

A person is holding a small sapling with a ball of soil in their hand. The background is a lush forest with many trees and a path covered in brown leaves. The text is overlaid on a semi-transparent white box in the center of the image.

Nature Restoration Law & Urban Green/Biodiversity Indicators

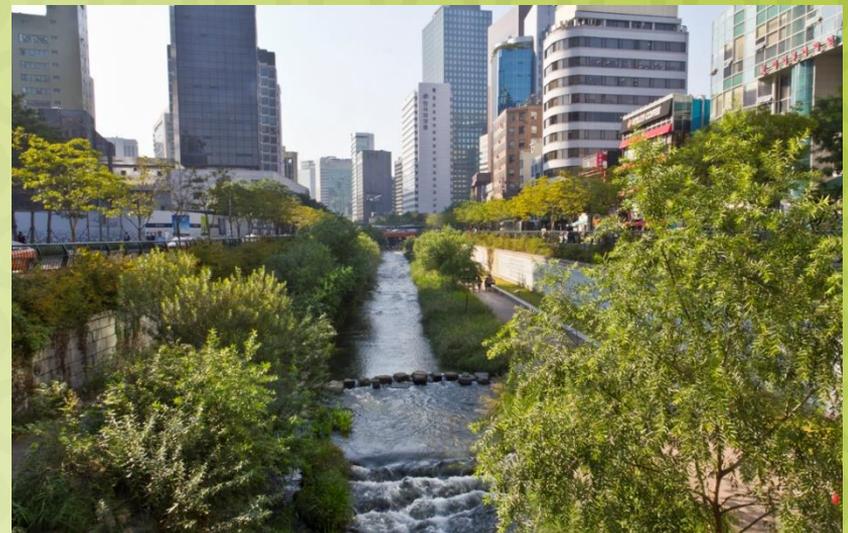
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Nature Restoration Law:

- First-ever legislation that targets restoration of Europe's nature
- Repair the 80% of European habitats that are in poor condition
- Bring back nature to all ecosystems (from forest and agricultural land to marine, freshwater and urban ecosystems)
- Legally binding targets for nature restoration in different ecosystems will apply to every Member State, complementing existing laws.



Nature Restoration Law:

- Member States will need to establish Nature Restoration Plans outlining how they will restore nature across a range of ecosystems
- **The aim is to cover at least 20% of the EU's land and sea areas by 2030 with nature restoration measures, and eventually extend these to all ecosystems in need of restoration by 2050.**



