WORLD ECONOMIC FORUM

In collaboration with Oliver Wyman

50 Investible Opportunities for a New Nature Economy

Supplementary Appendix

March 2026

Background: From a long-list of ~250, we have identified and systematically assessed a pipeline of ~50 nature-positive financing opportunities

1. Nature impact was defined and assessed considering the 5 drivers of nature change, defined by TNFD, drawing on research from IPBES. The analysis concentrated on three of these drivers: land and sea use change, resource use and replenishment (split into freshwater and other resources, and pollution and pollution removal, but did not cover invasive species in detail. Given activities tackling climate change are widely covered in other streams of work, the analysis prioritized activities related to other major drivers of nature loss and assessed climate impacts for those opportunities as an added co-benefit.

Background: Features of the analysis

1 **Nature impacts.** Each opportunity is assessed over three priority nature drivers: 1) Land and Sea ecosystem change; 2) Resource replenishment (split into freshwater and non-freshwater resources); and 3) Pollution. Where applicable, climate (e.g. fossil fuel reduction) and social (e.g. health and job creation) co-benefits are noted.

2 **Financing target:** Analysis identifies the value-chain segment where capital deployment will most effectively address the main barriers to scale.

3 **Transformative impact:** We assess each opportunity's potential to reshape business practice and scale outcomes across three dimensions: technological/process maturity, capital intensity, and scalability.

4 **Conditions:** Key safeguards and enabling conditions that must hold for the opportunity to deliver a positive nature impact and/or financial outcome.

5 **Financial impact:** For the stated financing target, we assess expected revenue increase, operating cost reductions, and capital expenditure reductions.

6 **Suitability of financing and de-risking instruments:** For the stated financing target, we indicate the suitability of different instruments based on typical company and opportunity characteristics and observed market activity.

Background: Nature impact scoring criteria overview

Scoring options: Positive | Neutral | Further validation required (*Further validation needed*) | Negative *(not in scope)*

Driver	Description	Example criteria for "Positive Assessment"
Land ecosystem use change	Assesses how an opportunity increases or reduces pressures on *terrestrial and soil ecosystems* through land conversion, land-use intensity, and landscape management (e.g. deforestation, habitat loss, or restoration and sustainable land stewardship)	• Avoids new land conversion or physical degradation • Improves soil health and vegetation structure through practices • Restores or rehabilitates degraded land • Maintains or enhances habitat connectivity by design • Does not convert high biodiversity value or legally protected areas
Ocean ecosystem use change	Assesses how an opportunity affects *marine and coastal ecosystems* via changes in use or disturbance of ocean space and habitats (e.g. fishing pressure, offshore infrastructure, coastal development, or marine habitat protection and restoration)	• Avoids or reduces destructive marine or coastal practices • Supports restoration or conservation of coastal habitats • Minimizes physical disturbance of sensitive marine areas (e.g. through siting and design) • Practices which encourage sustainable aquaculture and marine habitat protection
Freshwater use	Assesses the *volume and efficiency of freshwater use*, including abstraction, consumption and recycling across operations and value chains, and the extent to which an opportunity reduces or intensifies pressure on surface and groundwater availability	• Reduces absolute freshwater withdrawals for the same or higher level of output • Improves water-use efficiency through technologies, practices or process redesign • Increases reuse and recycling of water within operations or across facilities • Shifts water demand away from highly stressed basins or peak-stress periods • Does not significantly increase dependency on scarce surface or groundwater resources
Resource use	Assesses how an opportunity changes the demand for *natural resources* (e.g. energy, biomass, minerals, materials), including intensity of use, circularity, substitution of scarce inputs, and overall dependency on nature-provided stocks and flows	• Lowers total material or energy intensity per unit of product or service • Substitutes scarce or high-impact resources with more sustainable alternatives • Extends product life, reuse or repair, reducing demand for new resource extraction • Increases recycled or renewable content in inputs, aligned with credible standards • Avoids driving new extraction in ecologically sensitive or socially contentious areas
Pollution	Assesses the extent to which an opportunity *prevents, reduces or exacerbates* pollution across air, water and soil (e.g. chemicals, nutrients, plastics, tailings, waste), and thereby alters pressures on ecosystems and species	• Reduces total volume or toxicity of pollutants released to air, water or soil • Eliminates or phases down hazardous substances where safer alternatives exist • Captures, treats or neutralises emissions and waste streams before release • Enables circular flows that prevent leakage of waste into ecosystems • Does not generate new, unmanaged pollution pathways or persistent contaminants

Background: Transformative characteristics scoring overview

Scoring options: High | Moderate | Low

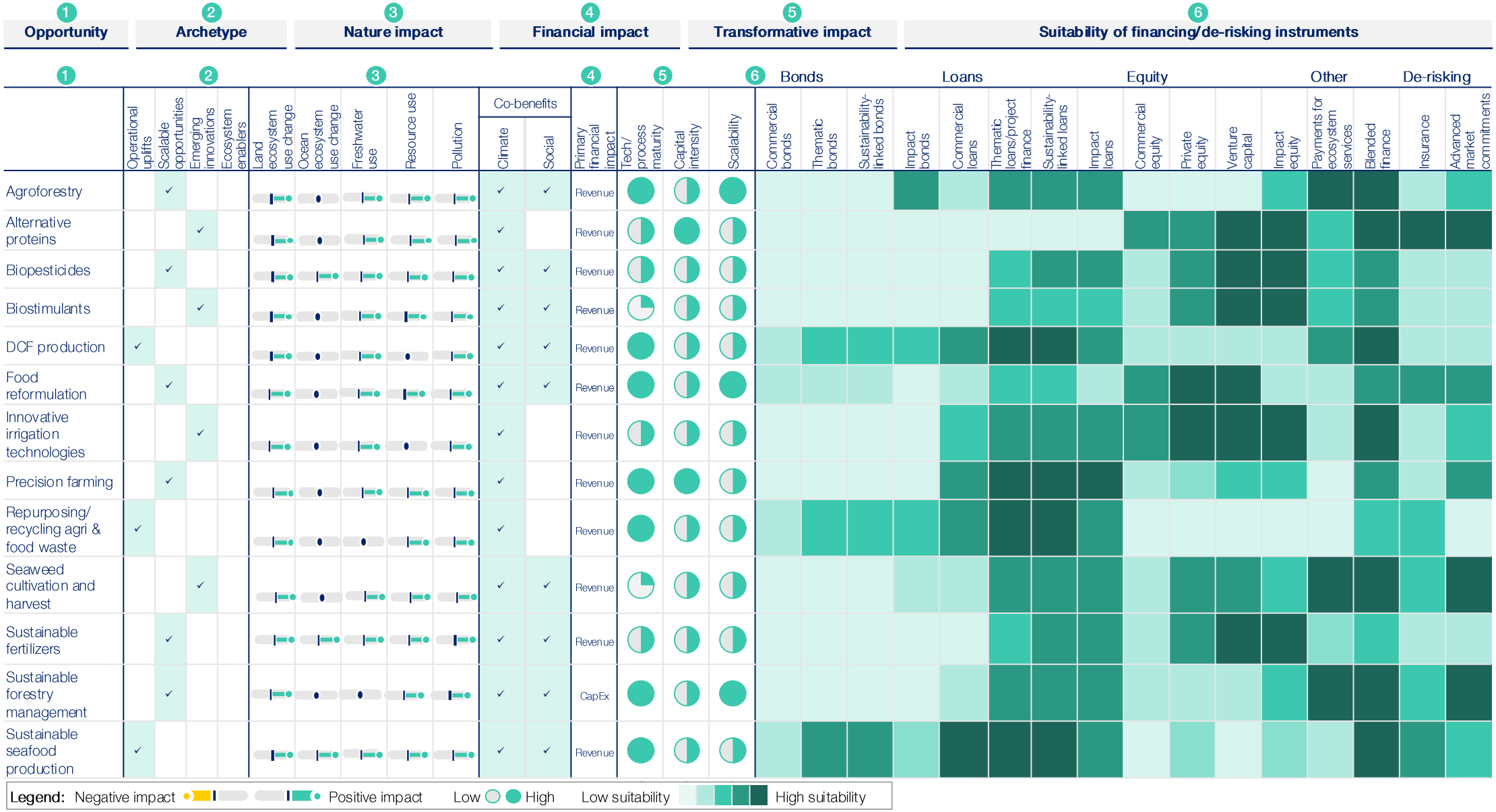
Characteristic	Description	Example considerations
Technological and process maturity	Assesses how proven and reliable the underlying technologies, operating models and infrastructure are, ranging from *nascent or pilot-stage concepts* to *widely deployed, standardised solutions* with clear performance track records.	• Is the core technology proven at commercial scale, or is it still at pilot/demonstration stage? • Are standardised processes, operating procedures and KPIs in place and tested across multiple sites? • Is there a reliable base of equipment suppliers and service providers to support deployment and maintenance? • Is the supporting infrastructure (e.g. grid, treatment, logistics, digital systems) already in place or readily accessible?
Capital intensity	Assesses the scale of upfront investment required to deploy the opportunity, including equipment, infrastructure and enabling systems, from *low-cost incremental upgrades* to *large-scale, asset-heavy projects*.	• What level of upfront capital investment is required per facility/project or per unit of capacity? • Can the solution be modularised to lower minimum ticket sizes, or does it require large investments? • How dependent is it on specialised or long-lead-time assets (e.g. bespoke infrastructure, heavy equipment)?
Scalability	Assesses the potential to expand the opportunity across sites, geographies and value chains, considering *physical conditions, technical replicability, supply chain depth, and market demand* for rapid, large-scale adoption.	• Can the model be replicated with limited tailoring across locations and sectors? • Are critical inputs and capabilities (feedstocks, skills, supply chains, data) available at scale? • Are policy, regulatory and market conditions broadly supportive or easily replicable across jurisdictions? • Does scaling require significant behaviour change or coordination? • Are there existing delivery partners and business models that can support rapid roll-out?

2.

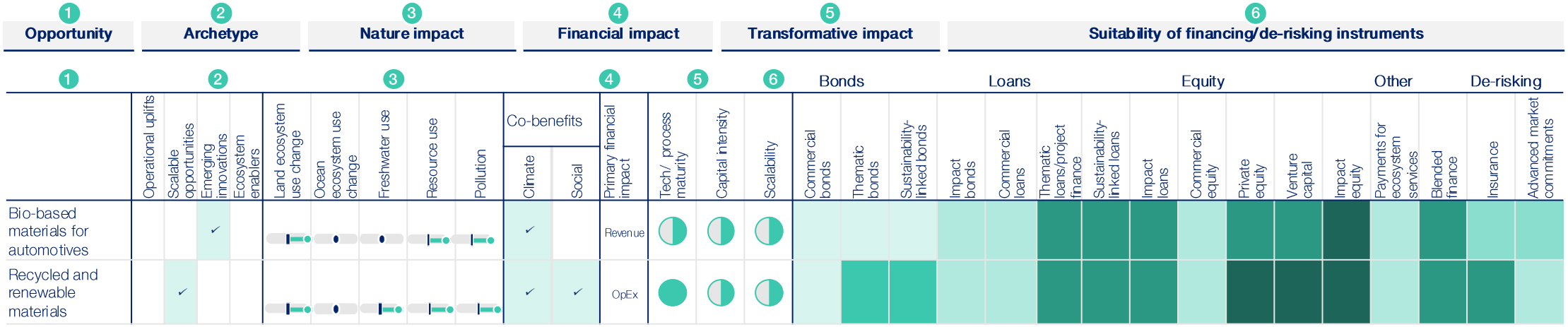
Opportunity assessments – Sector Overviews

