

# Module 4: Supporting Natural Assets at the Local Level through VLRs

Enhanced VLR Guidance Portal  
for Supporting Sustainable, Green and Resilient  
Recovery & Transitions at the Local Level



UNITED NATIONS  
DEPARTMENT OF ECONOMIC  
AND SOCIAL AFFAIRS



UN-HABITAT



UNITED NATIONS  
ECONOMIC COMMISSION  
FOR EUROPE



**UCLG**

United Cities  
and Local Governments

# Who is this guide for?

- Officials of **local governments & organizations** who are in the process of preparing a Voluntary Local Review (or considering it)
- **UN or other experts** who are assisting local governments & organizations in the preparation of a VLR



# What will and won't you find in this module?

- You will learn **how to enhance VLRs to support natural assets in cities**, informed by existing guidance from across the UN system and its partners



- This is **not a detailed guide on how to prepare a VLR**



# Implementing partners and authors

The implementing partners and authors of the Guidance Portal for Enhanced VLRs are:

- the United Nations Department for Economic and Social Affairs ([UNDESA](#)),
- in cooperation with the United Nations Human Settlements Programme ([UN-Habitat](#)),
- the United Nations Economic Commission for Europe ([UN-ECE](#)), and
- the World Organization of United Cities and Local Governments ([UCLG](#)).



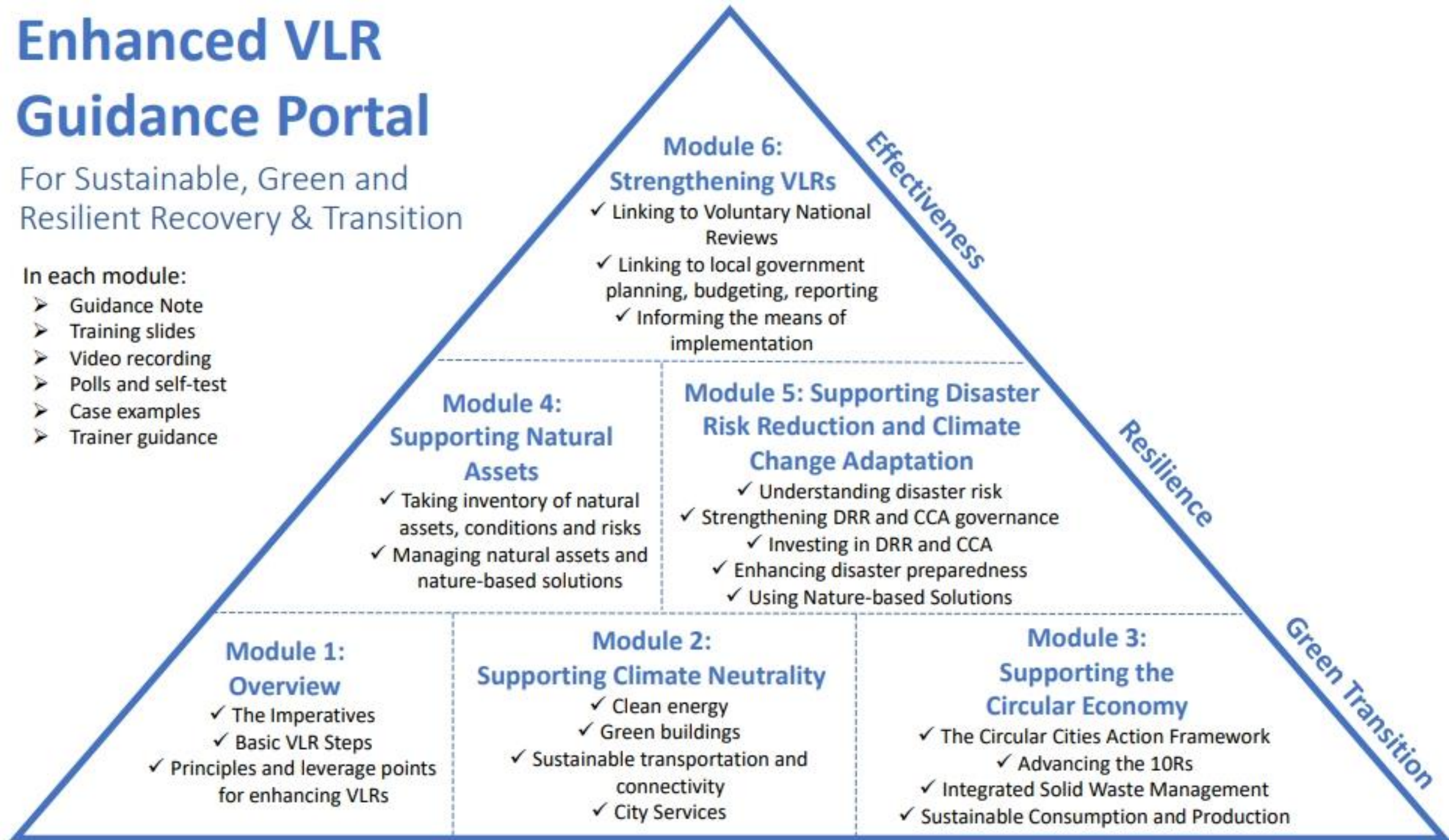


# Enhanced VLR Guidance Portal

For Sustainable, Green and  
Resilient Recovery & Transition

In each module:

- Guidance Note
- Training slides
- Video recording
- Polls and self-test
- Case examples
- Trainer guidance



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- Module 4:**  
**Supporting Natural Assets**
- ✓ Taking inventory of natural assets, conditions and risks
  - ✓ Managing natural assets and city services

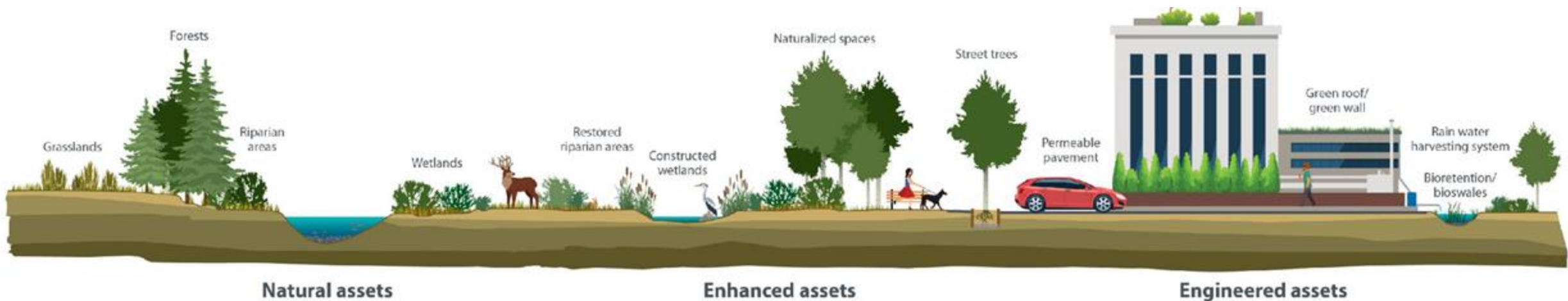


# What are natural assets for cities?

Natural infrastructure includes “existing, restored, enhanced or simulated combinations of land, water and vegetation”

