

# Singapore Green Bond Framework



June 2022



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# 1. Introduction





# 1. Introduction

## 1.1.

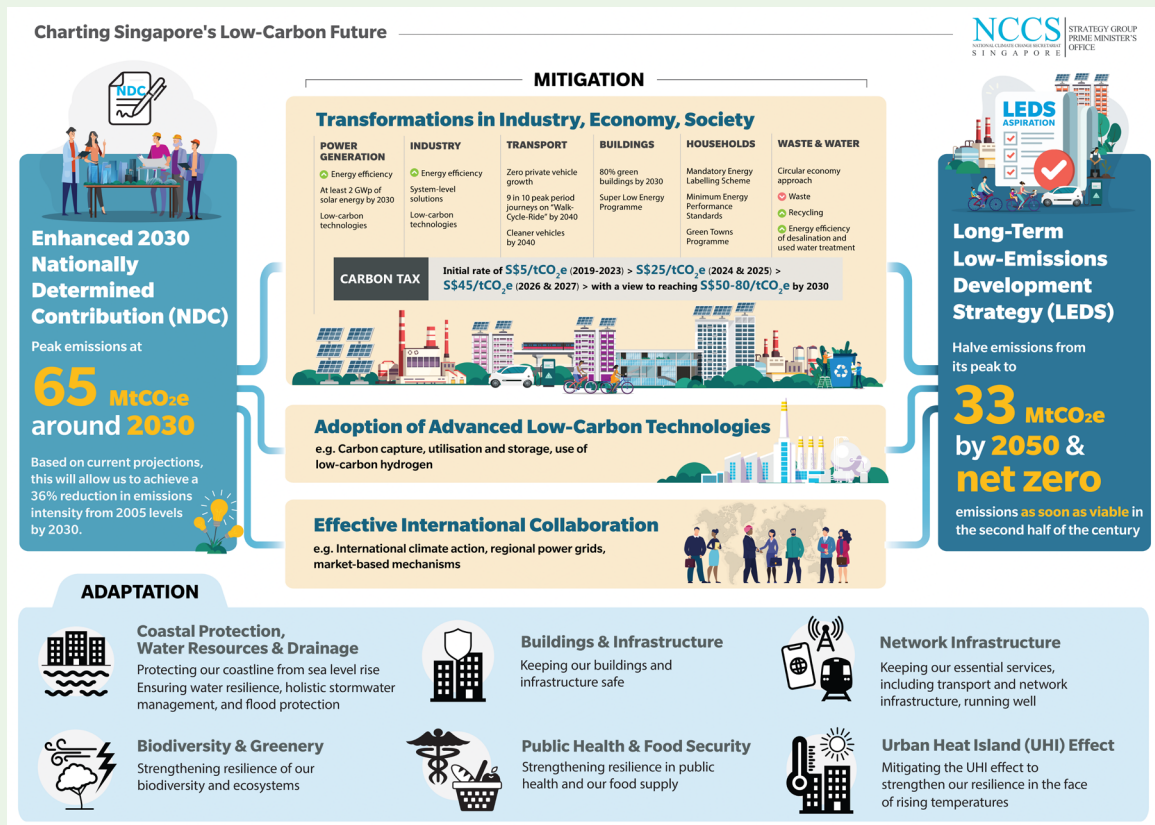
### Singapore's Commitment to Sustainable Development and Combating Climate Change



Climate change is a global existential challenge. Singapore has a deep interest in global efforts to address potential disruptions to natural ecosystems and human societies, and has always been a strong supporter of multilateral approaches to global issues.

Singapore was one of the first countries, alongside 30 others, to ratify the Paris Agreement<sup>1</sup>, doing so on

21 September 2016. On 31 March 2020, Singapore submitted its enhanced Nationally Determined Contribution ("NDC") and Long-Term Low-Emissions Development Strategy ("LEDS") to the United Nations Framework Convention on Climate Change ("UNFCCC"). Singapore's enhanced NDC states an updated absolute target to peak emissions at 65 MtCO<sub>2</sub>e around 2030. Singapore's LEDS builds on the enhanced NDC by aspiring to halve emissions from its peak to 33 MtCO<sub>2</sub>e by 2050, with a view to achieving net zero emissions as soon as viable in the second half of the century. In February 2022, the Singapore Government announced that we will raise our ambition to achieve net zero emissions by or around mid-century. Singapore will consult industry and citizen stakeholder groups to firm up and finalise the plans before making a formal revision of its NDC and LEDS later in 2022.