FINANCING THE NATURE-POSITIVE TRANSITION

Opportunity assessment: Agri, Food & Forestry

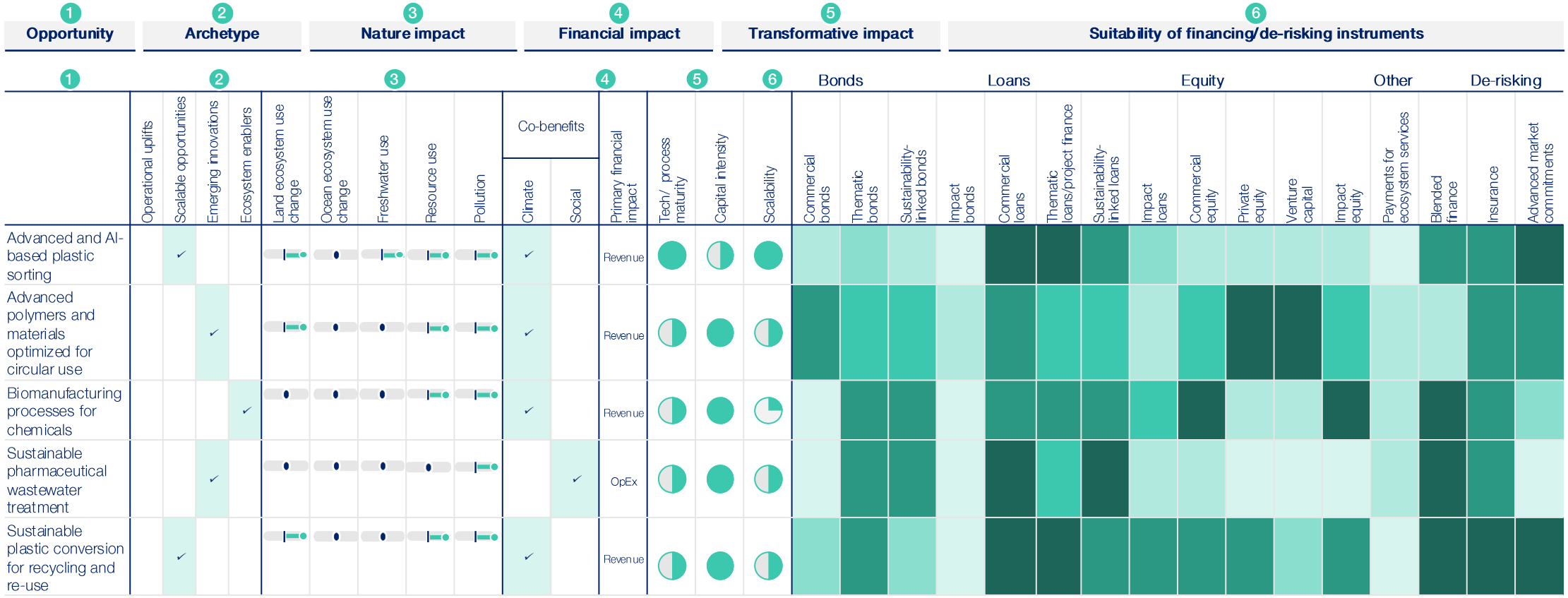


Opportunity assessment: Automotive

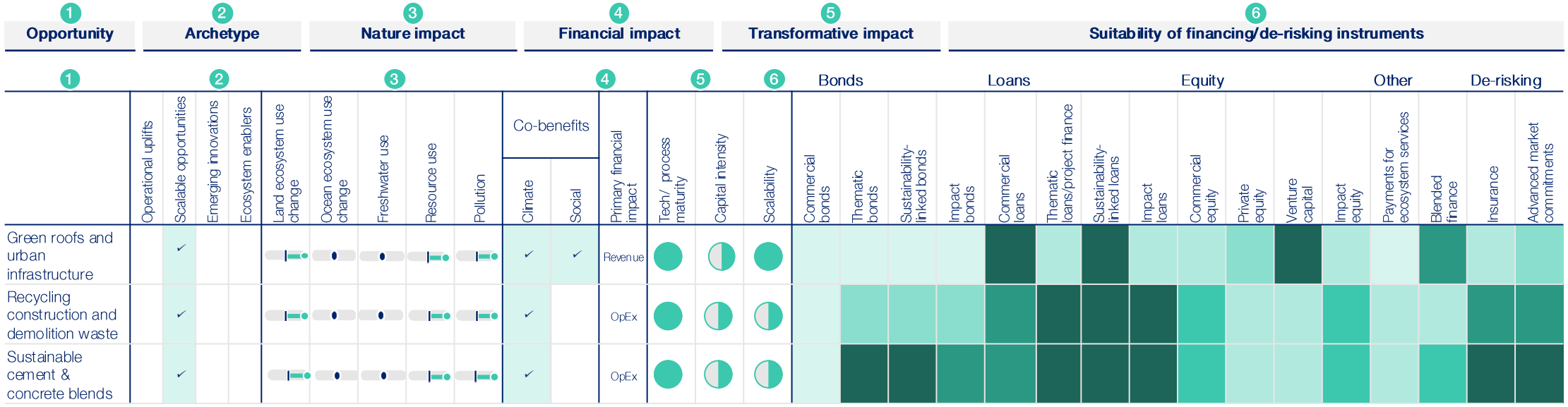


Legend: Negative impact — Positive impact — Low — High — Low suitability — High suitability

Opportunity assessment: Chemicals, Plastics & Pharma

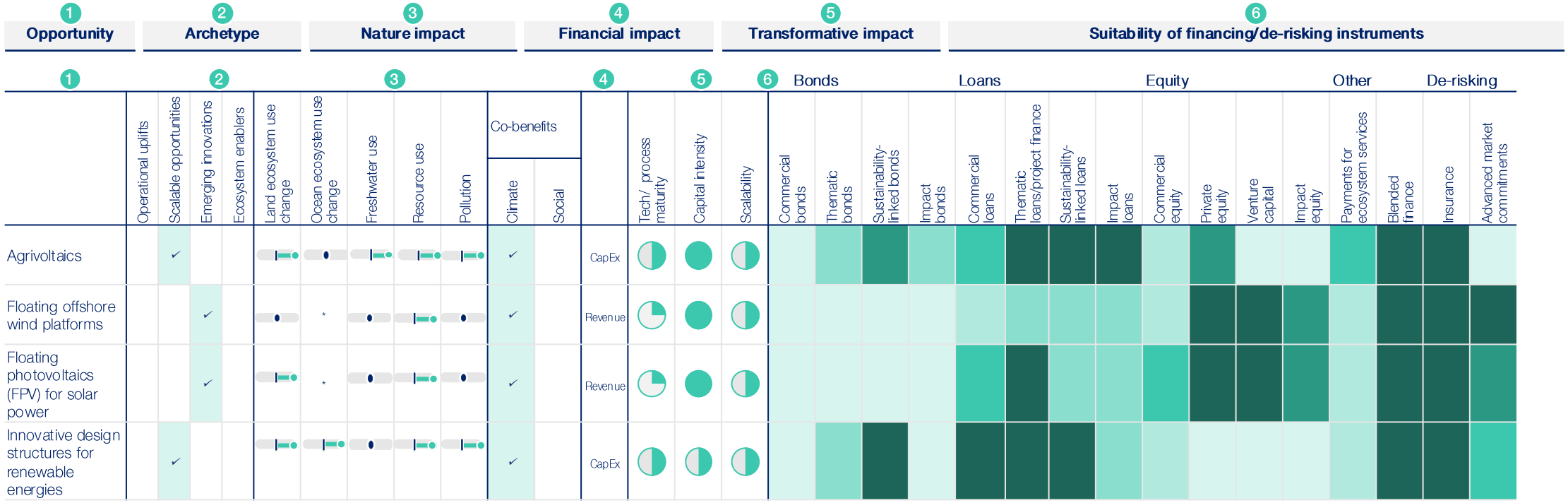


Opportunity assessment: Construction Materials



Legend: Negative impact — Positive impact — Low — High — Low suitability — High suitability

Opportunity assessment: Energy

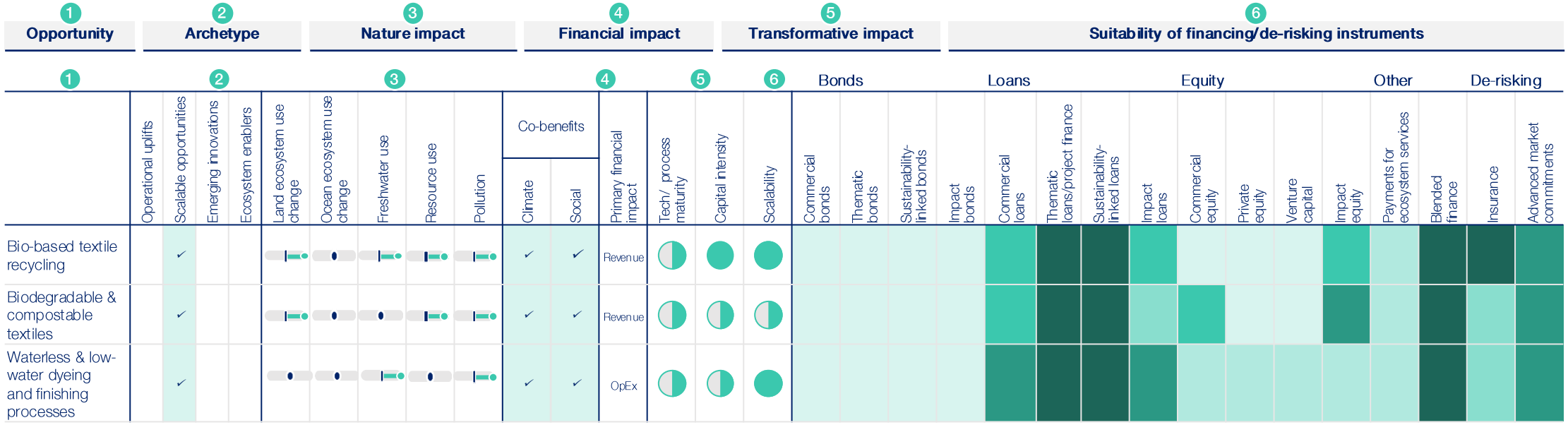


* Further validation required

* Further validation still required.

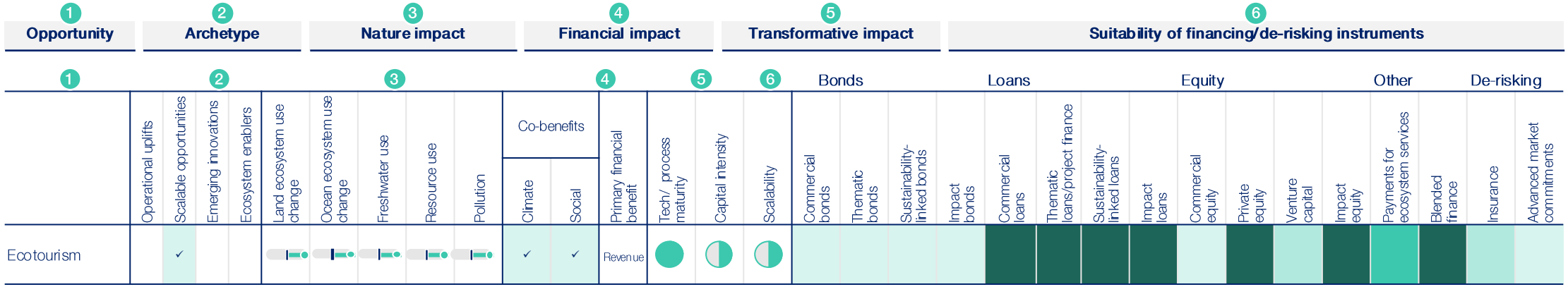
Legend: Negative impact — Positive impact — Low — High — Low suitability — High suitability