([UNDESA and UNCDF, 2021](#))

- The European Union strategy on Green Infrastructure “promotes the use of green and blue infrastructure and city services for the benefit of EU citizens and biodiversity” ([EU 2013](#)).
- The strategy describes how “a network of healthy ecosystems provides alternatives to traditional ‘grey’ infrastructure, often at a fraction of their cost”



# Why the urgency?

- Sustainable Development Goal (SDG) #15 calls on all nations to “**protect, restore and promote sustainable use of terrestrial ecosystems**, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss” ([United Nations, n.d.](#)).
- Furthermore, among the specific targets of SDG #15 established in 2015 was to “by 2020, **integrate ecosystem and biodiversity values into national and local planning**, development processes, poverty reduction strategies and accounts.”





# Why the urgency?

- Goal B: Biodiversity is sustainably used and managed and **nature's contributions to people, including ecosystem functions and services, are valued, maintained and enhanced, with those currently in decline being restored**, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.
- Target 11: **Restore, maintain and enhance nature's contributions to people**, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and **reduction of disease risk**, as well as protection from **natural hazards and disasters**, through **city services** and/or ecosystem-based approaches for the benefit of all people and nature



# How can local governments support natural assets?

## 1. Natural Asset Inventory

- ✓ Developing the inventory, including condition assessment
- ✓ Assessing and managing risks



## 2. Asset Management

- ✓ Creating an asset management policy and strategic plan
- ✓ Establishing level of service
- ✓ Valuing natural assets
- ✓ Informing asset management



# How can local governments and organizations support natural assets through VLRs?

## I. Planning & Policy

- A. Identify and communicate local success stories in managing natural assets
- B. Assess and identify missed opportunities for managing natural assets at the local level
- C. Make coherent policy recommendations for local governments

## II. Budgeting & Finance

- A. Assess public budget expenditures allocated to natural assets and city services
- B. Make coherent recommendations for addressing expenditure gaps, including all potential financing sources and instruments
- C. Identify and communicate local success stories in financing natural assets and city services

## III. Reporting & Assessment

- A. Provide data and stories relevant to key performance indicators (KPIs) reported by local government, including by asset managers
- B. Identify KPI gaps and make recommendations for additional indicators for local government to use

# 1. Natural Asset Inventory

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including condition assessment
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# Types of natural assets



- **Diverse mixed forests**, absorb large quantities of water and protect the soil, preventing and reducing the impacts of floods and landslides. They also provide important habitats for animals, recreation, and contribute to carbon sequestration.
- **Well-designed urban green spaces**, (parks, gardens, green roofs, allotments...) can contribute to protecting biodiversity, while helping to tackle climate change, keeping cities cool, reducing flood risks and enhancing the health and well-being of urban residents.
- **Restoring wetlands** is a suitable, often cheaper, alternative to building a new water treatment plants, that can also provide many other natural services, including space for migrating birds, and for pollinators to thrive;
- **Restoring floodplains** is also much cheaper and often much more effective at preventing floods than building a new, higher dykes.

# Types of Natural Assets and City Services

1. Protect forests
2. Develop green belts
3. Preserve natural wetlands
4. Maintain riverine vegetation/riparian corridors
5. Preserve and manage dead trees/deadwood
6. Dune restoration
7. Restore salt marshes
8. Restore mangrove forests
9. Rehabilitate river floodplains
10. Upgrade existing roads
11. River and canal restoration
12. Agroforestry
13. Create wildlife crossings
14. Green derelict industries
15. Green cemeteries
16. Create urban/community gardens
17. Relocate polluting industries
18. Create constructed wetlands/reed beds
19. Create retention ponds
20. Infiltration areas/rain gardens
21. Bioswales
22. Green abandoned/vacant lands
23. Green infrastructure corridors
24. Green car parks
25. Hedge biotopes/natural hedges
26. Facilities for birds and other fauna on and around buildings
27. Connection of biotopes to outlying areas and green-blue networks
28. Green parks, playgrounds and public spaces
29. Create tree canopies
30. Create green corridors
31. Create urban forests
32. Create green facades
33. Create green roofs
34. Build private gardens
35. Bundle infrastructure

# Fostering regional and ecological resilience

- Ecosystems and their services not only support cities' day-to-day functions, but they can also reduce risks from hazards and the effects of climate change.
- Innovative design and planning strategies including ecosystem protection and restoration, the use of green and blue infrastructure, and changes in urban morphology, can reduce the risk from various hazards such as heat waves, floods, or landslides.

<https://learningwith.uclg.org/p/resilient-cities-regions>



# Develop the inventory of natural assets

- UNDESA and the United Nations Capital Development Fund (UNCDF) issued its handbook for local governments on “Managing Infrastructure Assets for Sustainable Development” in the context of both built and natural infrastructure ([UNDESA and UNCDF, 2021](#)).
- This guidance begins by emphasizing that “a critical first step in the asset management journey is for governments **to take stock of the assets they own and/or manage**”.





# Assess and Manage Risks

- [UNDESA and UNCDF \(2021\)](#) emphasize in their handbook on infrastructure asset management that understanding risk and how to mitigate is a key component of life cycle asset management.
- Risks can be financial, given the significant capital cost of most assets, and also, inherently service related.
- Such risks to assets must be assessed and managed on a continual basis.

Natural assets and natural infrastructure can provide “an effective compliment or substitute for traditional built infrastructure”, and in the context of climate-resilient infrastructure, “can deliver equivalent service to traditional approaches while also generating co-benefits such as amenity value, biodiversity conservation, and climate change mitigation ([OECD, 2018](#)).



