emissions (Scope 1 and 2) must be no more than 20% of the absolute CO<sub>2</sub> removed such that an 80% reduction is attained.

**Transport and Capture of CO<sub>2</sub>**

- CO<sub>2</sub> transported from the capture installation to the injection point does not result in leakages exceeding 0.5% of the total transported mass.
- CO<sub>2</sub> is transported to a permanent storage site that meets the criteria for permanent Sequestration of captured CO<sub>2</sub>, or to other transport methods leading to such a storage site.
- Appropriate leak detection systems are used, and a monitoring plan is in place, with the report verified by an independent third party.
- The activity may include installing assets that enhance the flexibility and improve the management of an existing network.

**Permanent Sequestration of Captured CO<sub>2</sub>**

- For the operation of underground geological CO<sub>2</sub> storage sites, including closure and post-closure obligations, appropriate leakage detection systems are implemented to prevent releases during operation. A monitoring plan for the injection facilities, the storage complex, and, if necessary, the surrounding environment is in place, with regular reports reviewed by competent Zambian authorities.
- For the exploration and operation of storage sites, the activity must be aligned with ISO 7914:2017 standards for geological storage of CO<sub>2</sub>.

**2. Climate Change Adaptation**

Depending on the primary objective of the activity, refer to Annexure A.

**Do No Significant Harm assessment**

The following are potential factors that must be considered during the DNSH assessment.

- Emissions from landfill gas such as sulphur dioxide, nitrous oxide and particulates must adhere to domestic standards outlined in the National Policy on Environment (2007) or through written consent from the Ministry of Green Economy and Environment. Activities must also comply with local water management plans and policies.
- Carbon transport may have significant environmental impacts associated with the construction and operation phases. For the construction phase, a full environmental impact assessment is recommended as there are several potential negative consequences. These may include clearing of ecosystems, overburden disposal, and emissions of particulates and NO<sub>x</sub>. Leakage is the primary concern during the operational phase.
- The sequestration of CO<sub>2</sub> is associated with the risk of leakage but of also the availability of long-term geological containment areas that are tested and safe. If CO<sub>2</sub> sequestration activities are pursued, a full EIA is needed with formal approval from the Ministry of Green Economy and Environment.

**1. Climate Change Mitigation****Landfill gas capture and utilisation**

For landfill gas capture and utilisation activities, methane leakages are of concern. Activities must develop and enforce a strict monitoring protocol inclusive of mitigation measures and procedures if leakages do occur.

**Transport of CO<sub>2</sub>**

Regarding the transport and storage of CO <sub>2</sub> , a leakage factor of 1% of emissions can be significantly harmful. Leakage of emissions must be limited to below 1%.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Direct air capture of CO <sub>2</sub> Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria section 5.2.4.
5. Sustainable resource use and circularity
<b>Capture of GHG emissions</b> The selection of solvents must consider the broader environmental impact criteria and be subject to a full chemical risk assessment. In addition, hazardous waste must be minimised, for example, through the avoidance of amine solvent. Nitrosamine concentration must be limited to below 0.1 ppt.
6. Pollution Prevention
<b>Landfill gas capture and utilisation</b> Generic DNSH criteria section 5.2.5.
<b>Permanent sequestration and capture of Greenhouse Gas emissions</b> Capture of GHGs must adhere to a recognised environmental management system such as ISO 14001. Of particular concern are solvents. Solvents must be selected based on their environmental impact criteria with a full chemical risk assessment being undertaken. In addition, permanent leak detection systems must be installed to avoid the loss of ammonia.
<b>Compliance with MSS</b>
Taxonomy users must comply with the criteria set out in Section 3.