Opportunity assessment: Fashion & Textiles



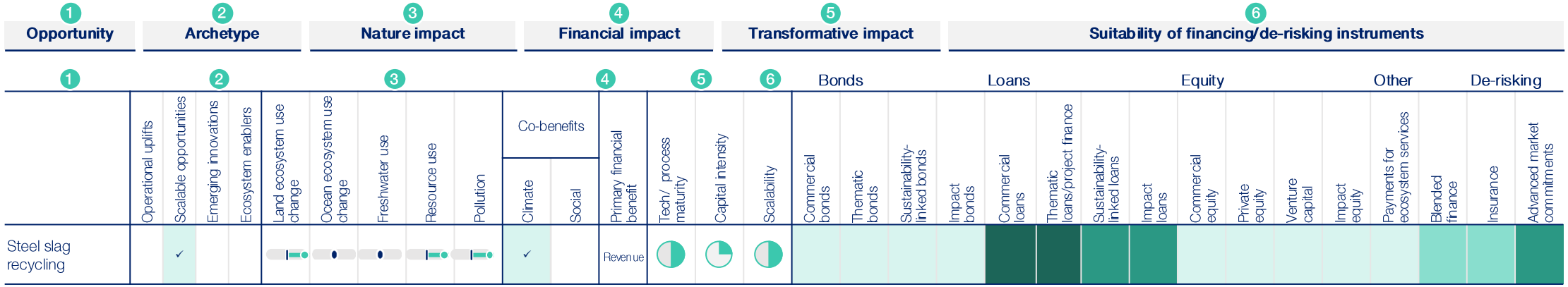
Legend: Negative impact — Positive impact — Low — High — Low suitability — High suitability

Opportunity assessment: Leisure



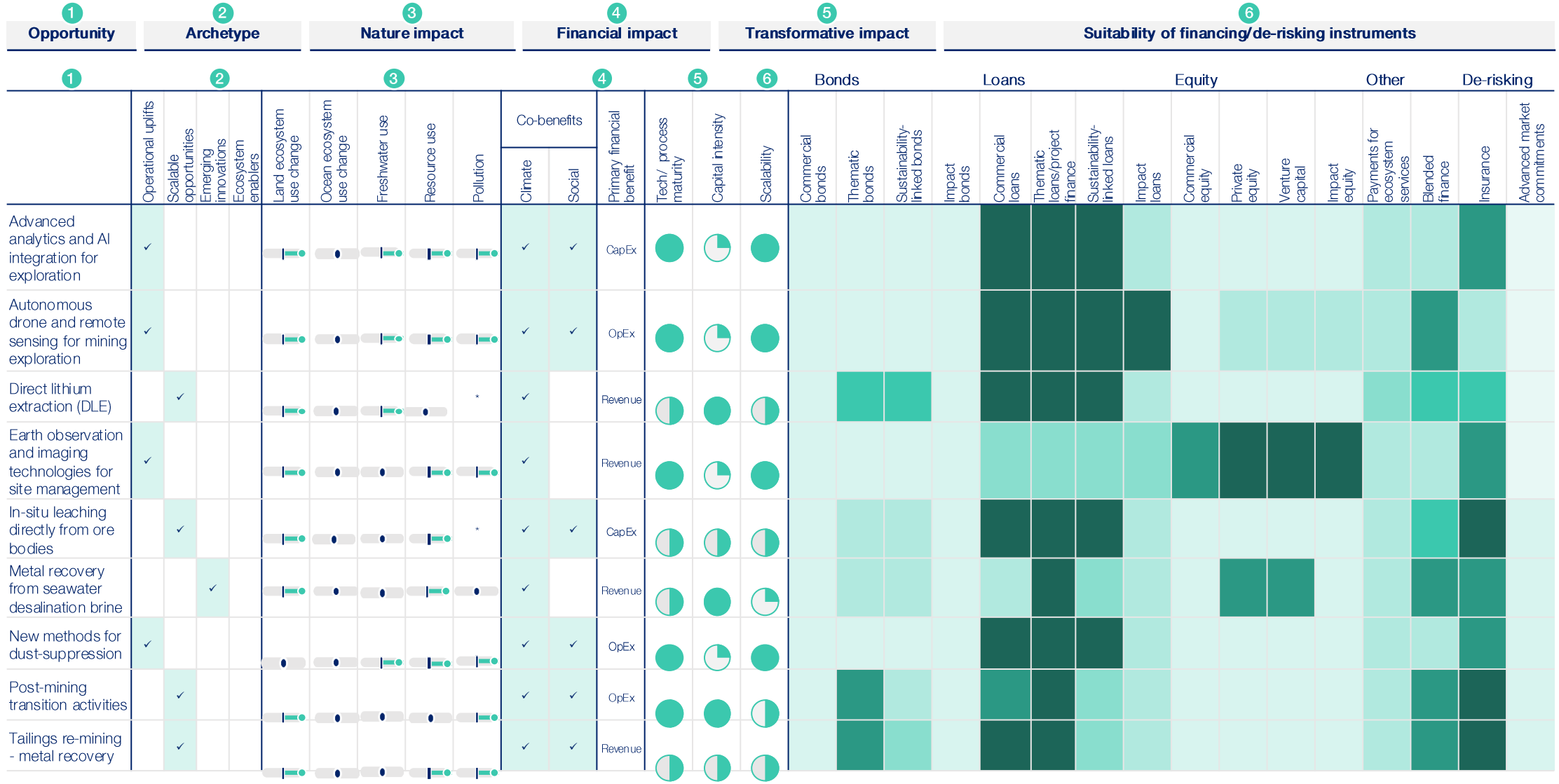
Legend: Negative impact — Positive impact — Low — High — Low suitability — High suitability

Opportunity assessment: Metals & Steel



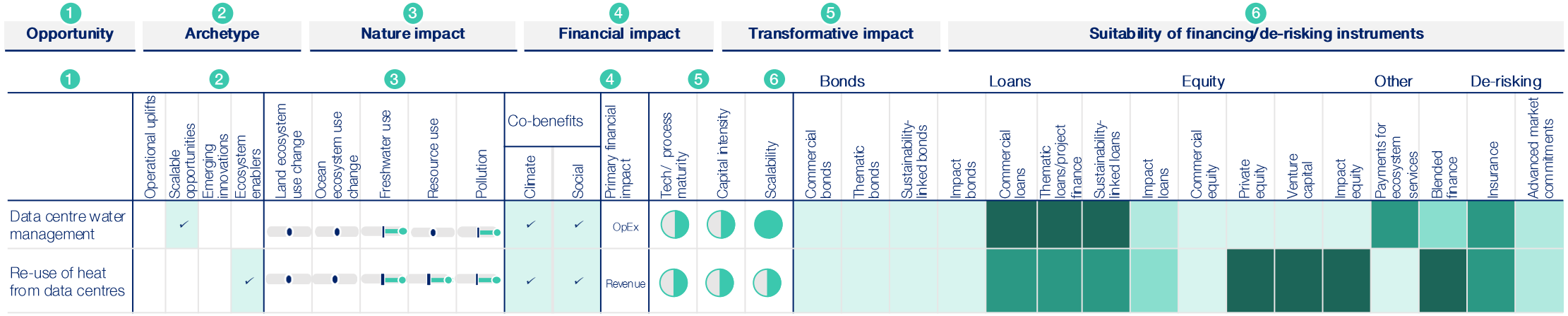
Legend: Negative impact Positive impact Low High Low suitability High suitability

Opportunity assessment: Mining



*Further validation still required.

Opportunity assessment: Technology



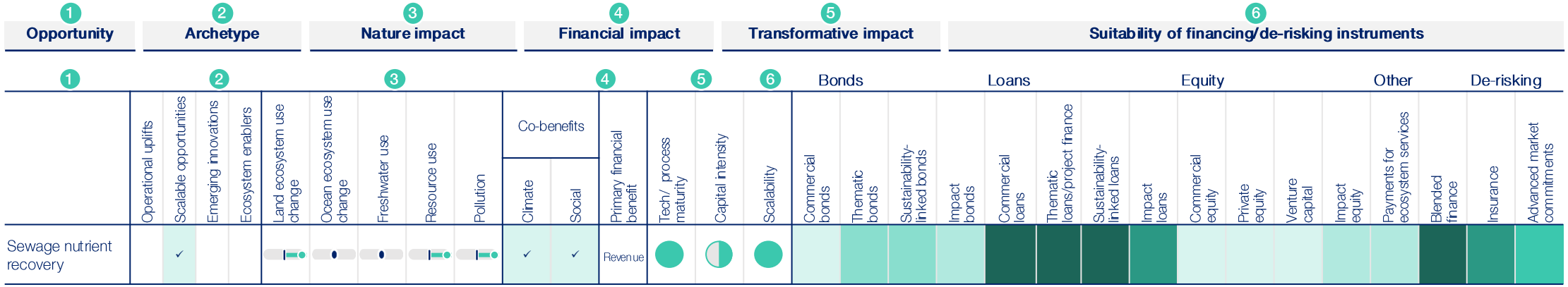
Legend: Negative impact — Positive impact; Low — High; Low suitability — High suitability

Opportunity assessment: Transport & Logistics

1 Opportunity	2 Archetype			3 Nature impact					4 Financial impact		5 Transformative impact			6 Suitability of financing/de-risking instruments																		
									Co-benefits					Bonds				Loans				Equity					Other			De-risking		
	Operational uplifts	Scalable opportunities	Emerging innovations	Ecosystem enablers	Land ecosystem use change	Ocean ecosystem use change	Freshwater use	Resource use	Pollution	Climate	Social	Primary financial benefit	Tech/ process maturity	Capital intensity	Scalability	Commercial bonds	Thematic bonds	Sustainability-linked bonds	Impact bonds	Commercial loans	Thematic loans/project finance	Sustainability-linked loans	Impact loans	Commercial equity	Private equity	Venture capital	Impact equity	Payments for ecosystem services	Blended finance	Insurance	Advanced market commitments
Sustainable cold chains for perishable goods			✓							✓	✓	OpEx																			

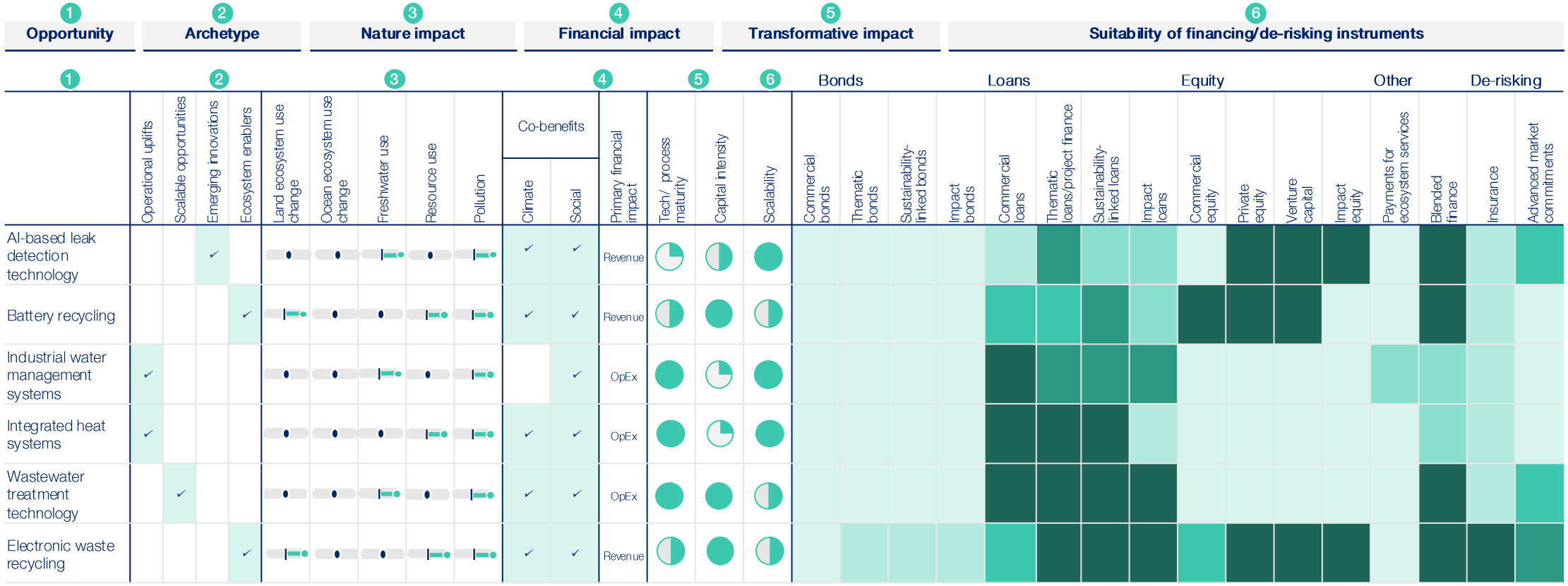
Legend: Negative impact — Positive impact; Low — High; Low suitability — High suitability

Opportunity assessment: Waste Management



Legend: Negative impact Positive impact Low High Low suitability High suitability

Opportunity assessment: Cross-sectoral



Agroforestry

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Agroforestry combines trees with crops and/or livestock on the same land to enhance biodiversity, improve soil health, increase carbon sequestration, and provide diversified incomes.