# Good Practice Example

## Canada's National Standard for Natural Asset Inventories

- Unlike engineered assets, natural assets are often excluded from asset management plans and financial reports leading to their mismanagement and the deterioration of the services that they provide.
- Provides definitions, guidance
- Helps bridge the gap for local governments looking to begin accounting for their natural assets, while also providing consultants and practitioners with expert-developed best practices to apply in their work.
- Makes collaboration between communities easier, help attract diverse funding, and connect natural asset inventories to broader climate and natural based solutions and reporting.



The screenshot shows the CSA Group website interface. At the top left is the CSA Group logo. To the right are links for 'CSA Group' and 'CSA OnDemand™'. Below these are 'CATALOGUE' and 'SUBSCRIPTION' dropdown menus. A search bar with a dropdown menu set to 'All' and the text 'Search Products' is visible. The breadcrumb trail reads 'Home > CSA W218:23'. The main heading is 'CSA W218:23' with the subtitle 'Specifications for natural asset inventories'. At the bottom, it lists 'SKU: 2430709', 'Published by CSA Group', 'Publication Year 2023', and '37 pages'.

<https://www.csagroup.org/store/product/2430709/>

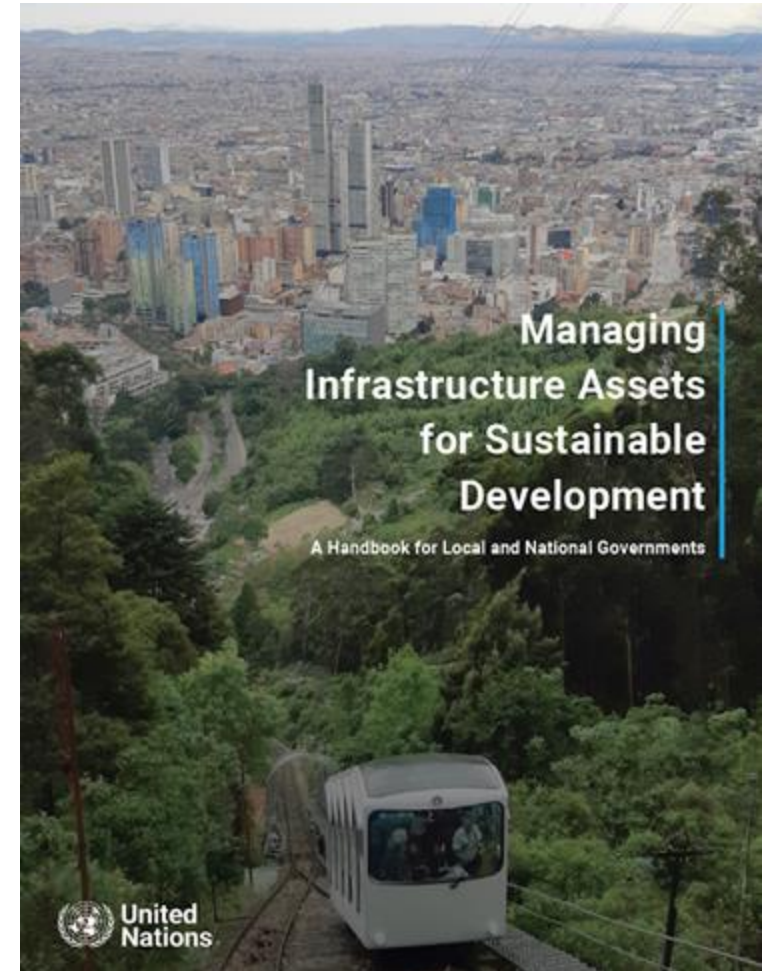
## 2. Asset Management

- ✓ Creating an asset management policy and strategic plan
- ✓ Establishing level of service
- ✓ Valuing natural assets
- ✓ Informing asset management



# What is Asset Management?

- Assets have to be **managed adequately over their entire life cycles** to ensure that **initial investments in new infrastructure are sustained for present and future generations**
- Each phase of an asset's life cycle, including planning, acquisition, use and disposal, should be **supported by coherent policies** that draw on a unique set of human, material and financial resources.
- Public assets are defined as including **buildings, equipment, natural resources, and infrastructure.**