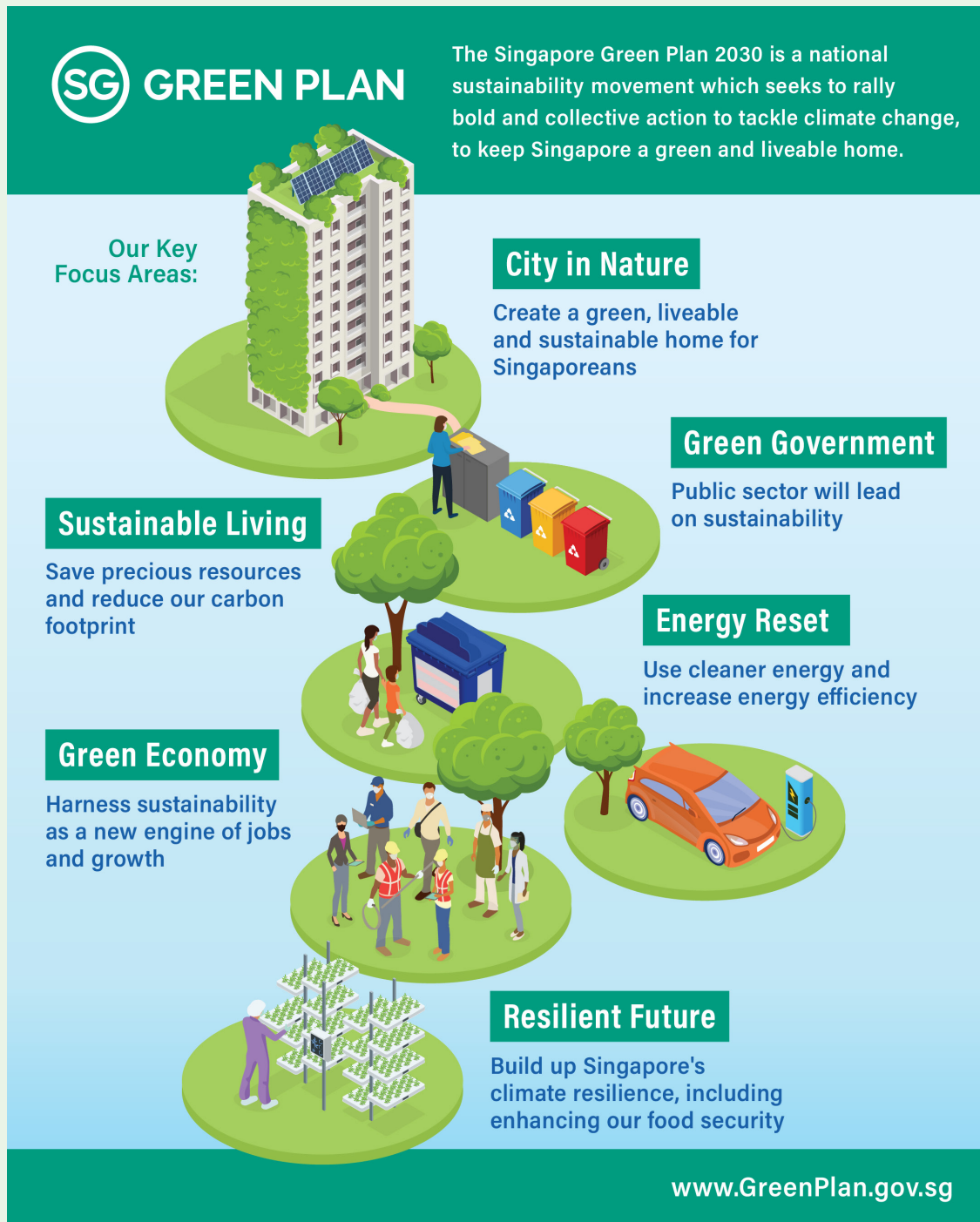
<sup>1</sup> The Paris Agreement is a legally binding international treaty on climate change. It was adopted by 196 Parties to the UNFCCC at the 21st session of the Conferences of the Parties in Paris, on 12 December 2015 and entered into force on 4 November 2016. Its goal is to limit the rise in average global temperature to well below 2 degrees Celsius, and to pursue efforts to limit this further by 1.5 degrees Celsius, compared to pre-industrial levels.



## Singapore Green Plan 2030

In 2021, the Singapore Government unveiled the Singapore Green Plan 2030<sup>2</sup> ("Green Plan"), a whole-of-nation movement to advance the national agenda on sustainable development. The Green Plan charts concrete targets over the next 10 years, strengthening Singapore's commitments under the United Nations' ("UN") 2030

Sustainable Development Agenda and Paris Agreement, and positioning us to achieve our long-term net zero emissions aspiration. The Green Plan brought together sustainability efforts across many sectors, giving focus and momentum to building back greener and stronger from the COVID-19 pandemic.



<sup>2</sup> The Singapore Green Plan 2030 can be found at [www.greenplan.gov.sg](http://www.greenplan.gov.sg)

## Three-pronged approach to accelerate sustainability efforts

### Regulation through carbon tax

In 2019, Singapore implemented a carbon tax with no exemptions for covered facilities and became the first in Southeast Asia to introduce a carbon price. This provides an economy-wide price signal to incentivise emission reductions across all sectors and complement our suite of mitigation measures. An appropriate carbon price signal is one of the cornerstones for a successful green transition – to spur the reduction of our carbon footprint, promote industry innovation and green growth, while maintaining our overall economic competitiveness. To ensure the carbon price reflects the cost of carbon and influences investment decisions effectively, Singapore’s carbon tax will be progressively increased to reach \$50 to \$80 per tonne of emissions by 2030.

**\$50-\$80**  
per tonne of  
emissions by 2030

### Supporting industry co-creation

Realising our climate targets will require a whole-of-nation effort. The Singapore Government is committed to working in partnership with industries to co-create solutions. One key example is facilitating and supporting companies to adopt decarbonisation and sustainability solutions through the Singapore Government’s incentive schemes (e.g. the Resource Efficiency Grants and Energy Efficiency Funds administered by the Economic Development Board (“EDB”) and National Environment Agency (“NEA”) respectively).

### Developing Singapore into a carbon services and trading hub

It is important to have a well-functioning market for carbon credits to support decarbonisation efforts. Today, more than 70 carbon services and trading firms use Singapore as a base to serve the region and engage in carbon market activities. We are working to develop Singapore as an international carbon trading and services hub with Singapore-based global carbon exchanges such as Climate Impact X and AirCarbon Exchange. We will continue to develop the larger ecosystem by anchoring key activities such as project development, financing and certification in Singapore.



## 1.2.

### Singapore's Support for Green Finance as a Driver for Sustainable Development



Green finance is a key enabler in facilitating investments in green technologies, products, and services. In Southeast Asia alone, US\$2 trillion in infrastructure investments will be needed over the next decade to enable the sustainable

transition and put the region on the path to net zero<sup>3</sup>. Singapore is a green finance hub in Asia, channeling capital and financing to support the region's low-carbon transition.

The Monetary Authority of Singapore's ("MAS") Green Finance Action Plan will strengthen financial sector resilience to environmental risks; develop sustainable finance markets and solutions; enhance comparability and reliability of sustainability-related disclosures; harness technology to enable trusted and efficient sustainable finance flows; and build knowledge and capabilities in sustainable finance.



As ASEAN's largest market for green bonds and loans (about 50% share)<sup>4</sup>, Singapore has been supporting businesses to access green and sustainable financing instruments. MAS has grant schemes that defray the cost of external reviews for such financing, such as the Sustainable Bond Grant Scheme and Green and Sustainability-Linked Loan Grant Scheme. To support the next phase of growth of Singapore's green finance market, the Singapore Government will take the lead by issuing green bonds.