Archetype
Scalable

Financing target
Farmers and agribusinesses

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Biodiversity gains:** Diversifies and connects habitats, increases woody biomass on land, can reduce dependence on synthetic inputs
- **Reduces farm expansion through productivity gains:** Layers multiple, high value outputs on same area, reducing pressures for deforestation or degradation of land

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	●

- **Low capital intensity:** Investments focused on planting, training and infrastructure adaption.
- **High scalability potential:** Adaptability of practices across climates and farm sizes supports scalability opportunities.

Conditions

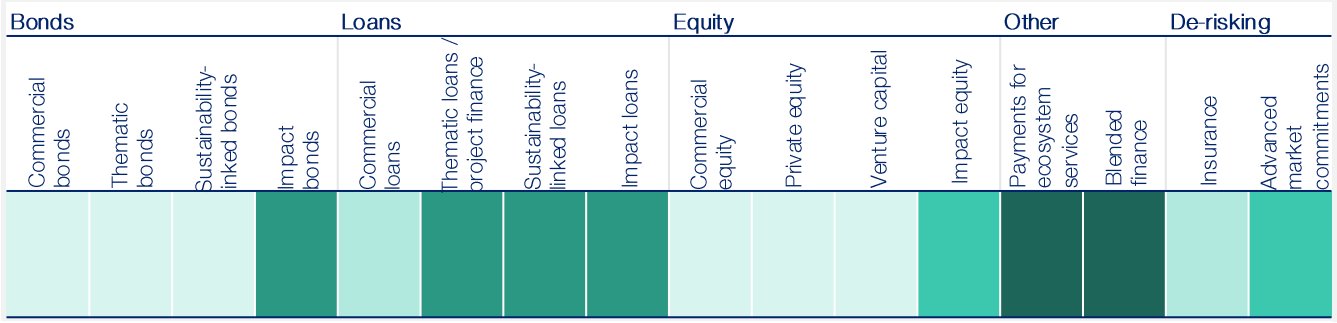
Practices focus on diverse native species

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	✓

- **Diversified revenue sources:** Stabilizes farm income streams through timber, fruits, nuts and other products alongside crops/livestock. Investment in labour and upskilling may be required.
- **Increased land productivity** preserving or improving asset values.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Blended finance and sustainability-linked thematic products help to address barriers associated with longer return timelines and any upfront expenditure requirements. Payments for ecosystem services or carbon credits can provide complementary income streams, strengthening financial viability. Impact bonds could be suitable if programmes are structured as livelihood-related and cover large communities.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▯▯▯▯ High suitability

Alternative Proteins

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Alternative proteins encompass a range of sustainable food sources, including plant-, fermentation-, cell-, insect- and algae-based proteins, aimed at reducing environmental impacts and meeting global food demands.

Archetype
Emerging

Financing **target**
Manufacturers

Nature impact

Land ecosystem use change	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced agricultural footprint:** Alternative proteins typically require less land than traditional livestock farming. Insect and algae farming can also be conducted on non-arable lands.
- **Lower freshwater use:** Alternative proteins require substantially less water compared to livestock farming.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◐

- **Significant initial investment:** Commercial production facilities require upfront investments in R&D and manufacturing process.
- **Barriers to scale** include regulatory requirements and widespread consumer acceptance

Conditions

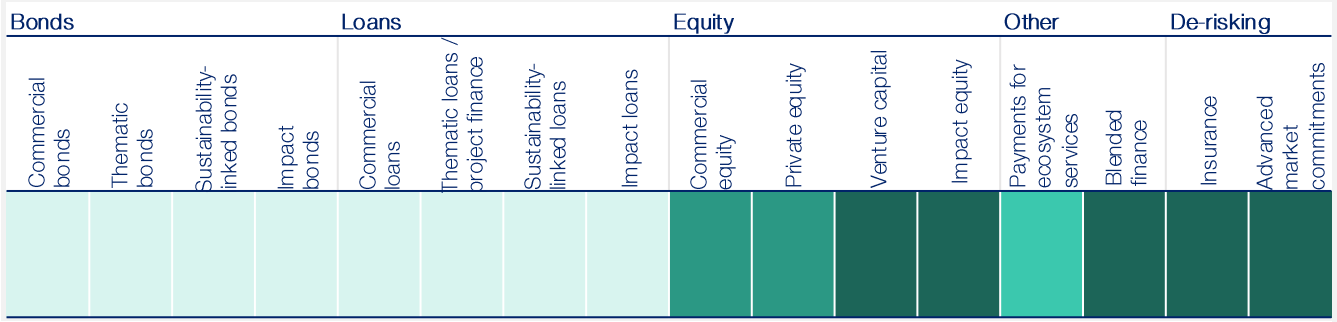
Nutritional and sustainability parity with conventional proteins

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **High market potential:** Opportunity already scaling fast with large upside potential if technology and policy accelerates adoption.
- **Long-term revenue and operating cost benefits:** High-growth market which can lower operating costs in long-run (e.g. input costs)

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Equity financing, particularly venture capital and impact equity, suit these opportunities given current market growth, customer familiarity, and high upfront capital requirements. Blended finance and advanced market commitments can support financing for commercial manufacturing facilities. Product liability insurance is typically required, particularly for consumer safety in regulated markets.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ ■ ■ ■ High suitability

Biopesticides

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Biopesticides are natural pest control agents that enhance crop resilience, reduce reliance on synthetic chemicals, and support sustainable, regenerative agriculture.

Archetype
Scalable

Financing **target**
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Yield preservation and regenerative practices:** Biopesticides increase or maintain yields by reducing crop losses to pests.
- **Improved water quality:** Less chemical run-off and residue preserves ecological functioning of water bodies.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◑	◑	◑

- **Established production:** Many products commercially available for major crops. New strains and formulations are growing the market.
- **Less capital intensive than chemical plants:** Some investment in fermentation or extraction facilities and R&D and registration required.

Conditions

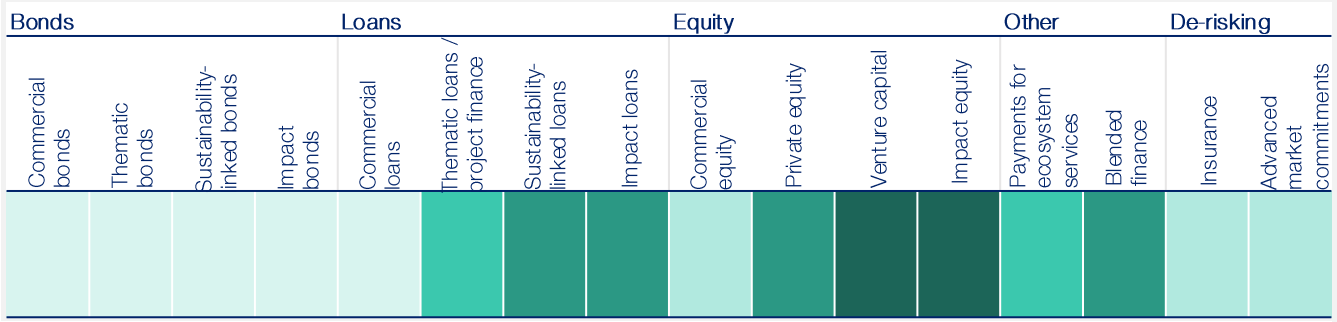
Matches quality and efficacy of synthetic pesticides

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential from agribusinesses:** Biopesticides provide yield, and quality gains and supports organic farming practices.
- **Moderate upfront capital needs:** Less capital intensive than synthetic chemical plants, but production requires specialized facilities

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Commercial loans and thematic bonds are well suited to established biopesticide producers. Manufacturing facilities generally are moderately capital intensive, supporting the use of project finance or debt financing. Sustainability-linked loans are increasingly important when tied to verified environmental outcomes such as reduced synthetic pesticide use and improved ecosystem health. Smaller or early-stage producers may benefit from blended finance approaches, potentially in partnership with upstream/downstream actors, to share risks and accelerate adoption.

Legend: Negative impact ◑ Positive impact | Low ○ High ● | Low suitability ▯ High suitability ▮

Biostimulants

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Biostimulants are natural or biologically derived products that enhance plant growth, soil health, and resilience to stress, supporting sustainable and climate-resilient agriculture.

Archetype
Emerging

Financing **target**
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Yield improvements:** Biostimulants reduce irrigation requirements, enhance crop yields and improve farm resilience to heat, drought, and other pressures
- **Reduced synthetic inputs:** Enhanced nutrient uptake reduces need for synthetic fertilizer use without sacrificing productivity

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◔	◑	◑

- **Commercially available:** New formulations and delivery are expanding range of applications, but efficacy varies by crop and soil.
- **Varied market penetration:** Adoption particularly strong in some regions with some inconsistencies in awareness and efficacy.

Conditions

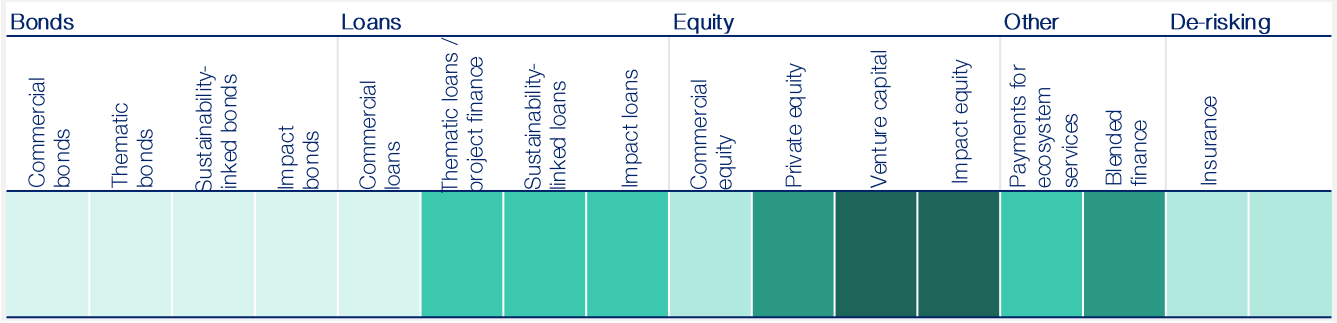
Performs across crops and soil types

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential from agribusinesses:** Biostimulants provide revenues from consumers wishing to improve farming resilience
- **Moderate production investment:** Requires investment in specialized facilities and quality control.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Commercial and thematic loans are appropriate for well-established biostimulant producers with moderate capital intensity manufacturing facilities, supporting debt or project finance options. Sustainability-linked loans are becoming important primarily when supported by credible, verifiable environmental or productivity outcome metrics. Smaller or early-stage producers stand to benefit significantly from blended finance solutions that share risk with purchasers, cooperatives, or value chain partners, enabling accelerated market adoption and scale-up despite measurement challenges.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Deforestation and conversion-free (DCF) production

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

DCF production refers to agricultural practices that aim to produce food and other agricultural products without contributing to the deforestation of forests or the conversion of natural ecosystems into agricultural land

Archetype
Operational

Financing **target**
Producers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

– **Forest and Ecosystem Preservation:** DCF production directly mitigates forest clearing and habitat conversion, delivering measurable benefits for biodiversity conservation and the maintenance of critical ecosystem services such as carbon sequestration, water regulation, and soil health.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◐	◐

– **Producer country incentives:** Captured by major sustainable finance taxonomies. Countries benchmarked as "low risk" under EU systems can market their crops at a price premium and attract concessional transition funds.