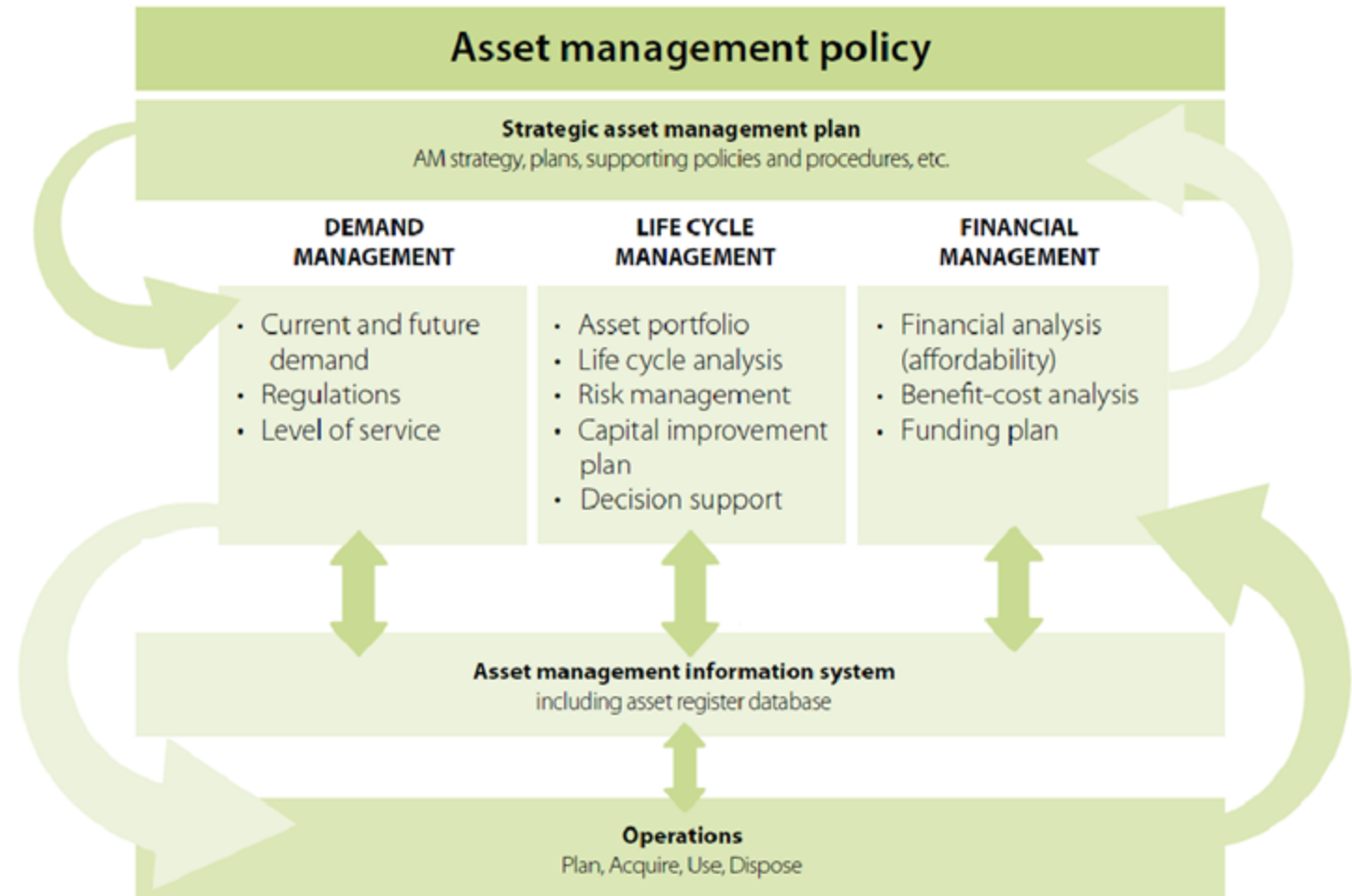




# What is Asset Management?

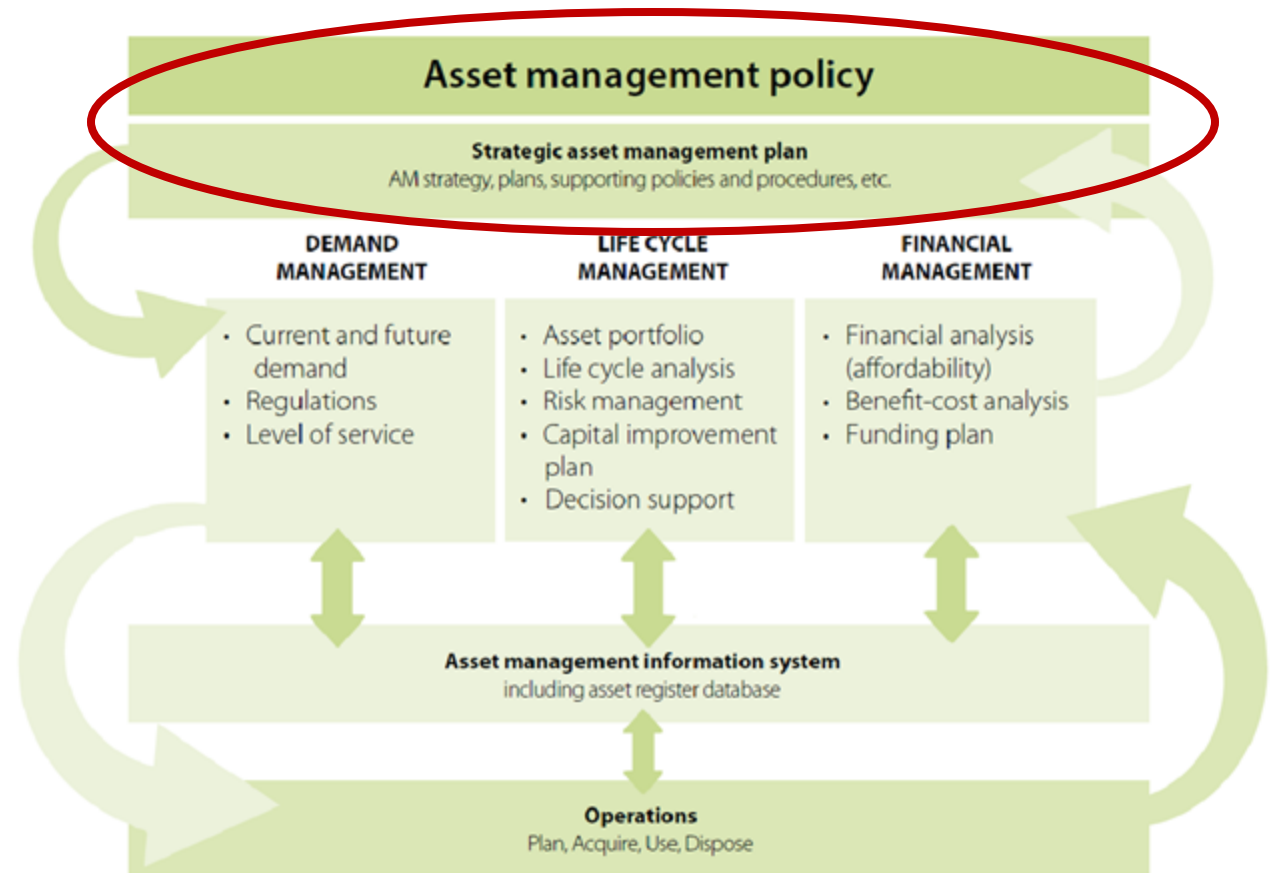
A local government asset management framework includes ([UNDESA and UNCDF, 2021](#)):

- Asset management policy
- Strategic asset management plan
- Operational actions of planning, acquiring, using, and disposing,
- All informed by an asset management information system and asset register database