The Singapore Government plans to issue up to S\$35 billion of green bonds by 2030. These public sector green bond issuances will build on MAS' efforts to develop green financing solutions and markets, by deepening market liquidity for green bonds, attracting green issuers, capital, and investors, and anchoring Singapore as a green finance hub in Asia.

<sup>3</sup> Bain, October 2021, *Southeast Asia's Green Economy 2021: Opportunities on the Road to Net Zero*.

<sup>4</sup> Climate Bonds Initiative, April 2021, *ASEAN Green Finance: State of the Market 2020*.

## 2.

# Singapore Green Bond Framework









## 2.

# Singapore Green Bond Framework



The Singapore Green Bond Framework ("Framework") is an important component of Singapore's overarching sustainability strategy, and a key part of the public sector initiatives set out to achieve our net zero ambitions. It lays the foundation for the issuance of green bonds by the Singapore Government under the Significant Infrastructure Government Loan Act 2021 ("SINGA"), and serves as a reference for Statutory Boards' ("SBs")<sup>5</sup> respective green bond frameworks. The Singapore Government is committed to ensuring that the green bonds issued by public sector agencies are of high quality

and adhere to market best practices in three ways:

- (a) Alignment with international guidelines and market best practices for green bond issuances: The Framework is developed and structured in alignment with the core components and key recommendations of the International Capital Market Association ("ICMA") Green Bond Principles 2021 and ASEAN Capital Markets Forum ASEAN Green Bond Standards 2018. All green bonds issued under the Framework will conform to the four core components.

Core components		
<b>Use of Proceeds</b>		The proceeds of the issuance of the green bond must be utilised for eligible green expenditures which contribute to the environmental objectives set out in the ICMA Green Bond Principles and the ASEAN Green Bond Standards
<b>Project Evaluation and Selection</b>		The issuer should clearly communicate to investors (i) the environmental sustainability objectives of the eligible green expenditures, (ii) the process by which the issuer determines how the expenditures fit within the eligible expenditure categories, and (iii) complementary information on processes by which the issuer identifies and manages social and environmental risks associated with the relevant expenditures
<b>Management of Proceeds</b>		The net proceeds of the green bond issuance, or an amount equal to these net proceeds, should be tracked by the issuer in an appropriate manner, and attested to by the issuer in a formal internal process linked to the issuer's investment operations for eligible green expenditures
<b>Reporting</b>		Updated information on the use of proceeds, including allocation and expected impact, should be provided to investors at least annually until full allocation and in case of material changes

<sup>5</sup> SBs will issue their own green bond frameworks to demonstrate how their respective frameworks are aligned with international guidelines and market best practices.

Key recommendations		
	<b>Green Bond Framework</b>	
	The issuer should explain the alignment of the green bonds or green bond programme with the four core components, set out in a green bond framework in a readily accessible format to investors	
	<b>External Review</b>	
	The issuer should appoint an external review provider to assess the alignment of the green bond framework with the four core components set out above	

(b) Ministerial oversight of project selection and allocation of proceeds: The Second Minister for Finance chairs the Green Bond Steering Committee, which assumes overall responsibility for proper governance of the Framework, to provide transparency and accountability.

(c) Technical screening for green projects: The eligibility criteria for the Green Categories have been developed with reference to existing market standards and principles, such as the ICMA Green Bond Principles and the Climate Bond Initiative ("CBI") Taxonomy and Sector Criteria. Where possible, the Singapore Government will strive to align the Framework with regional and global taxonomies as they develop.

## 2.1. Use of Proceeds ("UOP")



The following table outlines the categories of Eligible Green Expenditures ("Green Categories") and provides descriptions of sub-categories and a non-exhaustive list of examples of expenditures within these categories. The categories are also mapped to the Green Plan Pillars and UN Sustainable Development Goals ("SDGs").

For the eligibility criteria, the Framework also took reference from existing market standards and principles,

such as the ICMA Green Bond Principles, and the CBI Taxonomy and Sector Criteria, wherever relevant and feasible.

Potential green expenditures are expenditures that fall under the eligible Green Categories as defined in the section below, and may include:

- Infrastructure capital expenditures;
- Operational and maintenance expenditures for public infrastructure;
- Intangible assets (research and innovation, human capital and organisation);
- Tax expenditures (subsidies and tax exemptions); and
- Capital transfers to public or private entities





## Green Category: Renewable Energy

### Environmental Objective

Climate change mitigation

### Green Plan Pillar

Energy Reset  
Green Economy

### SDGs mapping



### Sub-categories

- Renewable energy generation capacity (e.g. wind, solar, bioenergy, geothermal)
  - o For bioenergy, the following criteria apply:
    - (i) Emissions of electricity generated must be less than 100gCO<sub>2</sub>/kWh; and
    - (ii) Biofuel could be from waste<sup>6</sup> or non-waste<sup>7</sup> bioenergy and must be sourced from a sustainable feedstock
  - o For geothermal, direct emissions less than 100gCO<sub>2</sub>/kWh
  - o For hydropower, the following criteria apply:
    - (i) Power density must be at least 10W/m<sup>2</sup> or emissions of electricity generated must be less than 50gCO<sub>2</sub>/kWh; and
    - (ii) Performance of environmental and social risk assessment and incorporating mitigation measures
- Manufacturing, storage, regeneration and transmission of low-carbon hydrogen generated from renewable energy sources
- Transmission and supporting infrastructure, including for electricity imports, dedicated to renewable energy sources
- R&D and test-bedding for clean and renewable energy technologies

### Examples of Eligible Expenditures

- **Expansion of Renewables in the National Power Grid.** Solar remains the most promising renewable energy source in the near-term for Singapore. Singapore is investing in R&D to improve the performance of solar photovoltaic, develop innovative ways of integrating solar energy systems into our urban environment, and manage the intermittency introduced by solar electricity generation. Today, over 500 megawatt-peak (MWp) of solar has been installed and Singapore is on track to achieving the solar panel deployment target of at least 2 gigawatt-peak (GWp) by 2030 (equivalent to powering 350,000 households a year).

<sup>6</sup> Waste feedstock includes forestry residues, and residues from certified sustainable palm oil operations (e.g. Roundtable on Sustainable Biomaterials ("RSB") and Roundtable on Sustainable Palm Oil ("RSPO")) such as palm kernel shells and palm oil mill effluents.