Conditions

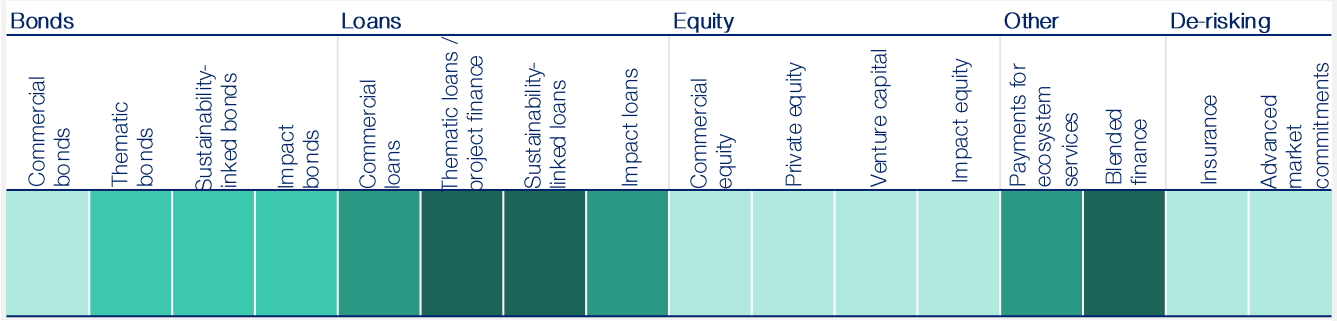
Availability of high-integrity certification and traceability mechanisms

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

– **Financial impacts:** Allows producers to gain access to new markets with regulatory barriers and potential premiums. Moderate initial capital outlay required to adopt consistent practices and some ongoing operational expenditure required (e.g. for supply-chain verification).

Suitability of financing and de-risking instruments



– **Financing suitability:** Broad scope of debt instruments suitable for individual projects and some commercial bond financing for larger corporates, reflecting that producers vary widely in size and maturity – from smallholder farmers and local input suppliers to large, globally integrated commercial farms and agribusinesses. Loan financing supports proven technology and techniques (e.g. traceability, satellite monitoring), moderate capital requirements, and option to pledge land as collateral. Payments for ecosystem services (e.g. for on-farm and landscape measures) can support DCF practice adoption.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Food reformulation

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Food reformulation refers to the process of altering the composition of food products to enhance their nutritional value, reduce environmental impact, or improve sustainability

Archetype
Scalable

Financing **target**
Ingredient manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced agricultural land demand:** Reformulation often replaces animal-based or resource intensive ingredients with, plant-based or sustainable options which also give biodiversity benefits.
- **Favours high-yield crops:** Reformulation can favour high-yield and water efficient ingredients with reduced fertilizer needs.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◑	●

- **Established industry practices:** Reformulation is standard practice within the food industry to improve health and sustainability. Ongoing innovations are mostly focused on improving consumer acceptance, such as taste and texture parity.

Conditions

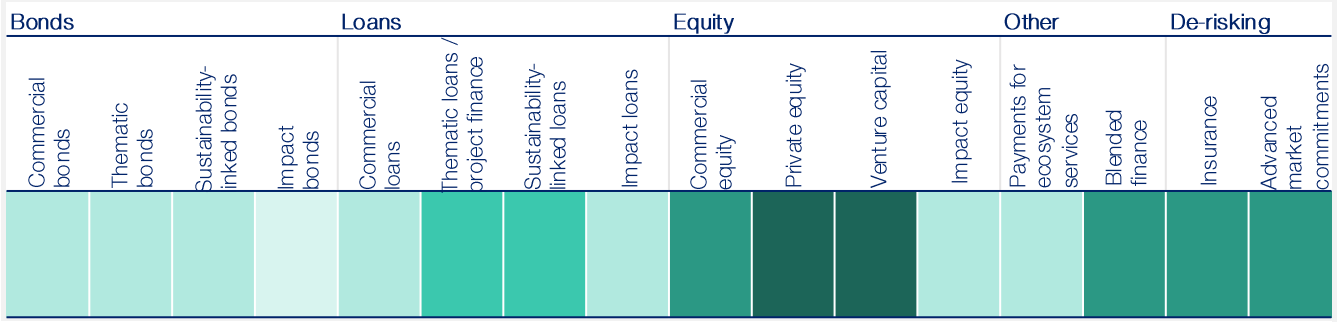
Achieves nutritional and sustainability parity, at a minimum

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Financial impacts:** Revenue potential from new product lines appealing to health and sustainability conscious consumers. Requires moderate upfront investment in R&D and production and short-run operating expenditure, which should reduce due to sustainable inputs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Ingredient manufacturers typically require early-stage financing to support research and development, product testing and market entry, which would suit equity instruments. Firms typically have moderate upfront capital investment needs but significant operational expenditure to scale and reduce unit costs. Sustainability-linked or blended finance instruments can be aligned with environmental and nutritional performance targets. Advanced market commitments can provide product demand certainty and insurance necessary for product liability (e.g. allergens, illness).

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Innovative irrigation technologies

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Innovative irrigation systems use advanced tools, such as sensor-based soil moisture and crop monitoring, AI-enabled scheduling and automated valves and pumps to optimize when, where and how much water is applied to crops

Archetype
Emerging

Financing **target**
Equipment providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Increases land productivity:** Increases yields on existing farmland, particularly in water stressed areas, reducing need for expansion.
- **Significant water savings:** Reduces water withdrawals from aquifers, rivers, and lakes, particularly in water-scarce regions.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	◐	◐

- **Frontier solutions building on established technologies:** Micro-irrigation systems are mature. The frontier lies on integrating these systems with digital and automated systems. However, there are wide regional disparities, driven by technical capacity and farm scale.

Conditions

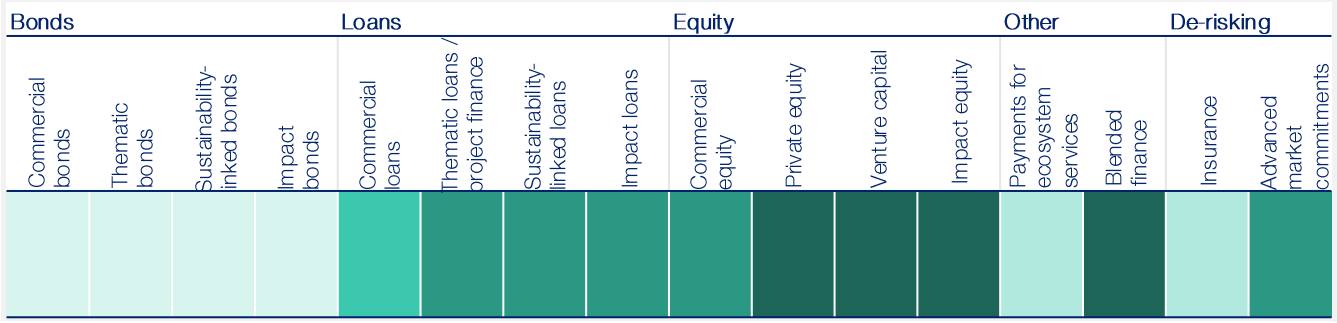
Limited behavioural "rebound effects" in consumption

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Financial impacts:** Consumer demand potential driven by operational cost savings from reduced water use and energy efficiency and yield and quality gains. High up-front capital expenditure required for manufacturing, technology development and distribution infrastructure.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Currently low adoption but large growth potential. This suggests a strong role for blended finance to combine concessional capital and technical assistance to overcome barriers, or equity financing to support product development and capital associated with equipment manufacturing. Given typical asset base of equipment providers, some loan products also may be suitable.

Legend: Negative impact ◐ Positive impact | Low ○ ● High | Low suitability ▮▮▮▮ High suitability

Precision farming technologies and practices

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Precision farming refers to the integration of advanced technologies and data-driven practices in agriculture to enhance productivity, efficiency, and sustainability

Archetype
Scalable

Financing **target**
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Optimized land and water use:** Precision farming technologies enhances the efficiency of land and water use without requiring significant additional land conversion or water withdrawals
- **Lower input requirements:** Practices promote efficient use of resources, including fertilizers and pesticides.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	●	◐

- **Established technologies:** Widely used technologies (e.g. soil sensors, GPS-guided equipment) with increasing effectiveness.
- **Varied adoption:** Solutions adaptable to diverse contexts, but some face a lack of infrastructure for data collection and technology use.

Conditions

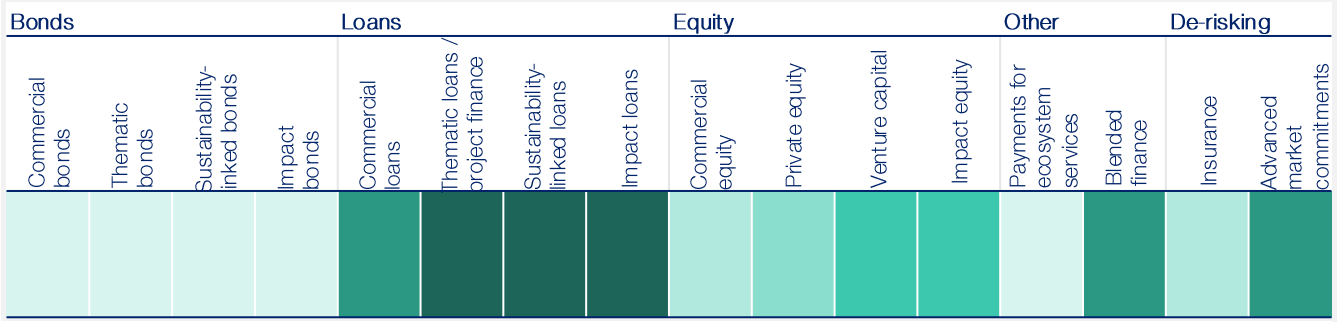
Limited net new materials required for equipment

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Economic pressures on growers:** Margin pressures on growers likely to encourage demand for cost savings from precision farming.
- **High upfront capital investment:** Requires capital investment in technology and design and manufacturing of equipment (e.g. sensors).

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** For equipment providers with an asset base, commercial and sustainability-linked loans can be suitable to expand production to improve commercialization and support farmer and agribusiness uptake. Offtake arrangements by larger agribusinesses can de-risk and incentivise required investments by equipment manufacturers by providing demand certainty. Blended finance solutions and grants can play a role in de-risking investments in manufacturing capacity.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▯▯▯▯ High suitability

Repurposing/recycling agricultural and food waste

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Repurposing/Recycling of waste refers to practices aimed at reusing and repurposing waste materials generated during food production, processing, and consumption into alternative resources or products such as compost, biogas and biofertilizer

Archetype
Operational

Financing **target**
Waste management providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced landfill demand:** Recycling diverts organic and packaging waste from landfills, reducing land requirements for waste disposal and associated greenhouse gases.
- **Resource-use minimized through recycling nutrients and waste into new products**

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	◐

- **Moderate initial investment for infrastructure:** Initial infrastructure includes digesters and processing plants with established processes
- **High scalability potential** due to wide availability of agricultural waste globally and applicability across regions, producers and consumers

Conditions

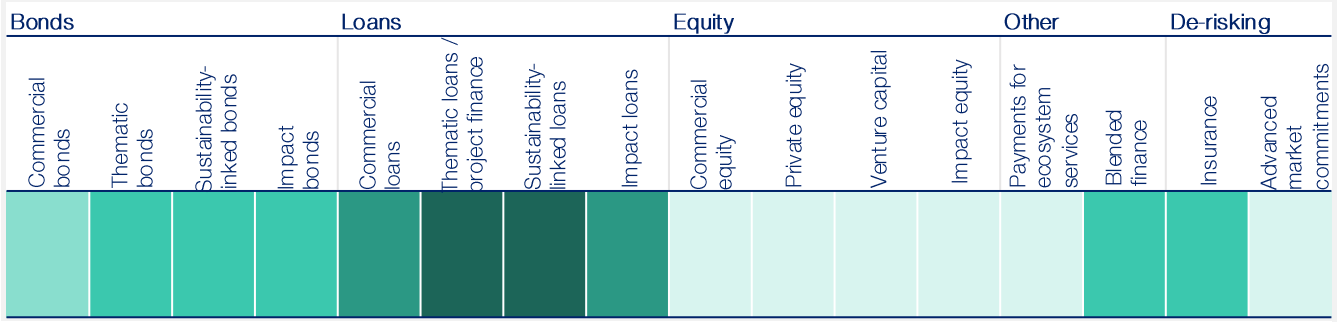
Avoids creating new markets for waste, or deforestation and land use change