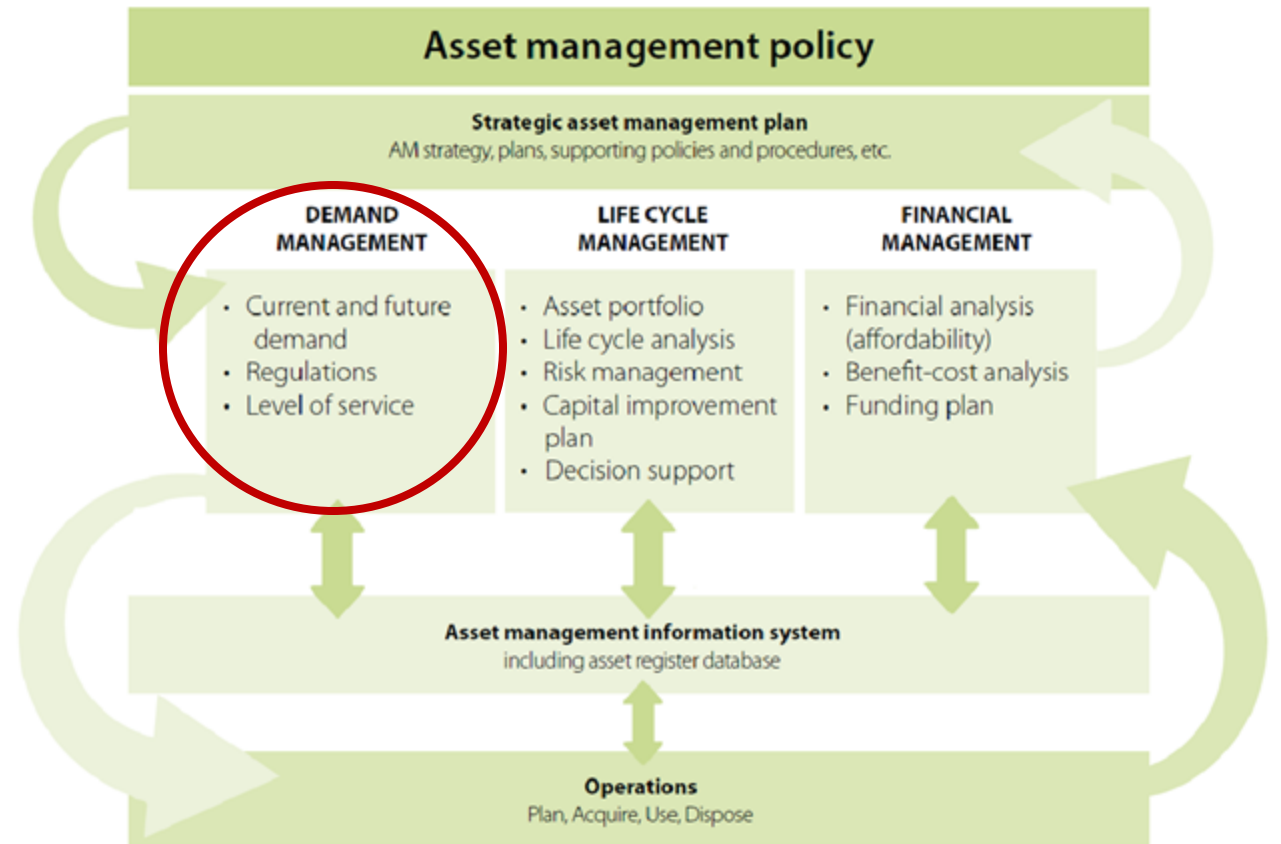
# Asset Management Policy and Strategy

- An asset management policy sets out the objectives and principles that guide asset management for a local government.
- A strategic asset management plan includes a strategy to guide how assets will be managed over time to meet objectives in a manner that is coherent with other local economic, land use, and development goals ([UNDESA and UNCDF, 2021](#)).
- The asset management plan further details the necessary actions to manage the assets, typically organized by service area or asset type.



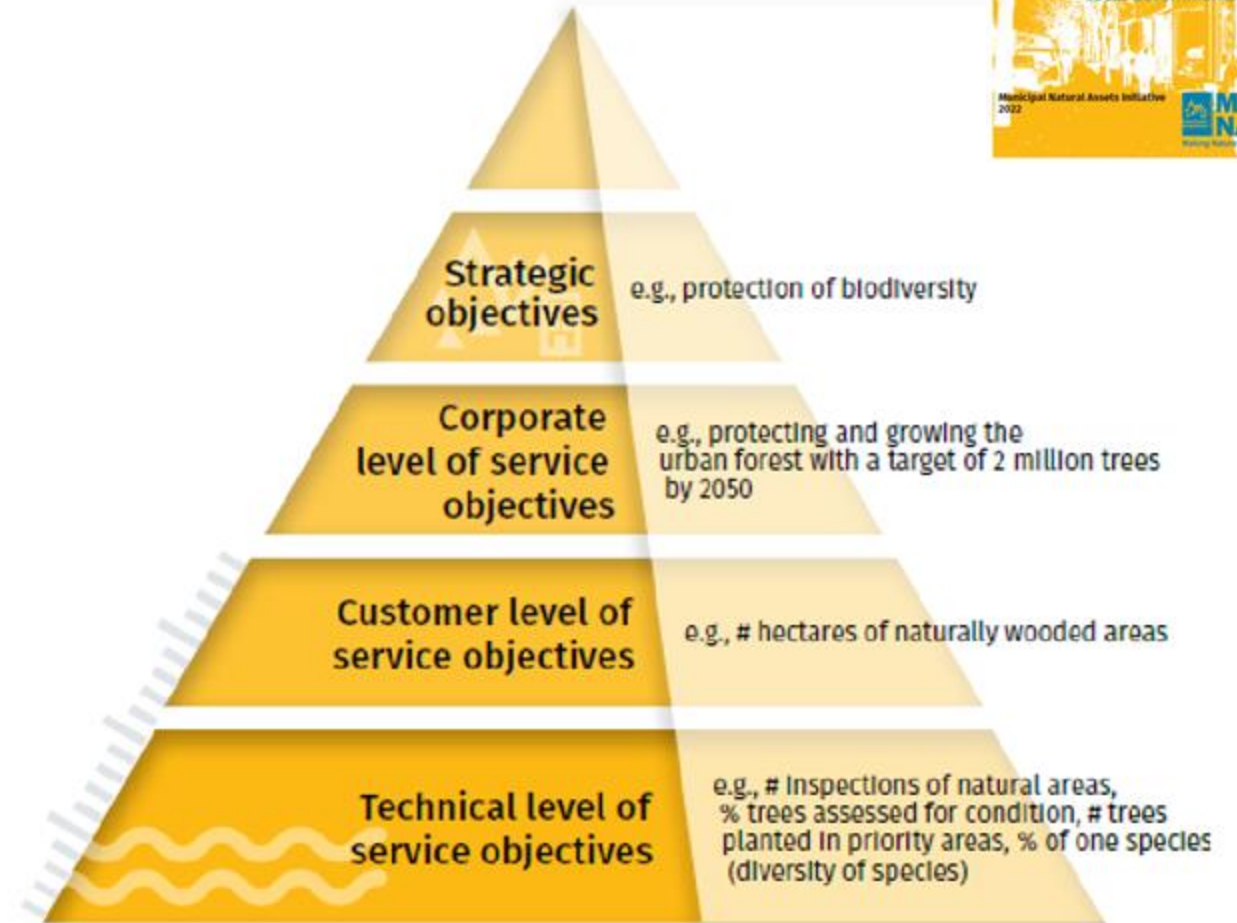
# Level of Service

- Level of service (LOS) defines the scale of service provided by an asset and can be government mandated (i.e., a water quality standard).
- LOS can also be customer-based to address how the community receives or experiences a service or technical, as a measure of how the local government delivers the service ([UNDESA and UNCDF, 2021](#)).