<sup>7</sup> Non-waste feedstock excludes palm oil and peat, and will not be derived from land with high biodiversity that are in competition with food production or deplete carbon pools.



## Green Category: Energy Efficiency

### Environmental Objective

Climate change mitigation

### Green Plan Pillar

Energy Reset  
Green Economy

### SDGs mapping



### Sub-categories

- Energy efficiency programmes for the commercial, public and industrial sectors
- Energy storage dedicated to integrate the deployment of low carbon energy sources, district cooling/heating fed primarily by renewable energy, smart grids, and mitigate the risk of electricity import disruption
- R&D for new energy efficiency technologies

### Examples of Eligible Expenditures

- **Energy Storage Systems ("ESS").** Singapore has set a target of deploying 1.5GWp of solar by 2025 and at least 2GWp by 2030. However, solar is intermittent and ESS will be required to address solar intermittency to ensure grid reliability. Based on current solar deployment projections, Singapore will need grid-connected ESS from 2023.
- **Emerging Low-Carbon Technologies.** Beyond solar, Singapore is also investing in R&D of low-carbon alternatives such as hydrogen and carbon capture, utilisation and storage ("CCUS"). These technologies have the potential to decarbonise the power sector and enable the energy transition in the longer term. Singapore has awarded S\$55 million to research projects under the Low-Carbon Energy Research Funding Initiative that are focused on improving the technical and economic feasibility of low-carbon technologies, particularly on hydrogen and CCUS, to enable local deployment in future.



## Green Category: Green Buildings



### Environmental Objective

Climate change mitigation

### Green Plan Pillar

Energy Reset

### SDGs mapping



### Sub-categories

- Buildings that meet regional, national or internationally recognised standards or certifications for environmental performance such as the Building and Construction Authority ("BCA") Green Mark<sup>8</sup> certification of Gold<sup>Plus</sup> or above.

### Examples of Eligible Expenditures

- Singapore Green Building Masterplan ("SGBMP").** The SGBMP captures Singapore's collective commitment to pursue more ambitious sustainability standards in our Built Environment and is part of the Green Plan. The SGBMP aims to deliver three key targets of "80-80-80 in 2030", see more details [here](#):
  - Green 80% of our buildings by gross floor area ("GFA") by 2030
  - 80% of new developments by GFA to be Super Low Energy ("SLE") buildings from 2030
  - Achieving 80% improvement in energy efficiency over 2005 levels for best-in-class green buildings by 2030
- Green Towns Programme.** The Green Towns Programme is a 10-year plan to make HDB towns more sustainable and liveable. The programme will focus on reducing energy consumption, recycling rainwater, and cooling HDB towns. The programme aims to reduce energy consumption in HDB towns by 15% from 2020 levels by 2030. See more details [here](#).

8 <https://www1.bca.gov.sg/buildsg/sustainability/green-mark-certification-scheme/green-mark-2021>



## Green Category: Clean Transportation

### Environmental Objective

Climate change mitigation  
Pollution prevention and control

### Green Plan Pillar

Sustainable Living  
Energy Reset

### SDGs mapping



### Sub-categories

- Low and zero emission passenger mobility solutions (e.g. electric vehicles ("EVs"), public passenger transportation, public walking and cycling infrastructure) with following direct emissions threshold:
  - Passenger activity threshold (gCO<sub>2</sub> per p-km): 50 as of 2020 and reduce to 0 from 2025 onwards
- R&D for low- and zero-emission transportation technologies

### Examples of Eligible Expenditures

- **Land Transport Master Plan 2040.** The Land Transport Master Plan 2040 charts out the long-term vision, policies and targets that shape future of land transport for Singapore. Initiatives include expanding our rail network to 360km by 2030, transforming the entire public bus and taxi fleet to use cleaner energy by 2040, expanding the cycling path network to more than 1,000km by 2040, and facilitating private adoption of cleaner energy vehicles, see more details [here](#). For instance, Singapore aims to deploy 60,000 charging points at public carparks and private premises by 2030<sup>9</sup> and set aside S\$30 million over five years to support adoption of EVs.

9 <https://www.gov.sg/article/budget-2021-building-a-sustainable-singapore>

## Green Category: Sustainable Water and Wastewater Management



### Environmental Objective

Natural resource conservation  
Pollution prevention and control

### Green Plan Pillar

Sustainable Living  
Energy Reset

### SDGs mapping



### Sub-categories

- Water monitoring systems that enable early detection and prompt intervention to prevent pollution of water sources and/or water losses in system
- Water collection, distribution and storage that prevent water losses and/or reduce flood risks
- Water treatment systems that prevent pollution of water sources, conserve resources through water recycling and/or reduce waste generation

### Examples of Eligible Expenditures

- **Singapore Water Story.** The Public Utilities Board (“PUB”), Singapore’s National Water Agency, adopts a holistic approach to water management, managing the entire water loop as a whole to optimise resource and efficiency. It sets out its mission to supply good water, reclaim used water, and tame stormwater.
  - o **Supply Good Water.** PUB has ensured a diversified and sustainable supply of water for Singapore with the Four National Taps (local catchment water, imported water, NEWater, desalinated water). Rainwater is collected through rivers, streams, canals and drains, and stored in 17 reservoirs. With the pipelines linking the various reservoirs, the excess water can be pumped from one reservoir to another, thus optimising storage capacity. PUB operates its water treatment facilities to optimise efficiency and keep resource utilisation low.
  - o **Reclaim Used Water.** Water that has been used by customers is collected through an extensive sewerage system and treated at water reclamation plants. Treated used water is further purified using advanced membrane technology to produce high-grade reclaimed water, known as NEWater.
  - o **Tame storm water.** PUB leads and coordinates whole-of-government efforts to protect Singapore from the threat of rising sea and manage inland and coastal flood risks holistically. As part of the holistic management of water, the drains not only serve to alleviate flood risks, but also to channel rainwater to our reservoirs for storage and subsequent treatment for potable use.