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Financial impacts:** Revenue streams from waste disposal and sale of biofertilizers, biogas, and animal feed from other by-products. Initial capital expenditure to establish facilities can be significant. Operational expenses can be neutral depending on plant efficiency.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Debt financing instruments are well-suited for established waste management providers, who typically have stable revenue stream, operational scale and asset base. Moderate to high capital investments are required for infrastructure development, making project finance and sustainability-linked loans particularly suitable. Additionally, impact and blended finance instruments can play a role to support adoption of innovative waste repurposing technologies including innovative bioconversion methods or modular on-site solutions.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▯▯▯▯ High suitability

Seaweed cultivation and harvest

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Seaweed cultivation and harvest is the sustainable cultivation of marine algae for food, feed, biofuels, and ecosystem restoration

Archetype
Emerging

Financing **target**
Producers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Water quality improvements:** Seaweed cultivation helps to mitigate coastal pollution by absorbing excess nutrients, playing a key role in enhancing aquatic ecosystem health.
- **Reduced competition for resources**: In contrast to conventional farming, seaweed does not require freshwater or arable land.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability

- **Emerging techniques**: Many technologies not yet standardized or widely adopted, with limited R&D compared to other practices
- **Regional variations**: Marine conditions conducive to seaweed farming varies by region

Conditions

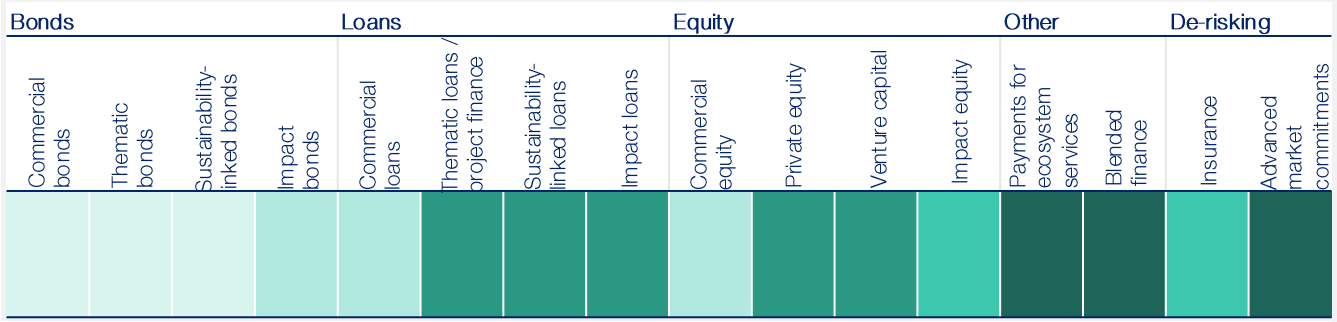
Biosecurity risk safeguards in place for non-native species

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Growing demand for seaweed-derived sustainable products expected to drive significant market expansion
- **Moderate initial investment:** Infrastructure includes ropes, buoys, harvesting tools and site preparation

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Given strong ecosystem benefits including carbon sequestration and water filtration, this opportunity aligns closely with PES and related financing mechanisms. Given emerging characteristics, project, sustainability-linked and impact loans can provide financing for producers, with blended finance mechanisms to support small-scale enterprises- to encourage regional adoption where marine conditions are conducive. Seaweed farming also offers innovative opportunities attractive to private equity and venture capital.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Sustainable fertilizers

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Sustainable fertilizers are natural soil amendments that enhance crop productivity and resilience by improving nutrient cycling and soil health, reducing reliance on synthetic fertilizers.

Archetype
Scalable

Financing **target**
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Soil restoration:** Biofertilizers are produced from natural renewable sources and enhance soil health by supporting nutrient availability, microbial diversity, and soil structure, while maintaining yields.
- **Decreased water and soil pollution:** Less run-off and residue than synthetic inputs, reducing eutrophication and GHG emissions

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	◐	◐

- **Established production:** Many products are commercially available for a range of crops across regions.
- **Variable adoption rates** across regions and crops due to farmer awareness, market development and regulatory variability.

Conditions

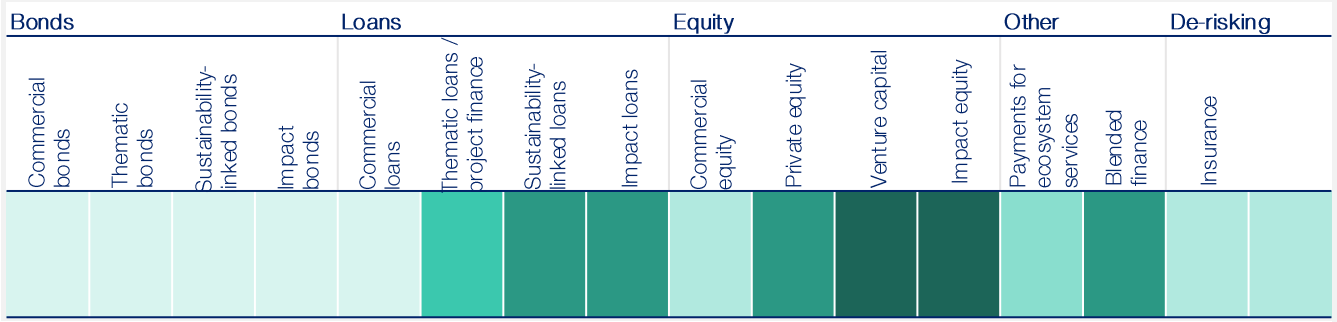
Matches quality and efficacy of synthetic inputs and avoids introducing pathogens

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential from agribusinesses:** Biofertilizers provide yield, and quality gains and supports organic farming practices.
- **Moderate upfront capital needs:** Less capital intensive than synthetic fertilizer plants, but production requires specialized facilities

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Commercial loans and thematic bonds are well suited to established producers with predictable cash flows. Manufacturing facilities often have moderate capital intensity, enabling some use of project finance or asset-backed lending. Sustainability-linked loans are increasingly relevant when linked to environmental performance improvements, such as reductions in synthetic fertilizer dependency. Smaller manufacturers may also benefit from blended finance solutions (e.g. in collaboration with purchasers) to mitigate early-stage risks and accelerate market penetration.

Legend: Negative impact ◐ Positive impact | Low ○ ● High | Low suitability ▮▮▮▮ High suitability

Sustainable forestry management

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Sustainable forestry is the management of forest resources that meets present ecological, social, and economic needs while ensuring the health and viability of forests for future generations

Archetype
Scalable

Financing **target**
Forestry Management

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Forest restoration and improved biodiversity:** By promoting reforestation and afforestation, practices can increase land use efficiency and biodiversity.
- **Promotes responsible use of forest resources:** Practices ensure that timber and non-timber products are harvested at sustainable rates

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	●

- **Established practices:** Widely used processes (e.g. selective logging), standards (e.g. FSC) and improving technology integration.
- **Varied adoption:** Practices can be tailored to diverse ecological and social contexts with increasingly supportive policies and regulations

Conditions

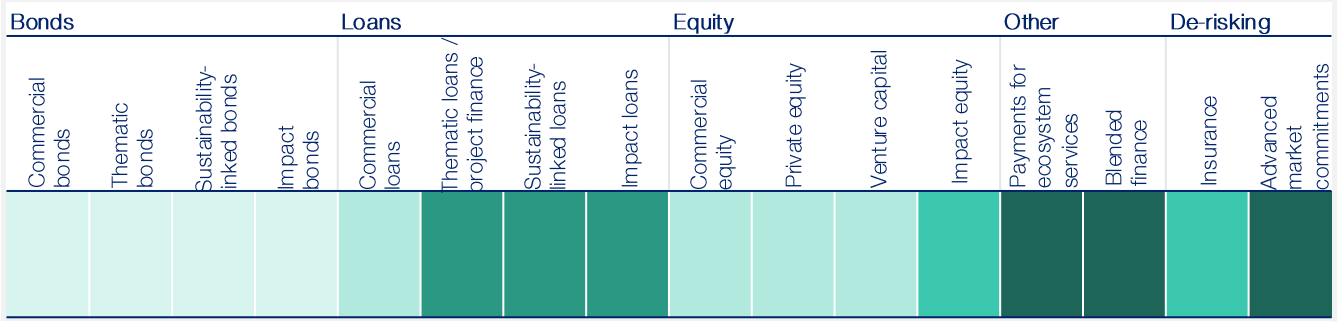
Uses standardised and accredited practices

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	✓

- **Suitability for disclosure and risk frameworks:** TNFD, ISSB and EU CSRD frameworks align with sustainable forestry as a material risk.
- **Revenue potential:** Sustainable forestry practices provides stable cash yield, diversification benefits and a hedge against inflation

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Blended finance can de-risk investments by combining concessional public funds with private capital, facilitating landscape-scale sustainable forestry projects with measurable ecological outcomes. Sustainability-linked and impact loans are particularly suitable for forestry management companies that have clear, measurable environmental targets such as reducing deforestation rates, enhancing carbon sequestration, or improving biodiversity outcomes.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Sustainable seafood production

Sustainable seafood production involves environmentally responsible aquaculture and improved wild fisheries management using low-impact, traceable and restorative practices (e.g. integrated multitrophic (IMTA), recirculating (RAS) aquaculture

Archetype
Operational

Financing target
Producers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Ecosystem recovery:** Responsible stock management and traceable supply helps restore marine life and reduces habitat degradation. Some practices improve marine biodiversity and mangroves
- **Efficient resource use:** Low impact aquaculture can cut freshwater use by up to 95 %, reduce nutrient discharge and reliance on feed

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◑	◑

- **Commercially proven technology:** High technological maturity with ongoing innovation focused on automation, traceability and monitoring.
- **Varied capital requirements by production model:** Techniques range from less complex shellfish farming, to more intensive RAS

Conditions

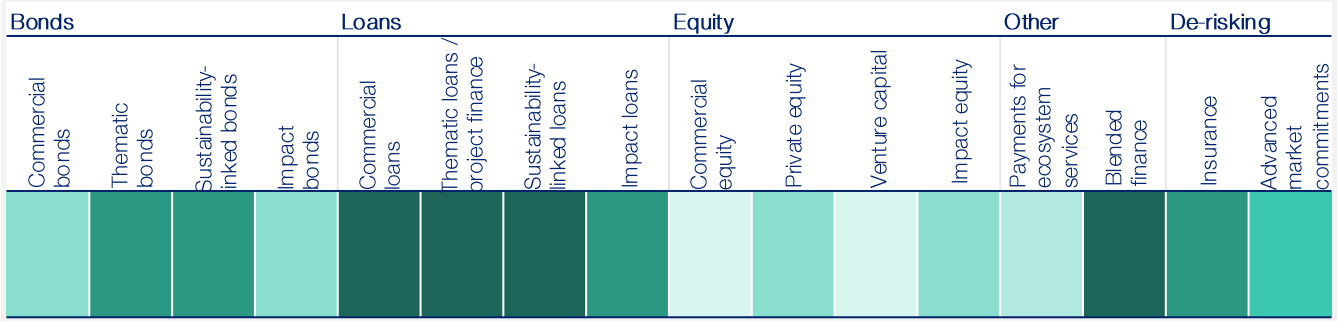
Practices focus on diverse native species

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Growing market:** Demand from retailers and consumers for certified and traceable seafood continues to expand globally.
- **Initial investment required:** Increased capital expenditure can be offset by lower operating costs (e.g. water, process automation, feed).