Urban Targets

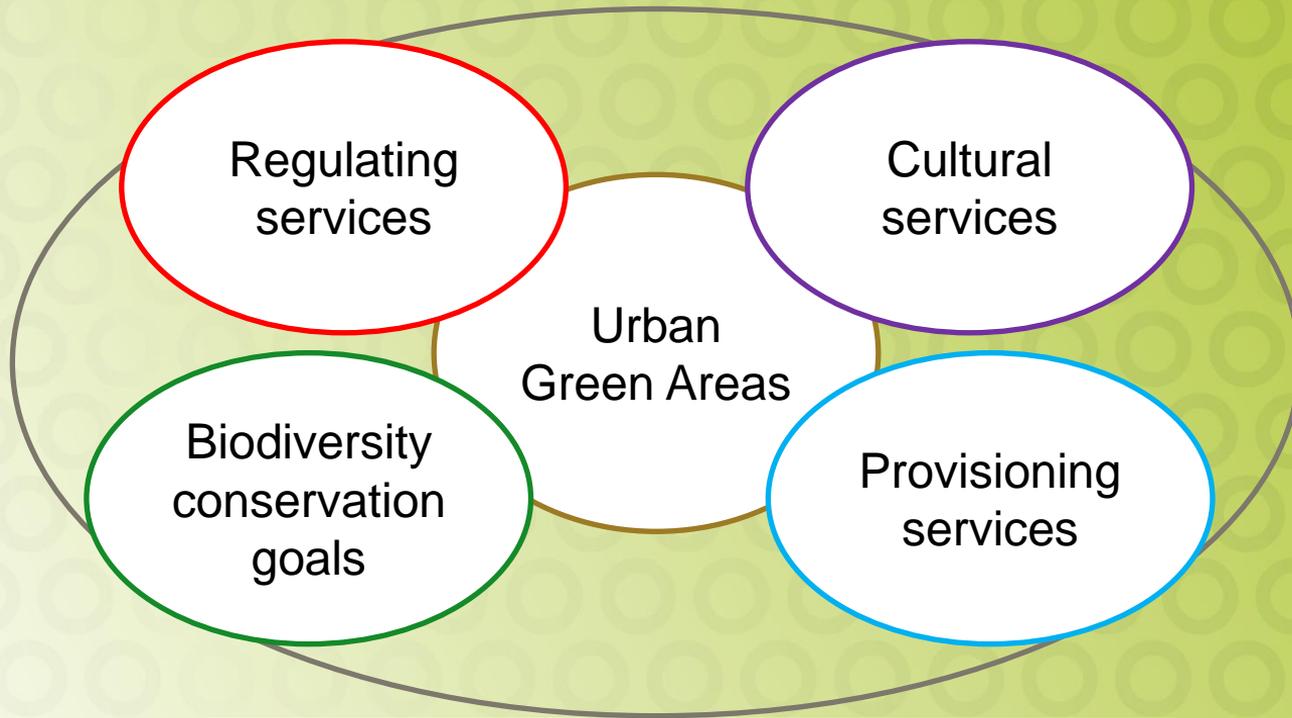
No net loss of urban green space, and of urban tree canopy cover by 2030, compared to 2021, in all cities and in towns and suburbs.

Increase in the total national area of urban green space in cities and in towns and suburbs of at least 3 % of the total area compared to 2021, by 2040, and at least 5 % by 2050.

A minimum of 10 % urban tree canopy cover in all cities and in towns and suburbs by 2050.

Net gain of urban green space that is integrated into existing and new buildings and infrastructure developments, including through renovations and renewals in all cities and suburbs.





Indicators measure the condition of urban ecosystems as well as the pressures acting on them and the capacity to provide these services

"Green City Accord" five mandatory area to assess and monitor

Air

Water

Waste & Circular
Economy

Noise

Nature &
Biodiversity

- Percentage of protected natural areas, restored and naturalized areas on public land in municipality
- Percentage of tree canopy cover within the city
- Change in number of species of birds in urban area/built-up areas in the city



Some more background....

Two major publications regarding the measuring and monitoring of biodiversity in an urban context.

- JRC. 2018. 5th MAES Report: Mapping and Assessment of Ecosystems and their Services
 - This report provides operational guidance to the EU and the Member States on how to assess the condition (or the state) of Europe's ecosystems.
 - Ecosystems need to be in good condition to provide multiple ecosystem services, which, in turn, deliver benefits and increase well-being.
 - Ecosystem condition can be measured using indicators.



MAES ecosystem type indicators for pressure and indicators for ecosystem condition

Pressures	
Habitat conversion and degradation (Land conversion)	Land annually taken for built-up areas per person (m²/person/year)
	Soil sealing (ha/year)
Climate change	Number of combined tropical nights (above 20 °C) and hot days (above 35 °C) (number/year)
Pollution and nutrient enrichment	Emissions of NO₂, PM₁₀, PM_{2.5} (kg/year)
	Number of annual occurrences of maximum daily 8 hour mean of O ₃ > 120 µg/m ³ (number/year)
	Number of annual occurrences of 24 hour mean of PM ₁₀ > 50 µg/m ³ (number/year)
	Number of annual occurrences of hourly mean of NO ₂ > 200 µg/m ³ (number/year)
	Number of annual occurrences of (traffic) noise at levels exceeding 55 db(A) during the day and 50 db(A) during the nights (possibly broken down over the source of noise) (number/year)
Over-exploitation	n.a.
Introductions of invasive alien species	Number of annual introductions of invasive alien species* (number/year)