## Green Category: Pollution Prevention, Control and Circular Economy



### Environmental Objective

Natural resource conservation  
Pollution prevention and control

### Green Plan Pillar

Sustainable Living  
Resilient Future

### SDGs mapping



### Sub-categories

- Waste prevention, waste reduction, waste recycling and energy/emission-efficient waste to energy such as Eligible Green Expenditure under the NEA Green Bond Framework<sup>10</sup>:
  - Waste-to-energy ("WTE") with 26% gross waste-to-energy efficiency<sup>11</sup>
  - Food waste treatment that treats food waste into high-quality bio-pulp
  - Sludge incineration with 70% thermal efficiency
  - Material recovery of recyclables including waste collection and sorting (including pre-sorting)
  - Waste processing and recycling (for non-hazardous waste only)
- Reusing and recycling used EV batteries

### Examples of Eligible Expenditures

- Eligible expenditure under **Integrated Waste Management Facility ("IWMF")**. The IWMF is an integral part of NEA's long-term plan to meet Singapore's solid waste management needs. IWMF will be equipped with state-of-the-art solid waste treatment technologies to improve energy and resource recovery from waste. It is Singapore's first integrated facility to treat incinerable waste, source-segregated food waste and dewatered sludge from Tuas Water Reclamation Plant, as well as to sort household recyclables collected under the National Recycling Programme.

<sup>10</sup> <https://www.nea.gov.sg/docs/default-source/default-document-library/nea-green-bond-framework.pdf>

<sup>11</sup> Only solid waste collected from domestic and commercial and industrial waste sources (Type A & Type B) will be treated.



## Green Category: Climate Change Adaptation

### Environmental Objective

Climate change adaptation

### Green Plan Pillar

Resilient Future

### SDGs mapping



#### Sub-categories

- Information support systems, such as climate observation and early warning systems
- Climate change resilient infrastructure, flood defence systems that reduce flood risks and other risk mitigation programmes
- Technical consultancy and subsequent engineering activities dedicated to adaptation to climate change
- Modelling system, for simulating, evaluating, and forecasting flood risks
- R&D relating to coastal protection
- Nature-based solutions to strengthen climate resilience such as coastal and inland flood resilience, and measures to achieve Urban Heat Island ("UHI") mitigation such as urban planning and building design to maximise shade and wind flow as well as the use of urban greenery to reduce heat absorption

#### Examples of Eligible Expenditures

- **Site-specific studies to tailor coastal protection strategies, and implementation of coastal adaptation measures.** Site-specific studies at different segments of Singapore's coastline will be progressively carried out to identify adaptation pathways and protection measures, which form Singapore's long-term coastal protection plans.
- **Development of Coastal-Inland Flood Model to manage inland and coastal flood risks holistically.** The development of the Coastal-Inland Flood Model, that is capable of simulating and evaluating both inland and coastal flood risks holistically.



## Green Category: Climate Change Adaptation (Cont'd)

### Environmental Objective

Climate change adaptation

### Green Plan Pillar

Resilient Future

### SDGs mapping



### Examples of Eligible Expenditures

- **Post-construction expenditure of coastal adaptation infrastructure**, which include both operational and maintenance expenditure and asset replacement or renewal expenditure.
- **R&D to better understand sea level rise projections and innovative technology/modelling to better understand coastal processes to support coastal protection works.** On the climate science front, the Meteorological Service Singapore established the Centre for Climate Research Singapore<sup>12</sup> (“CCRS”) to improve the nation’s capabilities in climate science and modelling. The CCRS will anchor climate science capabilities in Singapore over the long term. On the coastal protection front, PUB plans to embark on a research programme to plug current knowledge gaps as well as support the planning and implementation of coastal protection works, through focussing on:
  - (i) Development of innovative coastal protection solutions; and
  - (ii) Studies on Singapore’s coastal processes.
- **Nature-based solutions to ensure healthy ecosystem services and address challenges of sea-level rise and inland flooding due to climate change, and to mitigate UHI.** To mitigate the effect of climate change, the National Parks Board (“NParks”) implements nature-based solutions which includes intensifying urban greenery, naturalising landscapes in parks and gardens, embarking on the OneMillionTrees movement and the Forest Restoration Action Plan to restore nature back into our city. Nature Ways along streets have the structure of forests and are extended into industrial estates to improve thermal comfort and air quality. NParks is also implementing coastal protection projects to enhance habitats through forest and mangrove restoration (e.g. Labrador Nature Reserve), and safeguard our coastlines from rising sea levels and storm surges (e.g. Kranji Coastal Nature Park and Pulau Ubin).

<sup>12</sup> <https://ccrs.weather.gov.sg/>





## Green Category: Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use

### Environmental Objective

Biodiversity conservation  
Natural resource conservation

### Green Plan Pillar

Resilient Future  
City in Nature

### SDGs mapping



### Sub-categories

- Improvement in sustainability and liveability of the urban environment
  - o Reforestation, conservation, habitat restoration, and species recovery
  - o Terrestrial and aquatic biodiversity conservation (e.g. habitat enhancement, nature corridors and nature ways for ecological connectivity)

### Examples of Eligible Expenditures

- **Transforming Singapore into a City in Nature.** To transform Singapore into a City in Nature, we are conserving and extending Singapore's natural capital island-wide, through the following key strategies:

- (i) Expanding the Nature Park Network;
- (ii) Intensifying nature in gardens and parks;
- (iii) Restoring nature into the urban landscape (e.g. through skyrise greenery); and
- (iv) Strengthening connectivity between Singapore's green spaces (e.g. nature corridors, nature ways, and park connector networks).

NParks also works with the community to encourage nature stewardship, for example through planting an additional one million trees in Singapore under the OneMillionTrees movement. To promote community ownership, stewardship, and health and well-being, NParks' programmes include Community in Nature, Community in Bloom, allotment gardens, Gardening with Edibles, and the development of an island-wide network of therapeutic and nature playgardens.

- **Nature Conservation Masterplan.** The Masterplan aims to systematically consolidate, coordinate, strengthen and intensify NParks' biodiversity conservation efforts. It comprises 4 thrusts:
  - (i) Conservation of key habitats;
  - (ii) Habitat enhancement, restoration and species recovery;
  - (iii) Applied research in conservation biology and planning; and
  - (iv) Community stewardship and outreach in nature.

See more details [here](#).



### 2.1.1. Exclusion



For the avoidance of doubt, expenditures incurred for the Green Categories that are already financed via dedicated funding sources, including green bond issuances under the SBs, will not be eligible under this Framework to avoid any double counting.