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Sustainable seafood producers are diverse, from small-scale fisheries to large, listed commercial aquaculture companies. Accordingly, they can leverage a wide range of financing options. Commercial and sustainability-linked loans are key sources for established operators, while blue and green project loans or bonds, sometimes backed by development finance can support certification efforts and infrastructure. Insurance products further enhance sector resilience by managing risks related to stock fluctuations, environmental changes, and climate impacts.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Bio-based materials for automotives

Agri, Food & Forestry | **Automotive** | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Use of bio-based materials in automotive applications includes bio-based polycarbonate (PC) and polyurethane (PU) to produce interior components, coatings, foams, adhesives and structural parts

Archetype
Emerging

Financing target
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced pollution:** Bio-based materials lower harmful emissions in production and disposal, with biodegradability and recyclability reducing long-term ecosystem contamination and boosting resilience
- **Decreases finite resource dependence:** Utilizes renewable, bio-based feedstocks, reducing new land use.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◐	◐

- **Commercial use:** Bio-based PC and PU have reached commercial use in interiors, coatings and foams. Continued R&D supports improvements in performance and unit cost reduction.
- **Moderate capital needs** depending on scale of auto manufacturing.

Conditions

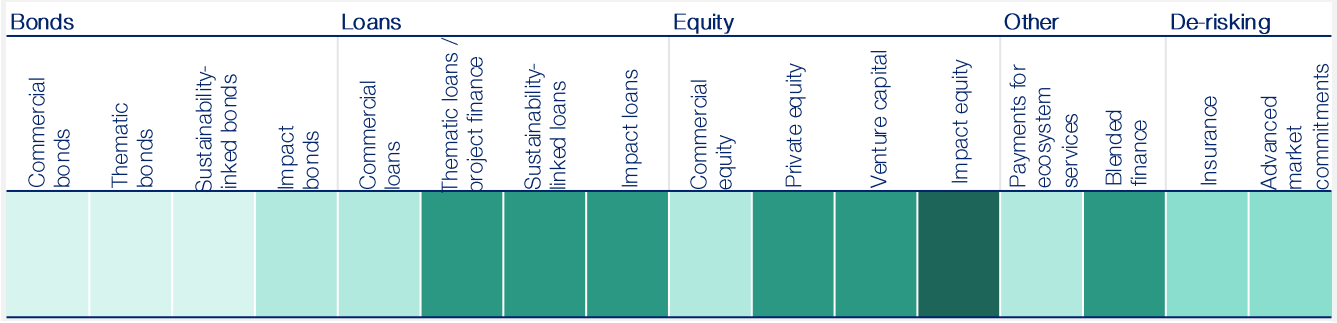
Matches durability & safety properties of conventional materials; sustainable feedstock use

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Growing demand for sustainable materials, including decarbonization and plastic waste regulations.
- **Moderate capital investment:** Some adaptations required for bio-production expansions.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Market is dominated by existing chemical manufacturers seeking to expand product lines, and new "bio-native" material innovators. Financing options include commercial and sustainability-linked loans for scaling, commercial and private equity for growth, and venture capital for early-stage innovation. Blended finance can reduce risks associated with scaling new technologies, supporting faster market adoption.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Recycled and renewable materials for automotives

Agri, Food & Forestry | **Automotive** | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Recycled and renewable materials refers to the use of materials that are either sourced from recycled products (e.g. recycled plastics for polymers) or derived from renewable resources in the manufacturing and design of vehicles

Archetype
Scalable

Financing target
Material producers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Lower extraction rates:** By decreasing reliance on newly extracted raw materials, the opportunity directly lowers overall resource extraction rates and land use.
- **Reduced waste generation:** Recycling processes minimize waste generation, with fewer harmful chemicals

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◑	◑

- **Integration with existing processes:** Many auto manufacturers have successfully integrated recycled inputs into production processes.
- **Established technologies:** Automotive application for recycling and processing materials are well-established and widely implemented.

Conditions

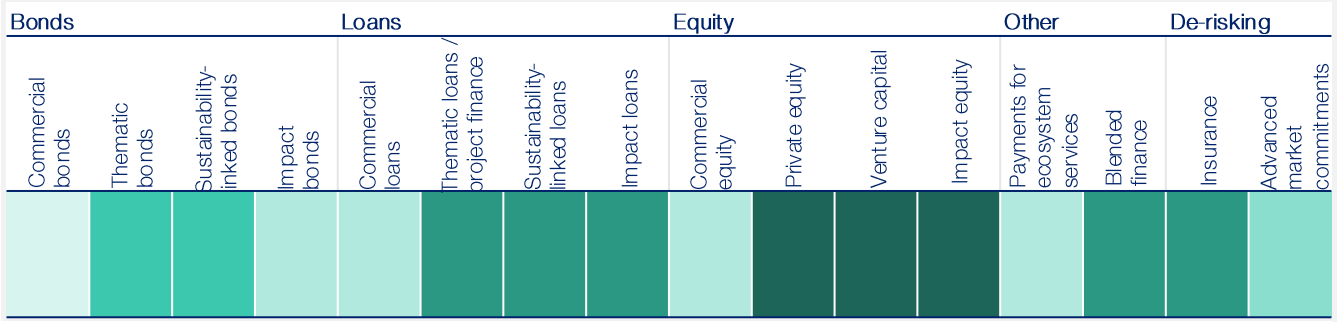
Matches durability & safety properties of conventional materials; sustainable feedstock use

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Lower materials cost:** Recycled materials can reduce overall input costs for automotive production
- **Moderate capital investment:** Some adaptations required for bio-production expansions.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Manufacturers demonstrate high suitability for sustainability-linked and impact loans due to strong ESG alignment, with thematic bonds for large-scale manufacturers. Private and impact equity effectively support growth and supply chain innovation, while blended finance plays a key role in sharing risk and attracting concessional funds to boost adoption. Venture capital remains relevant for targeted innovation to better integrate recycled and renewable materials in the value chain.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ ■ ■ ■ High suitability

Advanced and AI-based plastic sorting techniques

Agri, Food & Forestry | Automotive | **Chemicals, Plastics & Pharma** | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Advanced plastic sorting uses AI, computer vision, and spectroscopic sensors (NIR/hyperspectral) to identify and separate complex plastics at high purity and speed.

Archetype
Scalable

Financing target
Recycling companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced land and more effective resource use:** Higher recovery lowers landfill demand and reduces reliance on virgin resin extraction.
- **Pollution prevention:** Cuts plastic leakage and incineration volumes, improving air and water quality.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	●

- **Proven and scalable technology:** Mature AI, optical, and robotic sorters already deployed across major markets, with high accuracy.
- **Modular and easily retrofitted** into existing facilities, enabling rapid scale-up and wider adoption with minimal disruption.

Conditions

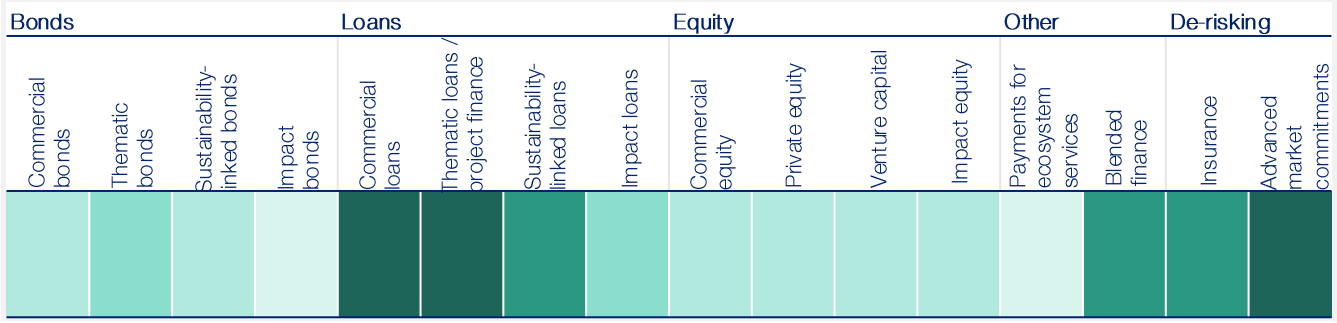
Safeguards in place for microplastic and nanoplastic release

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Higher quality bales can sell at premium, and recyclers earn eco-modulation fees from brands, and “gate fees” .
- **Moderate upfront investment costs**: Automation and efficiency gains reduce operating costs over time.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Financing and technical support for recycling companies can support adoption of advanced plastic sortation technologies which are mature. Commercial loans and project finance are primary instruments to fund equipment procurement and materials recovery facility development, often backed by long-term gate-fee agreements and bale offtake contracts that enhance cash flow stability.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Advanced polymers and materials optimized for circular use

Agri, Food & Forestry | Automotive | **Chemicals, Plastics & Pharma** | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Advanced materials refer to new functionalized or advanced materials that can be recycled or processed more easily, such as conductive polymers for electronics, bio-based and de-polymerizable plastics, and natural fibre-reinforced composites

Archetype
Emerging

Financing target
Chemical manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Material substitution:** Advanced materials can replace rare materials (e.g., conductive polymers instead of critical minerals and metals), reducing supply-chain risks and land-use change.
- **Cleaner production:** Many advanced materials are manufactured with fewer hazardous chemicals, reducing water, air and soil pollution.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◐

- **Maturing practices:** Several advanced materials are proven and commercially deployed. Next-generation materials still in development.
- **Significant investment in R&D:** Additionally, specialized lines may be required with some scope for modifying existing plants

Conditions

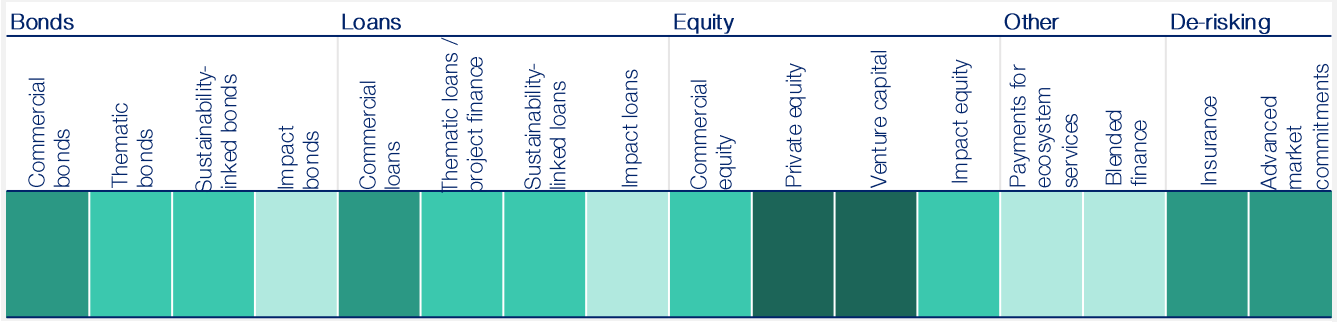
Safeguards in place for sustainable materials production and recyclability

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Access to markets:** Advanced materials are a growing market for performance and sustainability credentials, as well as new regulation
- **High initial costs:** Long-term efficiency gains possible through material efficiencies

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Established chemical manufacturers can access commercial bonds and equity financing to support capital investments and scaling of advanced recyclable material production. Private equity and venture capital can support innovation and R&D, especially for startups and ventures developing novel recyclable polymers and functionalized materials.

Legend: Negative impact ◐ Positive impact | Low ○ ● High | Low suitability ▯▯▯▯ High suitability

Biomanufacturing processes for chemicals

Agri, Food & Forestry | Automotive | **Chemicals, Plastics & Pharma** | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Biomanufacturing leverages biological processes (e.g. enzymatic conversion, fermentation, biocatalysis) and organisms (e.g., bacteria, yeast, algae) to produce a wide range of chemicals

Archetype
Ecosystem

Financing target
Feedstock producers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
●	●	●	■●	■●	✓	

- **Pollution reduction:** Biomanufacturing processes using microorganisms can significantly reduce pollution compared to traditional manufacturing by producing fewer harmful by-products
- **Enhanced resource efficiency:** Processes use engineered microbes to convert waste products into valuable resources

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◔

- **High upfront capital costs:** Establishing facilities involves capital for infrastructure, equipment and technology.
- **Barriers to scale:** Limitations in sourcing non-carbohydrate feedstocks and processes need to be optimized for larger scales.