Ecosystem condition

Environmental quality

Urban temperature (°C)

Noise levels (dB(A))

Percentage of population exposed to road noise within urban areas above 55 dB during the day and above 50 dB during the night (%)

Percentage of population exposed to air pollution above the standards (%)

Concentration of air pollutants NO₂, PM₁₀, PM_{2.5}, O₃ (µg/m³)

Concentration of nutrients and biological oxygen demand in surface water (mg/l)

Bathing water quality (quality levels)

Percentage of population connected to urban waste water collection and treatment plants (%)

Number of inhabitants per area (number/ha)

Artificial area per inhabitant (m²/person)

Length of the road network per area (km/ha)

Percentage of built-up area (%)

Weighted Urban Proliferation (Urban Permeation Units/m²)

Imperviousness (%)

Sites with contaminated soil (number)



Ecosystem attributes	
Structural ecosystem attributes (general)	Percentage of urban green space (%)
	Percentage of natural area (%)
	Percentage of agricultural area (%)
	Percentage of abandoned area (%)
	Canopy coverage (ha)
	Foliage damage crown dieback (number of trees affected)
	Connectivity of urban green spaces (%)
	Fragmentation of urban green space (Mesh density per pixel)
Structural ecosystem attributes based on species diversity and abundance	Number and abundance of bird species (number; number/ha)
	Number of lichen species (number)
	Number of invasive alien species (number)
Structural ecosystem attributes monitored under the EU nature directives	Percentage of urban ecosystems covered by Natura 2000 area (%)
Structural soil attributes	Bulk density (kg/m ³)
	Soil organic carbon (SOC) (g/kg)
	Soil biodiversity (DNA-based richness and abundance)
	Earthworms (number, number/ha)
Functional ecosystem attributes (general)	n.a.
Functional soil attributes	Available water capacity (mm/year)



➤ The Singapore Index on Cities' Biodiversity

- Self-assessment tool for cities to benchmark and monitor the progress of their biodiversity conservation efforts against their own individual baselines.
- The framework of the Singapore Index comprises two parts: first, the "Profile of the City" provides background information on the city;
- 28 indicators that measure native biodiversity, ecosystem services and governance and management of biodiversity in the city.
- Each indicator is assigned a scoring range between zero and four points, with a maximum score of 112 points. Cities will have to conduct a baseline scoring in the first application of the SI and conduct subsequent application every 3 – 5 years to allow sufficient time between applications for the results of biodiversity conservation efforts to materialize.



Table 1: Framework of the Singapore Index on Cities' Biodiversity

SINGAPORE INDEX ON CITIES' BIODIVERSITY	
PART I – PROFILE OF THE CITY	Location and size (geographical coordinates (latitudes and longitudes); climate (temperate or tropical, etc.); rainfall/precipitation (range and average); including maps or satellite images where city boundaries are clearly defined)
	Physical features of the city (geography, altitude, area of impermeable surfaces, information on brownfield sites, etc.)
	Demographics (including total population and population density; the population of the region could also be included if appropriate, and for the purpose of placing it in the regional context)
	Economic parameters (Gross Domestic Product (GDP), Gross National Product (GNP), per capita income, key economic activities, drivers and pressures on biodiversity)
	Biodiversity features (ecosystems within the city, species within the city, quantitative data on populations of key species of local importance, relevant qualitative biodiversity data)
	Administration of biodiversity (relevant information includes agencies and departments responsible for biodiversity; how natural areas are protected (through national parks, nature reserves, forest reserves, secured areas, parks, etc.)
	Links to relevant websites including the city's website, environmental or biodiversity themed websites, websites of agencies responsible for managing biodiversity