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## Annexure 8: Water

<b>Sector: Water Management</b>
<b>Sub-sector: Wastewater management and treatment</b>
<b>Economic Activities</b>
<p>I. Wastewater management and treatment</p> <ul style="list-style-type: none"> <li>• Construction, extension and operation of wastewater collection and treatment.</li> <li>• Renewal of wastewater collection, treatment and supply systems.</li> <li>• Sustainable water reuse facilities or infrastructure. water recycling systems, recycling mine water, grey water reuse and recycling systems, sewage/ drainage networks which segregate stormwater from the sewage.</li> <li>• Built infrastructure water treatment, including but not limited to: water recycling systems, wastewater treatment facilities, manure/ slurry treatment facilities.</li> <li>• Nature-based / hybrid infrastructure water treatment, including but not limited to: Natural filtration / recycling systems (e.g. wetlands, watersheds, forests), engineered natural filtration / settling systems.</li> <li>• Centralised wastewater treatment.</li> </ul>
<b>Technical Screening Criteria</b>
<b>Make Significant Contribution Criteria</b>
<p>1. Climate Change Mitigation</p> <p>Objective: Reduced GHG emissions through the conversion of decentralised wastewater and sanitation systems to a centralised model.</p> <p>Metrics and thresholds: Construction or extension of centralised wastewater systems including collection (sewer network) that are able to demonstrate that new facilities are able to reduce GHG emissions from other systems such as pit latrines, septic tanks and anaerobic lagoons.</p> <p>No threshold applies.</p>
<p>2. Climate Change Adaptation</p> <p>Depending on the primary objective of the activity, refer to Annexure A.</p>
<p>1. Sustainable use of water and water security</p> <p>Wastewater related activities must demonstrate how the construction or extension of wastewater systems are able to promote sustainable water management and water security in the future. This may include, but is not limited to, reduced pollution of surface and groundwater systems thereby protecting water resources for future use, enhance quality of livelihoods owing to improved sanitation thereby improving community resilience.</p>

Do No Significant Harm assessment
There are several harmful impacts associated with the construction of new or extension of wastewater treatment facilities. These include, but is not limited to:
<ul style="list-style-type: none"> <li>• GHG emissions from the treatment of wastewater.</li> <li>• Increased urban flood risk if sewer systems are not designed for future climate change scenarios.</li> <li>• Negative consequences caused by pollution of surface and groundwater systems.</li> </ul>
1. Climate Change Mitigation
N/A
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria section 5.2.4.
5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Water Management

### Sub-sector: Water supply, distribution, and storage and flood management

#### Economic Activities

##### I. Water supply, distribution, and storage

- Water collection, storage, distribution treatment and supply.
- Renewal of water collection, treatment, and supply systems.
- Construction, extension and operation of water collection, treatment, and supply systems.
- Construction of hard infrastructure to reducing the impact of flooding.
- Production of alternative water resources for purposes other than human consumption.
- Desalination.
- Water distribution, including but not limited to: Rainwater harvesting systems, gravity fed canal systems, pumped canal or water distribution system, terracing systems.
- Built infrastructure water storage, including but not limited to: Rainwater harvesting systems, stormwater management systems, water distribution systems (excluding irrigation), infiltration ponds, aquifer storage, groundwater recharge systems, sewer systems, pumps, sand dams.
- Nature-based / hybrid infrastructure water storage, including but not limited to: Rainwater harvesting systems, aquatic ecosystems (lakes, wetlands), aquifer storage, snowpack runoff, groundwater recharge systems, riparian wetlands, stormwater management.
- Water monitoring.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

Objectives: Substantial contribution to GHG emissions savings through low specific energy consumption in the water collection, treatment and supply system.

a.) Metrics and Thresholds: The front-to-end water collection, storage, distribution, treatment and supply system is eligible provided that it's performance in terms of energy consumption per cubic meter of final water supply is high or substantially improved.

Eligibility is demonstrated by adherence to one of two optional thresholds:

- Option 1: The front-to-end water supply, storage and distribution system has a high degree of energy efficiency characterised by an average energy consumption of the system (including abstraction, treatment and distribution) of 0.5 kwh per cubic meter billed/unbilled authorised water supply or less.
- Option 2: The energy efficiency of the front-to-end water supply storage and distribution system is increased substantially by decreasing the average energy consumption of the system by at least 20% (including abstraction, treatment and distribution; measured in kwh per cubic meter billed/unbilled authorised water supply); by closing the gap between the actual leakage of the water supply storage and distribution network and a given target value of low leakage by at least 20%. The unit of measurement is the Infrastructure Leakage Index (ILI)<sup>77</sup>, the target value of low leakage is an ILI of 1.5.