Any expenditure related to the following activities will be excluded from the Green Categories:

- Fossil fuel, fossil fuel electric power generation projects, and energy efficiency improvement projects for fossil fuel-based electric power generation
- Vehicles powered through fossil fuel combustion
- Non-certified sustainable palm oil
- Nuclear energy
- Lethal defence goods
- Weaponry
- Gambling
- Alcoholic beverages
- Tobacco products
- Conflict minerals
- Activities or projects associated with child labour or forced labour

It is intended that all Eligible Green Expenditures financed under this Framework shall not significantly undermine the Environmental Objectives stated in the Green Categories, and will adhere to internationally recognised principles and guidelines, specifically the UN Guiding Principles on Business and Human Rights, as well as applicable national laws and regulations in Singapore.

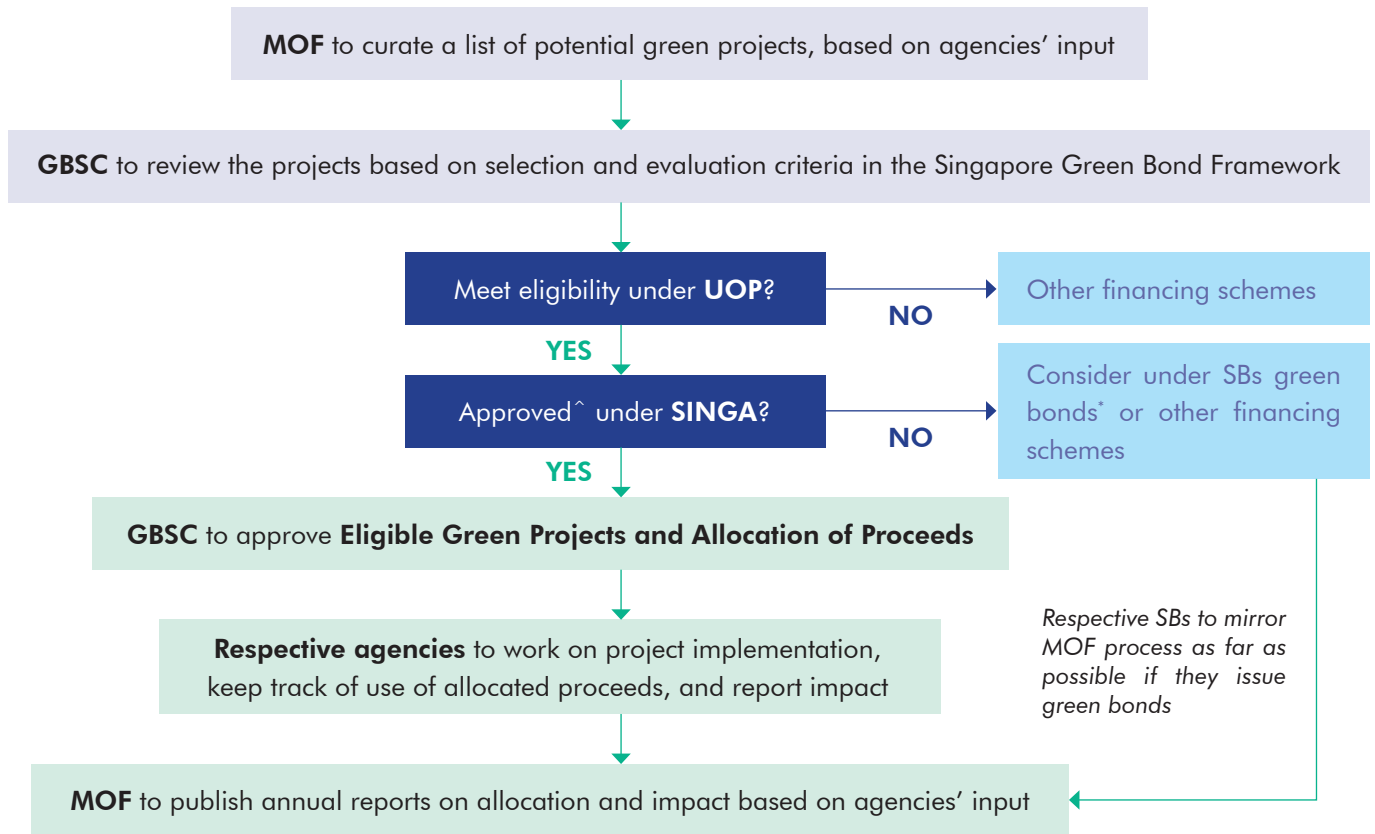




## 2.2.

### Process for Project Evaluation and Selection

Overview of Processes for Project Selection and Evaluation



- ^ Projects must meet both the eligibility criteria under UOP and SINGA legislative requirements before the Singapore Government can issue green bonds under SINGA
- \* SBs can develop additional SB-specific eligibility criteria in their own green bond frameworks

### 2.2.1.

#### Governance Structure



The Ministry of Finance ("MOF") has set up a Green Bond Steering Committee ("GBSC"), chaired by the Second Minister for Finance to oversee and approve key decisions related to the green bonds issued under this Framework. Its responsibilities include:

- Design and maintenance of the Framework
- Selection and evaluation of Eligible Green Expenditures
- Management of green bond proceeds
- Reporting on allocation and impact of green bonds issued

The GBSC membership comprises senior government representatives ("GBSC Members") from:

- Ministry of Finance
- Monetary Authority of Singapore
- Accountant-General's Department ("AGD")
- Ministry of Sustainability and the Environment ("MSE")
- Ministry of Transport ("MOT")

The GBSC is supported by another working-level group ("GBSC Secretariat").



### 2.2.2.

#### Evaluation and Selection Process



In consultation with other public sector agencies, the GBSC Secretariat will compile an initial list of potential green expenditures/projects for review by the GBSC.

On an annual basis and as needed, the GBSC will evaluate the potential green expenditures/projects based on the eligibility criteria set out in Section 2.1 *Use of Proceeds*.