# Levels of Service

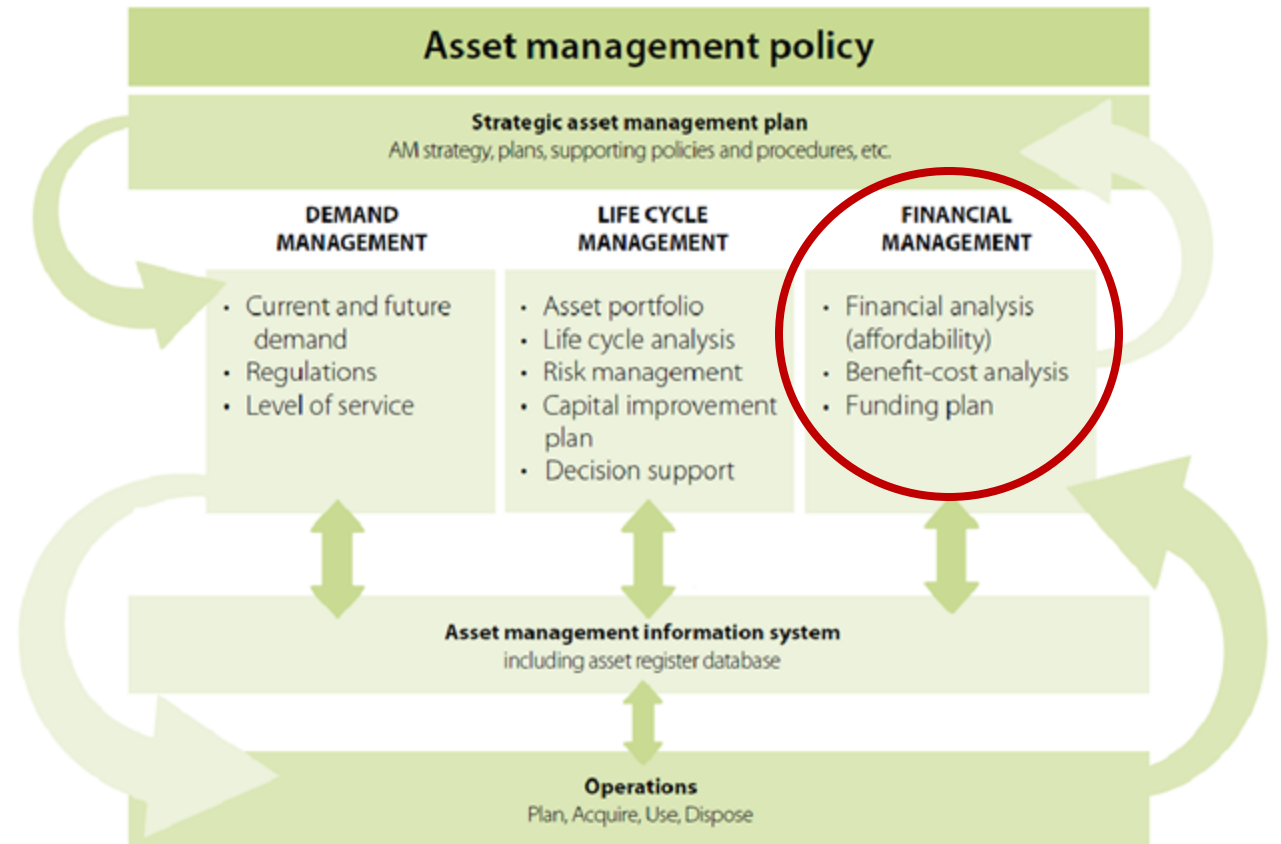
- The Municipal Natural Asset Initiative established A Guidebook for Local Governments for developing levels of service (LOS) for natural assets and natural infrastructure ([MNAI, 2022](#)).
- Different LOS:
  - Strategic
  - Corporate
  - Customer
  - Technical
- Complete list of performance measures for different types of natural assets