<ul style="list-style-type: none"> <li>• Water-related economic activities such as desalination must consider the energy sources used for processing owing to the energy-intensive nature of desalination.</li> <li>• For flood-related water economic activities, energy use must be considered in the construction phases of the project lifecycle.</li> </ul>
<p>2. Climate Change Adaptation</p> <p>Depending on the primary objective of the activity, refer to Annexure A.</p> <p>The implementation of activities in the water sector must consider changes under future climate scenario. As climate mainstreaming can be context-specific, the ZGFT provides demonstrative examples:</p> <ul style="list-style-type: none"> <li>• Water-related economic activities must demonstrate how infrastructure design considerations have accounted for future changes in flooding, extreme rainfall, extreme heat, and drought.</li> <li>• Water supply economic activities from surface and groundwater abstraction must consider the sustainability of these water sources under drought conditions to ensure that infrastructure is able to deliver water supply in the long term.</li> <li>• Water supply economic activities must consider water access challenges for adjacent communities. Improved water security for local communities will enhance their resilience to future climate change.</li> </ul>
<p>3. Sustainable Water Use and Water Security</p> <p>The provision of water-related activities must demonstrate how livelihoods and economic development have been enhanced through its implementation. Taxonomy users for water-related activities should demonstrate how water provisions have changed compared to the counterfactual (the status quo prior to the implementation of the water activity). In addition, other benefits such as reduced exposure to water-borne diseases and reduced deforestation as less firewood is needed for water purification through boiling can be used to support this MSC.</p>
<p><b>Do No Significant Harm Criteria</b></p>
<p>There are several potential harmful impacts that must be considered:</p> <ul style="list-style-type: none"> <li>• Water abstraction from threatened or unsustainable water sources.</li> <li>• Potential negative consequences to ecosystems from which abstraction occurs.</li> <li>• Compliance with National Policy on Environment (2007) as well as other national water policies.</li> </ul>
<p>1. Climate Change Mitigation</p> <p>Generally, there are less harmful effects from a climate mitigation perspective. However, for certain project types such as desalination must consider the energy sources used for processing owing to the energy-intensive nature of desalination.</p>
<p>2. Climate Change Adaptation</p>
<p>N/A</p>
<p>3. Sustainable use of water and water security</p> <p>Generic DNSH criteria section 5.2.3.</p>
<p>4. Biodiversity, Ecosystem Protection and Restoration</p> <p>Generic DNSH criteria section 5.2.4.</p>

5. Sustainable resource use and circularity
N/A
6. Pollution Prevention
Generic DNSH criteria section 5.2.5.
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

## Sector: Water Management

### Sub-sector: Water saving infrastructure and technologies

#### Economic Activities

##### 1. Water saving infrastructure and technologies

- Construction and operation of technically advanced drinking water collection, storage, treatment, and supply infrastructure that reaches at least 20% water savings per unit of service compared to a documented local baseline.
- Installation of water treatment equipment and facilities for water as per local industrial and environmental standards.
- Retrofit of existing water supply infrastructure that reaches at least 20% water savings per unit of service compared to a documented local baseline.
- Water saving, recycling and reuse technologies.
- Sustainable urban drainage systems.

#### Technical Screening Criteria

##### Make Significant Contribution Criteria

##### 1. Climate Change Mitigation

Objective: Mitigation of GHG emissions through the implementation of water saving technology that reduces the fossil fuel energy required for the delivery of water and wastewater within a water network.

Metrics and thresholds: Implementation of water saving technologies that reduce GHG emissions from the delivery of water and wastewater within a network from a baseline within which fossil fuel derived energy was used.

No threshold applies.

##### 2. Climate Change Adaptation

Depending on the primary objective of the activity, refer to Annexure A for MSCC screening criteria for activities making a substantial contribution to climate change adaptation. In particular, taxonomy users focused on water saving technologies can demonstrate the benefits of water saving under future climate scenarios with a focus on extreme heat and drought.

##### 3. Sustainable Water Use and Water Security

Taxonomy users for water-related activities should demonstrate that the benefits of enhancing water saving technologies. This could be related to water security under future climate change, reduced water outages owing to saved water provisions and reduced water supply requirements owing to less inefficiencies within the water network.

##### Do No Significant Harm Criteria

Some of the harmful impacts that must be considered:

- Potential negative consequences to ecosystems where water saving technologies are implemented.
- Unintended infrastructure consequences to the water network owing to reduced water pressure and flow.

<ul style="list-style-type: none"> <li>• Unintended health consequences in certain cases (if grey water is used for example) as this can enhance the prevalence of water-borne diseases and pathogens.</li> </ul>
1. Climate Change Mitigation
Generic DNSH criteria section 5.2.1.
2. Climate Change Adaptation
Generic DNSH criteria section 5.2.2.
3. Sustainable use of water and water security
Generic DNSH criteria section 5.2.3.
4. Biodiversity, Ecosystem Protection and Restoration
Generic DNSH criteria section 5.2.4
5. Sustainable resource use and circularity
Generic DNSH criteria section 5.2.6.
6. Pollution Prevention
N/A
Compliance with MSS
Taxonomy users must comply with the criteria set out in Section 3.

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