SINGAPORE INDEX ON CITIES' BIODIVERSITY

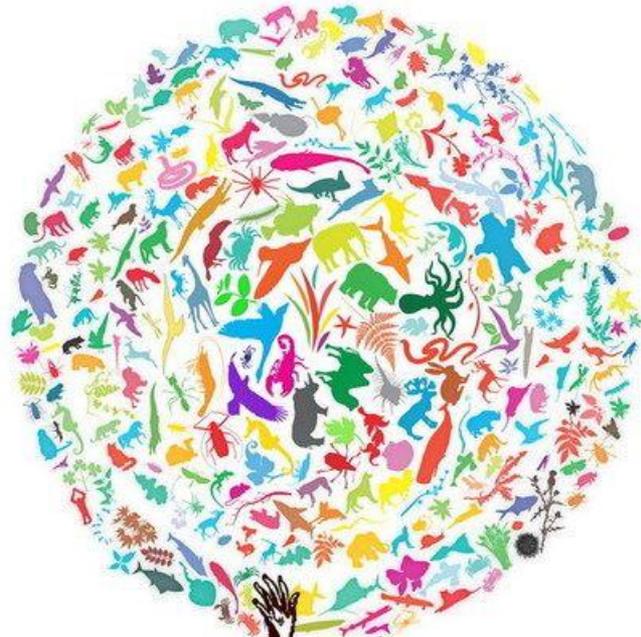
PART II – INDICATORS

Core Components	Indicators	Maximum Score
Native Biodiversity in the City	1. Proportion of Natural Areas in the City	4 POINTS
	2. Connectivity Measures or Ecological Networks to Counter Fragmentation	4 POINTS
	3. Native Biodiversity in Built Up Areas (Bird Species)	4 POINTS
	4. Change in Number of Vascular Plant Species	4 POINTS
	5. Change in Number of Native Bird Species	4 POINTS
	6. Change in Number of Native Arthropod Species	4 POINTS
	7. Habitat Restoration	4 POINTS
	8. Proportion of Protected Natural Areas	4 POINTS
	9. Proportion of Invasive Alien Species	4 POINTS
Ecosystem Services provided by Biodiversity	10. Regulation of Quantity of Water	4 POINTS
	11. Climate Regulation – Benefits of Trees and Greenery	4 POINTS
	12. Recreational Services	4 POINTS
	13. Health and Wellbeing – Proximity/Accessibility to Parks	4 POINTS
	14. Food Security Resilience – Urban Agriculture	4 POINTS
Governance and Management of Biodiversity	15. Institutional Capacity	4 POINTS
	16. Budget Allocated to Biodiversity	4 POINTS
	17. Policies, Rules and Regulations – Existence of Local Biodiversity Strategy and Action Plan	4 POINTS
	18. Status of Natural Capital Assessment in the City	4 POINTS
	19. State of Green and Blue Space Management Plans in the City	4 POINTS
	20. Biodiversity Related Responses to Climate Change	4 POINTS
	21. Policy and/or Incentives for Green Infrastructure as Nature-based Solutions	4 POINTS
	22. Cross-sectoral and Inter-agency Collaborations	4 POINTS
	23. Participation and Partnership: Existence of Formal or Informal Public Consultation Process Pertaining to Biodiversity Related Matters	4 POINTS
	24. Participation and Partnership: Number of Agencies/Private Companies/NGOs/Academic Institutions/International Organisations with which the City is Partnering in Biodiversity Activities, Projects and Programmes	4 POINTS
	25. Number of Biodiversity Projects Implemented by the City Annually	4 POINTS
	26. Education	4 POINTS
	27. Awareness	4 POINTS
	28. Community Science	4 POINTS
Native Biodiversity in the City (Sub-total for indicators 1-9)		36 points
Ecosystem Services provided by Biodiversity (Sub-total for indicators 10-14)		20 points
Governance and Management of Biodiversity (Sub-total for indicators 15-28)		56 points
Maximum Total:		112 points

THANK YOU



Biodiversity



Will You bear

responsibility?