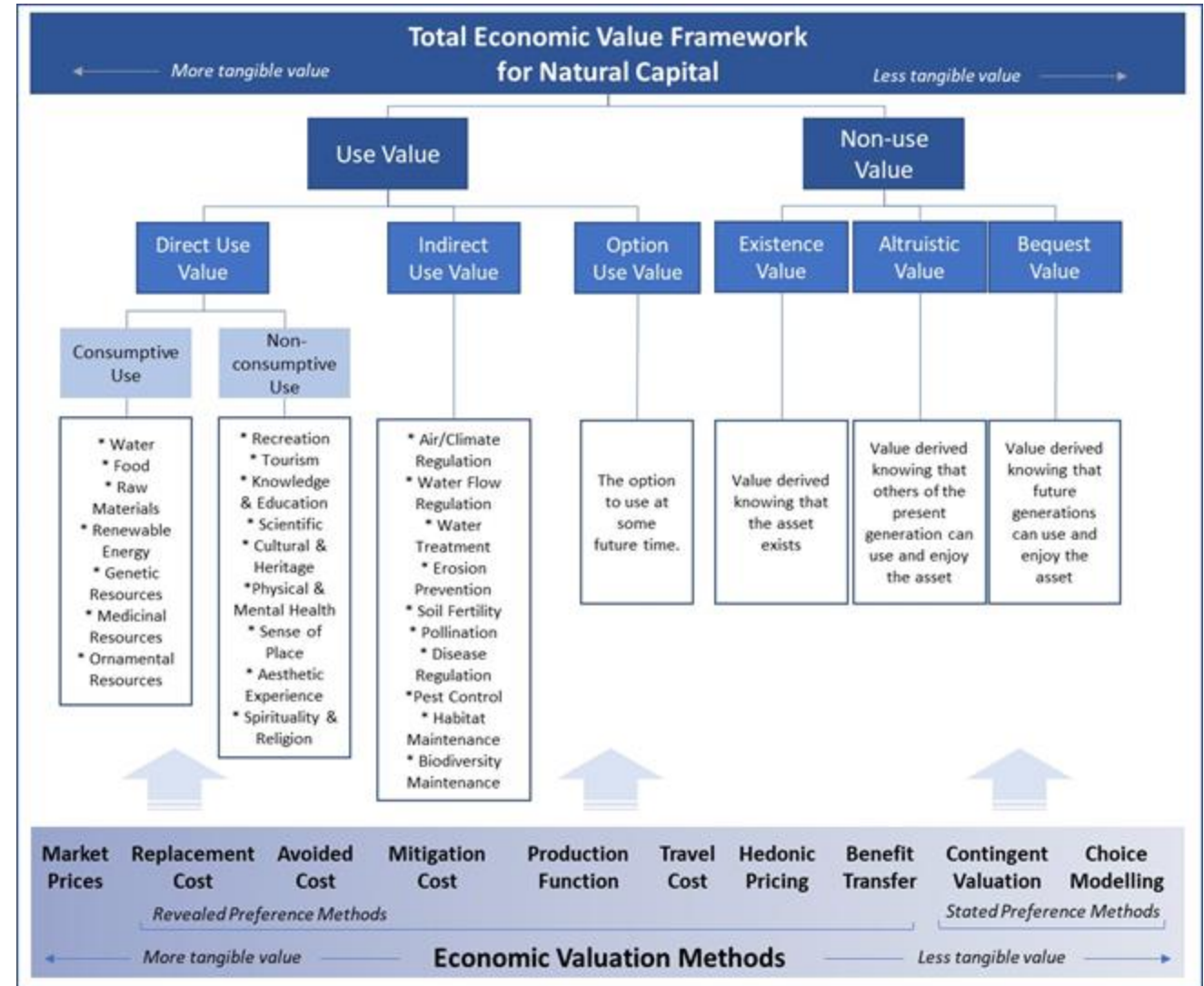
# Valuing Natural Assets

- [UNDESA and UNCDF \(2021\)](#) describe multiple approaches for determining asset value for built assets, including depreciated book value, replacement cost, and market value.
- Valuation methods for natural assets and natural infrastructure is slightly more involved compared to built assets.



# Valuing Natural Assets

- The Economics of Ecosystems and Biodiversity (TEEB) initiative was launched in 2008 by the European Commissioner for the Environment and the German Environment Minister,
- Describes a range of approaches that can be used for valuing natural capital within a Total Economic Value (TEV) framework ([Pascual and Muradian, 2010](#))
- These include revealed preference methods and stated preference methods



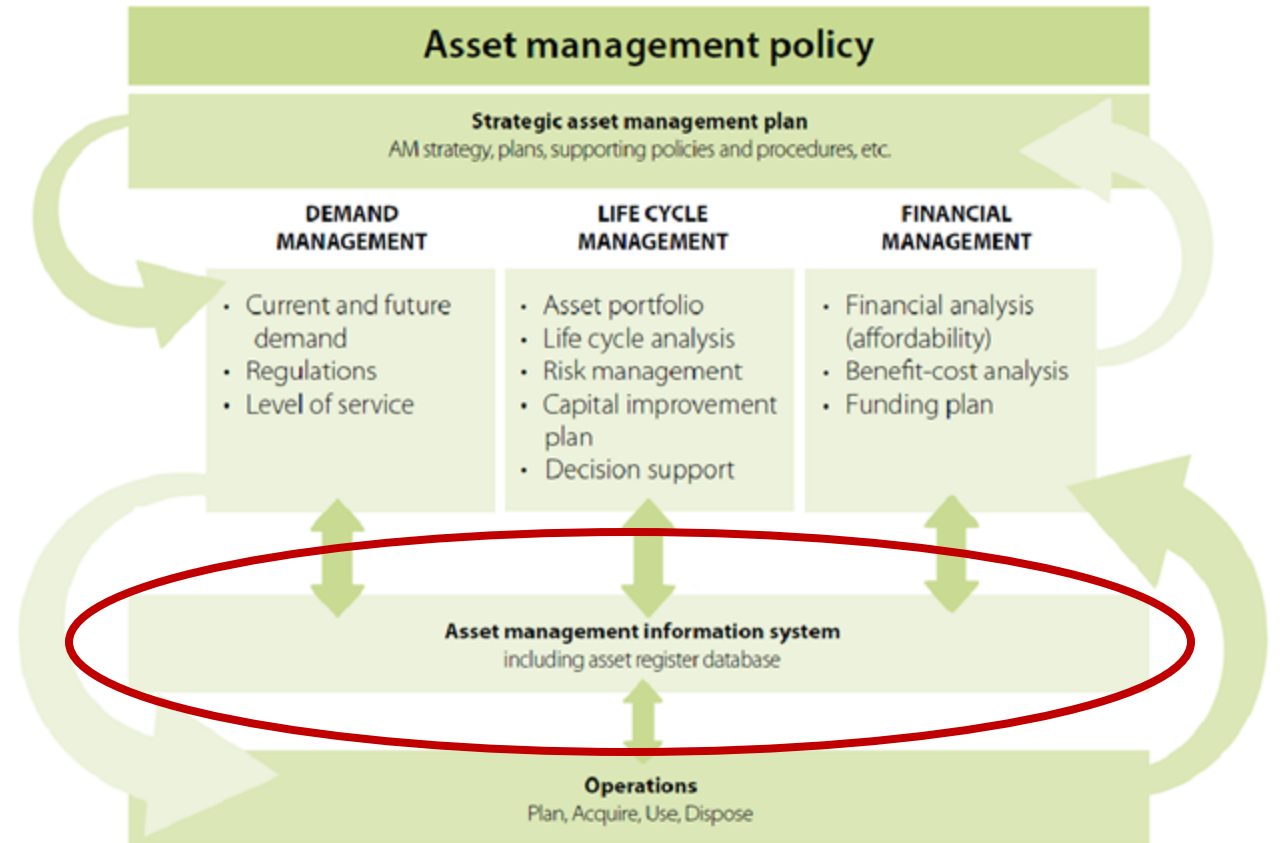
Sources:

<https://www.cpacanada.ca/en/business-and-accounting-resources/financial-and-non-financial-reporting/sustainability-environmental-and-social-reporting/publications/valuing-natural-capital>

<https://www.teebweb.org/wp-content/uploads/2013/04/D0-Chapter-5-The-economics-of-valuing-ecosystem-services-and-biodiversity.pdf>

# Informing Asset Management

- [UNDESA and UNCDF \(2021\)](#) emphasize that asset management is not static and that information plays a core role in informing policy and adapting strategy and direction.
- Strategic goals and performance targets for customer and technical levels of service must be measured and monitored over time to inform continuous improvement ([UNDESA and UNCDF, 2021](#)).



# Informing Asset Management

The Municipal Natural Asset Initiative's Guidebook for Local Governments provides a comprehensive list of performance measures for different community services ([MNAI, 2022](#)):

- stormwater management,
- wastewater,
- drinking water,
- biodiversity,
- climate resilience,
- transportation,
- public health,
- recreation,
- culture and heritage, and
- local economic development.