The potential green expenditures/projects will have to fulfil additional legislative requirements under the SINGA, the Development Fund Act, the Financial Procedure Act and the Financial Regulations to qualify as Eligible Green Expenditures of green bonds issued by Singapore Government. The SINGA authorises the Singapore Government to borrow to finance qualifying capital expenditures of approved nationally significant infrastructure projects critical to Singapore's long-term development. There are legislative controls to safeguard the Singapore Government against the over-

accumulation of debt and to avoid abuse and ensure fiscal sustainability.

If all GBSC Members have the consensus that the potential green expenditures/projects meet both the eligibility criteria and the legislative requirements under the SINGA, GBSC will endorse and approve the expenditures/projects as Eligible Green Expenditures in accordance with the Framework. Otherwise, the expenditures/projects can be considered for financing under green bonds issued by SBs (if deemed eligible under the SBs' respective green bond frameworks) or other financing schemes by the Singapore Government.

The relevant public sector agencies will be responsible for the implementation and monitoring of Eligible Green Expenditures, and informing the GBSC of any potential non-compliance with the eligibility criteria and ESG controversies. The GBSC will review and may choose to recommend the removal of expenditures/projects from the Eligible Green Expenditures.

MOF will maintain central oversight of the Eligible Green Expenditures and issue annual reports on the allocation and impact of all green bonds issued by the Singapore Government.

#### SINGA Criteria

Criteria	Description
<b>Ownership</b>	Infrastructure should be owned by the Singapore Government, and controlled by or on behalf of the Singapore Government
<b>Major</b>	Expected project cost should be at least <b>S\$4 billion</b>
<b>Long-Term</b>	Infrastructure should be available for use for at least <b>50 years</b>
<b>Important to National Interests</b>	Infrastructure should support national productivity or Singapore's economic, environmental or social sustainability

## 2.3.

### Management of Proceeds



The Singapore Government will take a portfolio approach for the allocation of net proceeds from the green bonds.

The Singapore Government will strive to allocate the net proceeds<sup>13</sup> to Eligible Green Expenditures in full within 2 years. However, during the initial years of this Framework (for green bond issuance by 2025), the Singapore Government may require greater flexibility for planning and also to glean useful learning points. Hence, it may take up to 3 years to fully allocate the net proceeds.

The net proceeds will only be allocated to expenditures incurred for the Green Categories that occurred no earlier than 2 years prior to the date of issuance, and no later than 2 years from the date of issuance. At least 50% of the net proceeds will be allocated to current and future expenditures.

The Singapore Government may also issue green bonds under the SINGA to refinance maturing green bonds that were previously issued under the SINGA to finance past Eligible Green Expenditures. Green nationally significant infrastructure projects under the SINGA will have useful life of at least 50 years, while the tenor of green bonds issued will vary based on structural and cyclical drivers, including market absorption capacity for long-tenor bonds. Refinancing will be necessary when the tenors of the maturing green bonds are shorter than the useful lives of the green assets. In such cases, the Singapore Government will disclose this information at the time of refinancing.

The net proceeds of these green bonds will be transferred to the Singapore Government's bank account maintained with MAS. MOF will maintain an allocation register ("Green Register") to record the allocations against Eligible Green Expenditures. For each green bond issued, the Green Register will contain information including the date of issuance, principal amount of proceeds, the International Securities Identification Number and date of maturity.

In the event where the portfolio of Eligible Green Expenditures is smaller than the net green bond proceeds outstanding due to unforeseen circumstances (e.g. construction delays) or where a financed Eligible Green Expenditure no longer complies with this Framework (e.g. following divestment, postponement, cancellation, non-compliance with eligibility criteria or potential ESG controversies), the Singapore Government will use its best endeavours to allocate the specific proceeds to other Eligible Green Expenditures as soon as reasonably practicable.

Any unallocated proceeds will be held as cash or invested in other short-term liquidity instruments. The Singapore Government does not plan to invest such unallocated proceeds in the exclusion activities set out in Section 2.1.1.

MAS, as the fiscal agent of the Singapore Government, may from time to time reopen an existing green bond by issuing further amounts of the green bond. A reopened green bond has the same maturity date and coupon rate as the existing green bond. Any reopened issue is intended to be fungible with the existing amounts of that green bond. This will not limit the Singapore Government's ability to allocate the proceeds of a reopened issue to any Eligible Green Expenditures.

<sup>13</sup> For green bonds issued by the Singapore Government under the SINGA, net proceeds refer to the amount equivalent to the face value of the bonds.

## 2.4. Reporting



To provide timely and transparent disclosure on the use of proceeds of green bonds issued under the Framework, MOF will prepare a progress report starting one year from the first green bond issuance, until the full allocation (and subsequently on needs basis). The progress report will consist mainly of information on:

- **Allocation Reporting:** The Singapore Government intends to report on the allocation of the net proceeds raised from green bond issuances.
- **Impact Reporting:** The Singapore Government intends to report on the associated environmental benefits and social co-benefits, where possible, of the Eligible Green Expenditures. The Singapore Government will align, on a best effort basis, the impact reporting with the project-level or portfolio-level reporting approach.

The GBSC will review and approve the reports to be made available at <https://go.gov.sg/greenbonds>.

### 2.4.1. Allocation Reporting



On an annual basis until full allocation and in case of material changes, MOF intends to report the following information:

- The total amount of green bonds outstanding
- Breakdown of allocation by Eligible Green Expenditure sub-categories
- List of Eligible Green Expenditures with descriptions and the amount that has been allocated to
- Share of allocation of proceeds for refinancing versus financing of Eligible Green Expenditures, and percentage of co-financing if applicable
- The remaining balance of proceeds yet to be allocated at the end of the reporting period, with confirmation that the temporarily unallocated proceeds were held as cash or invested in other short-term liquidity instruments

The information may be presented in generic terms in the event confidentiality limits the amount of detail that can be made available.



## 2.4.2. Impact Reporting

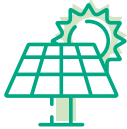










On an annual basis until full allocation and in case of material changes, MOF intends to report on the estimated environmental benefits and, where possible, also the social co-benefits of the Eligible Green Expenditures, including any material developments or ESG controversies. MOF also intends to align the impact reporting with the ICMA's "Handbook – Harmonised

Framework for Impact Reporting (June 2021)", subject to the availability of the information.

