

Sustainable Use of Sand

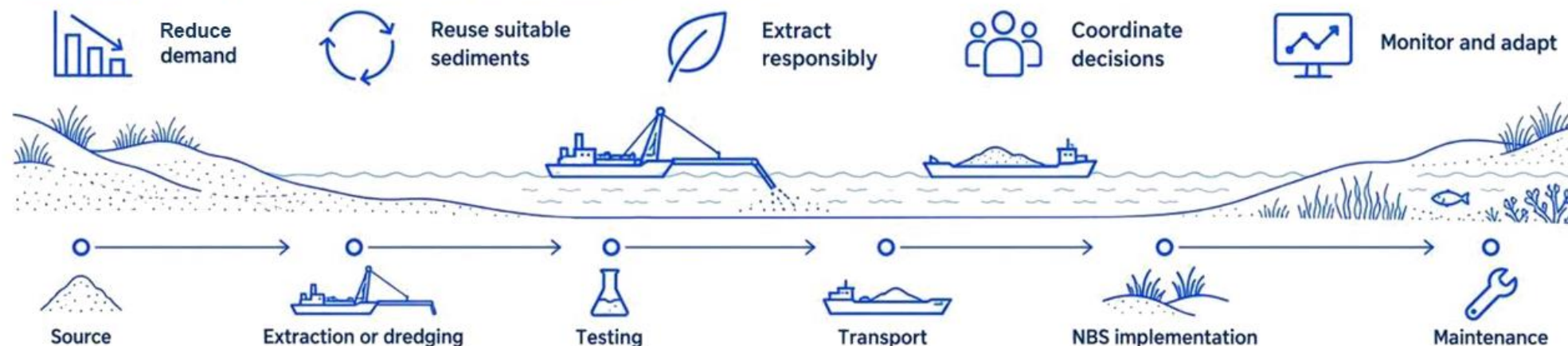
Context for Nature-Based Solutions

High-quality marine sand is finite. The core principles are minimizing sand use, replacing high-quality sand where feasible, and minimizing the impacts of unavoidable extraction.

0.3 million m³ 1976 → Almost 3 million m³ 2025

10× more marine sand extraction

GOAL / Core principles for one connected sand system



WHY / Why it matters



WHO / Who needs to act?



NEED / A governance framework and shared strategy for sand reuse and impact mitigation across connected coastal and marine systems.

SUSANA — Sustainable use of sand in nature-based solutions

Recommendations for Sustainable Use of Sand in Nature-Based Solutions



Minimize Sand Use

Work with natural dune processes and model the connected dune-beach-nearshore system.

↑ Lower nourishment demand

Redistribution ≠ net sediment gain



Use the right sand

Use alternative sediments when they are safe, suitable and support the intended ecosystem services.

↑ Less pressure on high-quality marine sand

Grain size · Salinity · Organic matter
Colour · Environmental quality



Plan reuse early

Map, classify and test sediment streams before project design, permits and logistics are fixed.

↑ More reuse, less storage and transport

Identify → Test → Match → Permit



Build trust

Explain sediment origin, quality, safety, appearance and societal benefits transparently.

↑ Greater public acceptance

✓ Light sand ✓ Dark sand



Extract with lower impact

Avoid sensitive areas and extraction practices that cause persistent seabed or sediment changes.

↑ Better habitat and ecosystem protection

AVOID Deep pits · Exposed clay or silt
Fine-sediment traps · Sensitive habitats



Assess combined pressures

Assess near-field, far-field, historical and cumulative effects across seabed-disturbing activities.

↑ Better spatial planning and recovery

Extraction · Dredging · Disposal
Fisheries · Offshore development



Coordinate, monitor and adapt

Clarify responsibilities, finance pilots and monitoring, and update decisions as evidence develops.

↑ Lower risk and more responsible scaling

Plan → Pilot → Monitor → Evaluate → Adapt → Scale

Reduce demand. Enable safe reuse. Protect sensitive ecosystems.

SUSANA – Sustainable use of sand in nature-based solutions