## Stormwater Management

CORPORATE LOS OBJECTIVE	PERFORMANCE MEASURES Customer LOS shown on white, Technical LOS shown shaded	SERVICE VALUE (attribute)
Protect and preserve the natural assets to reduce incidences of flooding and drought	# residents affected by flooding	Safety
	# residents affected by drought	Safety
	Length of time residents affected	Customer service
	% of wetlands, stream channels, forests restored to support drainage	Sustainability
	Up-to-date flood mapping completed, with climate scenarios incorporated	Safety
	Percentage of properties in municipality resilient to a 100-year storm.	Safety
	Percentage of the municipal stormwater management system resilient to a 5-year storm.	Safety
	No repetitive losses	Reliability
	No increases in base flood elevation due to new development	Safety
Implement low-impact development solutions	Proportion of arterial roads that adhere to low impact development design standards	Quality
	% impervious cover	Quality
	Volume of stormwater runoff from maintained trees	Sustainability
	# partnerships or programs that support low impact development investments on private property	Accessibility
	% change in impervious cover on private property	Accessibility



# Good Practice Example

## EcoPark Project

Bishkek, Kyrgyzstan

- Bishkek's EcoPark project began in 2010 with a field study carried out by 2,800 residents to better understand community needs and expectations.
- The project has evolved every year since 2010 and to date, approximately 10,000 trees have been protected, increasing carbon storage and restoring native species in the unique forest of Bishkek referred to as the Karagachevaia Rocha ("grove of elms").
- The project redeveloped the forest into an environmental education centre, the first of its kind in Kyrgyzstan.



<https://una.city/nbs/bishkek/eco-park-project>

# Relevant Indicators

## Global Biodiversity Framework

All of the goals and targets of the Kunming-Montreal Global Biodiversity Framework provide insights into how to support natural assets at the local level. Below are just a few with specific reference to nature and people.

- **Goal B:** Biodiversity is sustainably used and managed and **nature's contributions to people, including ecosystem functions and services, are valued, maintained and enhanced, with those currently in decline being restored**, supporting the achievement of sustainable development for the benefit of present and future generations by 2050.
- **TARGET 9:** Ensure that the management and use of wild species are sustainable, thereby providing social, economic and environmental benefits for people, especially those in vulnerable situations and those most dependent on biodiversity, including through sustainable biodiversity-based activities, products and services that enhance biodiversity, and protecting and encouraging customary sustainable use by indigenous peoples and local communities.
- **TARGET 10:** Ensure that areas under agriculture, aquaculture, fisheries and forestry are managed sustainably, in particular through the sustainable use of biodiversity, including through a substantial increase of the application of biodiversity friendly practices, such as sustainable intensification, agroecological and other innovative approaches, contributing to the resilience and long-term efficiency and productivity of these production systems, and to food security, conserving and restoring biodiversity and maintaining nature's contributions to people, including ecosystem functions and services.
- **TARGET 11:** Restore, maintain and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination and reduction of disease risk, as well as protection from natural hazards and disasters, through city services and/or ecosystem-based approaches for the benefit of all people and nature.
- **TARGET 12 :** Significantly increase the area and quality, and connectivity of, access to, and benefits from green and blue spaces in urban and densely populated areas sustainably, by mainstreaming the conservation and sustainable use of biodiversity, and ensure biodiversity-inclusive urban planning, enhancing native biodiversity, ecological connectivity and integrity, and improving human health and well-being and connection to nature, and contributing to inclusive and sustainable urbanization and to the provision of ecosystem functions and services.
- **TARGET 13:** Take effective legal, policy, administrative and capacity-building measures at all levels, as appropriate, to ensure the fair and equitable sharing of benefits that arise from the utilization of genetic resources and from digital sequence information on genetic resources, as well as traditional knowledge associated with genetic resources, and facilitating appropriate access to genetic resources, and by 2030, facilitating a significant increase of the benefits shared, in accordance with applicable international access and benefit-sharing instruments.

Source: <https://www.cbd.int/gbf/targets/>

# Relevant Indicators

## SDGs

- **Target 15.1:** By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
  - Indicator 15.1.1: Forest area as a proportion of total land area
  - Indicator 15.1.2: Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
- **Target 15.2:** By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
  - Indicator 15.2.1: Progress toward sustainable forest management
- **Target 15.3:** By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
  - Indicator 15.3.1: Proportion of land that is degraded over total land area
- **Target 15.4:** By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
  - Indicator 15.4.1: Coverage by protected areas of important sites for mountain biodiversity
  - Indicator 15.4.2: Mountain Green Cover Index
- **Target 15.5:** Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
  - Indicator 15.5.1: Red List Index
- **Target 15.9:** By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
  - Indicator 15.5.1: (a) Number of countries that have established national targets in accordance with or similar to Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011–2020 in their national biodiversity strategy and action plans and the progress reported towards these targets; and (b) integration of biodiversity into national accounting and reporting systems, defined as implementation of the System of Environmental-Economic Accounting

# Relevant Indicators

## SDGs

- **Target 11.6:** By 2030 Reduce the adverse per capita environmental impact of cities, including by paying special attention to **air quality**, and municipal and other waste management.
  - Indicator 11.6.2: Annual mean levels of fine particulate matter in cities
- **Target 11.4:** Strengthen efforts to protect and safeguard the world's cultural and natural heritage
  - Indicator 11.4.1: Total per capita expenditures on the preservation, protection and conservation of cultural and natural heritage, by source of funding, type of heritage and level of government
- **Target 11.7:** By 2030, provide universal access to safe, inclusive and accessible green and public spaces, in particular for women and children, older persons and persons with disabilities
  - Indicator 11.7.1: Average share of the built-up space of cities that is open space for public use for all, by sex, age and persons with disabilities

## Global Urban Monitoring Framework

- **Wastewater safely treated**
- **Green area per capita**
- **Change in tree cover**
- **Protected natural areas**
- **Efficient land use**

## Smart Sustainable Cities

- **Green areas**
- **Green areas accessibility**
- **Protected natural areas**

Sources:

<https://sdgs.un.org/goals>

<https://unhabitat.org/the-global-urban-monitoring-framework>

[https://unece.org/DAM/hlm/documents/2020/ECE\\_HBP\\_2020\\_5-E.pdf](https://unece.org/DAM/hlm/documents/2020/ECE_HBP_2020_5-E.pdf)



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