In case of co-financing, MOF will aim to report on the pro rata share of the overall impact or provide the share of financing from the green bond proceeds as a percentage of total project financing if the overall impact is being reported.

The impact reporting will also provide information on the methodology and assumptions used for calculation of the impact indicators. Example of environmental impact indicators and social co-benefits are outlined in the table below:

Eligible Criteria	Examples of Environment Impact Indicators
<b>Renewable Energy</b> 	<ul style="list-style-type: none"> <li>Annual greenhouse gas ("GHG") emissions reduced/avoided in tonnes of carbon dioxide ("CO<sub>2</sub>") equivalent</li> <li>Annual renewable energy generation in MWh/GWh (electricity)</li> <li>Installed capacity of renewable energy plants/generation in MW</li> </ul>
<b>Energy Efficiency</b> 	<ul style="list-style-type: none"> <li>Annual GHG emissions reduced/avoided in tonnes of CO<sub>2</sub> equivalent</li> <li>Annual energy savings in MWh/GWh (electricity) and GJ/TJ (other energy savings)</li> </ul>
<b>Green Buildings</b> 	<ul style="list-style-type: none"> <li>Total number and GFA of green buildings, including types and levels of certification obtained, and the percentage of new developments (by GFA) certified as Green Mark SLE (if relevant)</li> <li>Annual GHG emissions reduced/avoided in tonnes of CO<sub>2</sub> equivalent</li> <li>Annual energy savings in MWh/GWh (electricity) and GJ/TJ (other energy savings)</li> </ul>
<b>Clean Transportation</b> 	<ul style="list-style-type: none"> <li>Annual GHG emissions reduced/avoided in tonnes of CO<sub>2</sub> equivalent</li> <li>Reduction of air pollutants (e.g. particulate matter ("PM"), sulphur oxides ("SO<sub>x</sub>"), nitrogen oxides ("NO<sub>x</sub>"), carbon monoxide ("CO"), and non-methane volatile organic compounds ("NMVOCs")).</li> <li>Passenger-kilometres and/or number of passengers</li> <li>Amount of infrastructure built (e.g. length of rail, walking and cycling path networks in kilometres, number of charging points for EVs in public carparks)</li> </ul>

Eligible Criteria	Examples of Environment Impact Indicators
<b>Sustainable Water and Wastewater Management</b> 	<ul style="list-style-type: none"> <li>• Number of sensors installed/system coverage and number of leaks avoided</li> <li>• Reduction in system distribution losses in %</li> <li>• Amount of wastewater treated in m<sup>3</sup></li> <li>• Amount of waste avoided/reduced in kg or m<sup>3</sup></li> </ul>
<b>Pollution Prevention, Control and Circular Economy</b> 	<ul style="list-style-type: none"> <li>• Annual GHG emissions reduced/avoided in tonnes of CO<sub>2</sub> equivalent</li> <li>• Overall gross power efficiency for WTE in %<sup>14</sup></li> <li>• Annual energy recovered from waste and sludge incineration in MWh/GWh (electricity) and GJ/TJ (other energy savings)</li> <li>• Annual Incineration Bottom Ash ("IBA") sent to off-site facility for recovery of Ferrous metals and Non-Ferrous metals in tonnes</li> <li>• Annual recovery of Recyclables consisting of Ferrous metals, Non-Ferrous metals, Plastics and Paper in tonnes</li> <li>• Annual recovery of Bottom Ash in tonnes</li> <li>• Annual amount of IBA diverted from landfill in tonnes</li> <li>• Reduction of air pollutants (e.g. coarse and fine particulate matter (PM10 and PM2.5), sulphur dioxide ("SO<sub>2</sub>"), NO<sub>x</sub>, CO, and ozone ("O<sub>3</sub>"))</li> </ul>
<b>Climate Change Adaptation</b> 	<ul style="list-style-type: none"> <li>• Reduction in flood damage costs</li> <li>• Length of coastal flood defences</li> <li>• Length of drainage infrastructure developed or enhanced</li> </ul>
<b>Biodiversity Conservation and Sustainable Management of Natural Resources and Land Use</b> 	<ul style="list-style-type: none"> <li>• Number of trees planted and amount of CO<sub>2</sub> sequestered in tonnes</li> <li>• Number of hectares of nature parks added</li> <li>• Number of hectares of forest, marine and coastal habitats restored and enhanced</li> <li>• Length of park connectors added in kilometres</li> <li>• Length of Nature Ways built in kilometres</li> <li>• Amount of skyrise greenery added in hectares</li> <li>• Number of parks and gardens with ecological habitats restored</li> <li>• Number of nature playgardens added</li> <li>• Number of species recovery programmes implemented</li> </ul>
<b>Examples of Social Co-Benefits</b>  <ul style="list-style-type: none"> <li>• Number of jobs created/supported</li> <li>• Number of households and/or businesses benefited</li> </ul>	

<sup>14</sup> Figure of Overall Gross Power Efficiency is subject to change based on calorific value of waste, actual load during operations and power degradation curve.

## 3. External Review

### 3.1. Pre-Issuance External Review



MOF has engaged an independent provider, Sustainalytics, to provide pre-issuance Second-Party Opinion (“SPO”) on the Framework. The SPO is available at <https://go.gov.sg/greenbonds> and <https://www.sustainalytics.com/corporate-solutions/sustainable-finance-and-lending/published-projects>. This SPO (or another form of pre-issuance external review) will be done on a one-off basis, unless there are material changes to the Framework.

### 3.2. Post-Issuance External Verification



MOF will also engage an independent provider to provide annual external verification on the alignment of the allocation and impact reporting with the Framework, until full allocation and in case of material changes. The post-issuance verification report will be available at <https://go.gov.sg/greenbonds>.





## 4. Amendments to this Framework

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The GBSC will review this Framework on a regular basis, including its alignment to updated versions of the ICMA Green Bond Principles and ASEAN Green Bond Standards as and when they are released, with the aim of adhering to market best practices. Such review may result in this Framework being updated and amended. The updates, if not minor in nature, will be subject to the

prior approval of the GBSC. Any future updated version of this Framework that may exist will either keep or improve the current levels of transparency and reporting disclosures, including the corresponding review by an external reviewer. The updated Framework, if any, will be published on the website and will replace this Framework.







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