Conditions

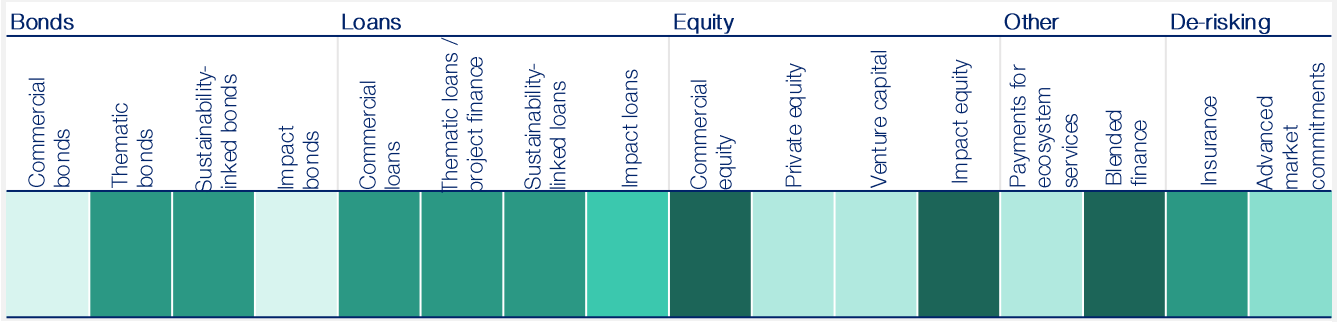
Sustainable feedstock supplies to prevent net new land-use change

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Access to markets:** Bio-manufactured products are increasingly growing market due to regulation or consumer with willingness to pay
- **Recurring operating expenditure:** Labour, crop inputs, utilities and logistics are ongoing operational costs

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Feedstock producers, including agricultural and biomass suppliers, often require capital to scale cultivation, harvesting, and processing capacities. Early-stage or smaller-scale feedstock providers may rely on impact equity, or blended finance, often supported by public grants and subsidies to improve yield, sustainable practices, and supply chain resilience. Established feedstock suppliers and aggregators typically access project finance and commercial loans. Large-scale infrastructure investments for feedstock processing, storage, and distribution can be financed through green bonds or other debt instruments

Legend: Negative impact ● ■● Positive impact Low ◐ ● High Low suitability ▪▪▪▪ High suitability

Sustainable pharmaceutical wastewater treatment

Agri, Food & Forestry | Automotive | **Chemicals, Plastics & Pharma** | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Sustainable pharmaceutical wastewater treatment techniques combine physical, chemical and biological methods to remove complex pharmaceutical compounds from water, sustainably.

Archetype
Emerging

Financing target
Pharmaceutical companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
●	●	●	●	●		✓

- **Chemical pollution reduction:** Without treatment, pharmaceutical wastewater contributes to pollution and results in persistent environmental contamination risks.
- **Managing water toxins:** Pharmaceutical wastewater contaminants adversely affect organisms, quality and biodiversity in water bodies

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◐

- **Emerging technologies:** Membrane bioreactors, advanced oxidation and adsorption techniques are maturing, but requires cost optimization
- **High capital costs:** Advanced treatment infrastructure and upgrading existing plants requires significant upfront investment.

Conditions

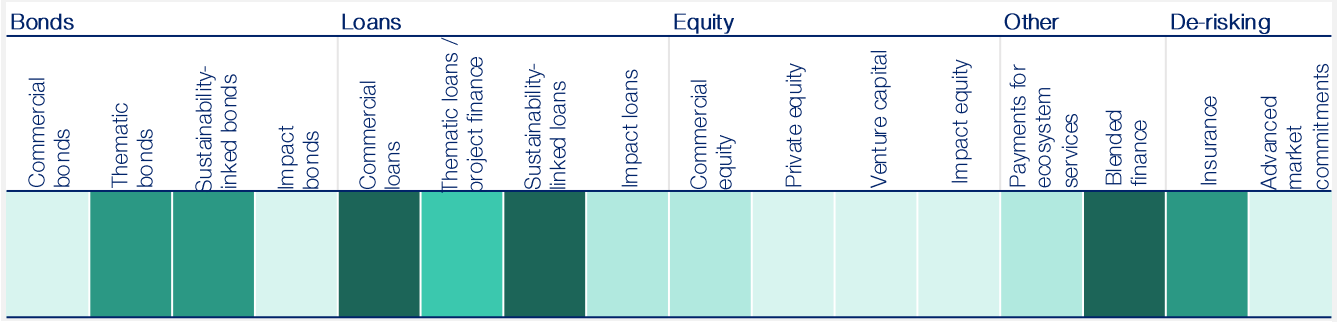
Responsible waste disposal practices which matches compound removal efficacy

Financial impact

Revenue increase	Opex reduction	Capex reduction
–	✓	–

- **Reduced operating costs:** Sustainable treatment practices require reduced energy consumption and chemical inputs compared to conventional practices. Can support compliance with increasing environmental and water quality regulations for micropollutants.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Commercial loans and sustainability-linked loans are well suited to pharmaceutical companies upgrading or retrofitting facilities. Larger pharmaceutical firms may also access green or thematic bonds to finance significant infrastructure projects that demonstrate measurable water quality and emissions improvements. Given the capital-intensive nature and regulatory drivers, blended finance can be valuable in emerging markets to lower barriers and share risk. Operational and product liability insurance further supports risk management given the complex industrial setting.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▯▯▯▯ High suitability

Sustainable plastic conversion for recycling and re-use

Agri, Food & Forestry | Automotive | **Chemicals, Plastics & Pharma** | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Sustainable plastic conversion processes use selective chemical methods to turn hard-to-recycle plastics into high-quality, reusable materials. The two main approaches are depolymerization and solvent purification.

Archetype
Scalable

Financing target
Recycling operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
					✓	

- **Reduced landfill and leakage:** Diverts plastics from landfill and incineration, lowering land pressure and marine litter risk.
- **Virgin material displacement:** Produces high-quality secondary feedstocks that replace virgin petrochemicals, reducing resource extraction and lifecycle emissions.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◐

- **Proven but scaling technology:** Operating at commercial scale, with newer solvent-based systems showing strong early performance.
- **High capital intensity:** Requires major upfront investment in equipment, but modular and shared infrastructure are reducing costs.

Conditions

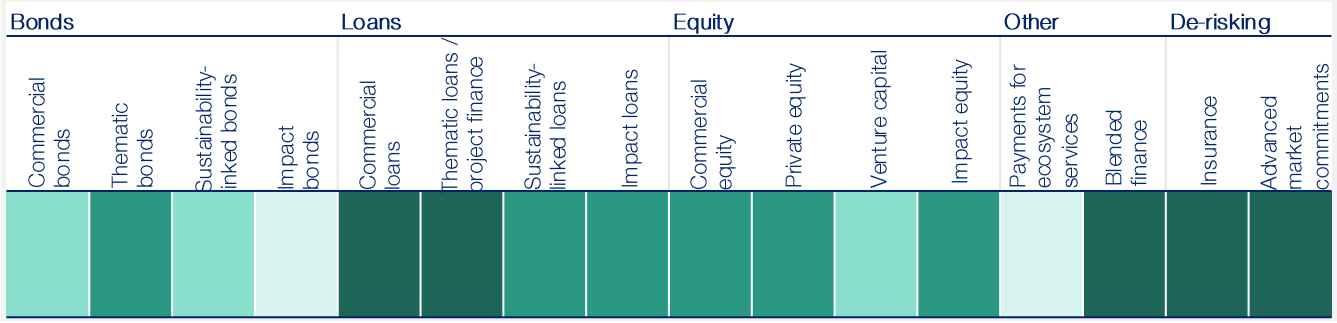
Limited behavioural "rebound" effects on consumption. Use of sustainable energy sources

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Revenues come from high-quality recycled polymer sales and "gate fees" for waste inputs.
- **Cost reduction:** While capital costs are high, efficiency gains and solvent recovery reduce operating costs over time.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Recycling operators typically finance these projects through commercial and thematic project loans, supported by long-term offtake contracts with polymer producers and brands that enhance revenue stability and facilitate project finance. Private and impact equity finance the growth of recycling platforms, while blended and concessional finance help de-risk pioneering projects and support adoption in emerging markets. Insurance products address construction, operational, and environmental risks. Bond financing tends to be limited to larger corporates rather than typical recycling operators.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Green roofs and urban infrastructure

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | **Construction Materials** | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Green roofs and urban infrastructure solutions integrate nature into buildings and urban infrastructure—such as green roofs, living walls, and biodiversity-friendly design—to create habitats, improve urban ecosystem health, and support nature-positive cities

Archetype
Scalable

Financing target
Service providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Urban habitat creation:** Integrates vegetation into buildings to create biodiversity habitat without additional land use.
- **Pollution and runoff reduction:** Reduces air pollution and captures stormwater, lowering contamination of soil and waterways.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	●

- **Proven and widely implemented solutions:** Green roofs and living architecture are commercially mature and widely deployed.
- **Moderate capital needs with high scalability:** Easily integrated into new builds and retrofits across cities.

Conditions

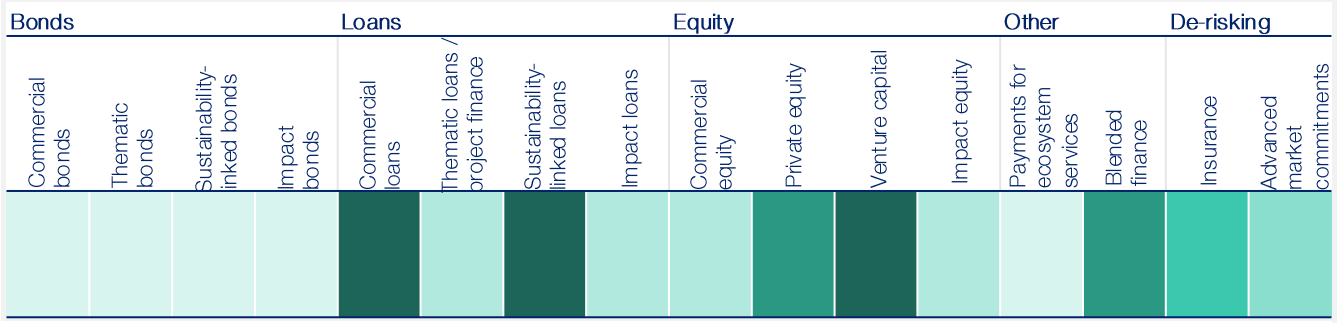
Appropriate design and maintenance practices (e.g. structural capacity, species selection)

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	-

- **Revenue potential:** Service providers are seeing increased demand for high-value installations, often driven by city regulation
- **Cost reductions:** Lower energy and stormwater management costs reduce operating expenditure

Suitability of financing and de-risking instruments



- **Financing suitability characteristics**: High technological maturity and fragmented project sizes make commercial loans and sustainability-linked loans most suitable. Larger construction/engineering companies and private equity may invest in or acquire smaller service providers. Blended finance can help de-risk early adoption or retrofits in policy-driven markets, while insurance supports construction, performance, and maintenance risks.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Recycling construction and demolition waste (CDW)

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | **Construction Materials** | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Recycling construction and demolition waste (CDW) involves reclaiming materials from demolished structures and repurposing them for new construction projects

Archetype
Scalable

Value chain target
Recycling providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced environmental impact:** Recycling CDW minimizes pollution associated with extracting and processing new materials, including air and water pollutants
- **Reclamation of materials:** Reduces need for new raw materials with recycling processes often utilising existing facilities and sites

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◐	◐

- **Modest capital requirements:** Many existing machinery and equipment can be repurposed for recycling operations
- **Market perception changes:** Further work required on quality standardization as there is a prevailing preference for new materials

Conditions

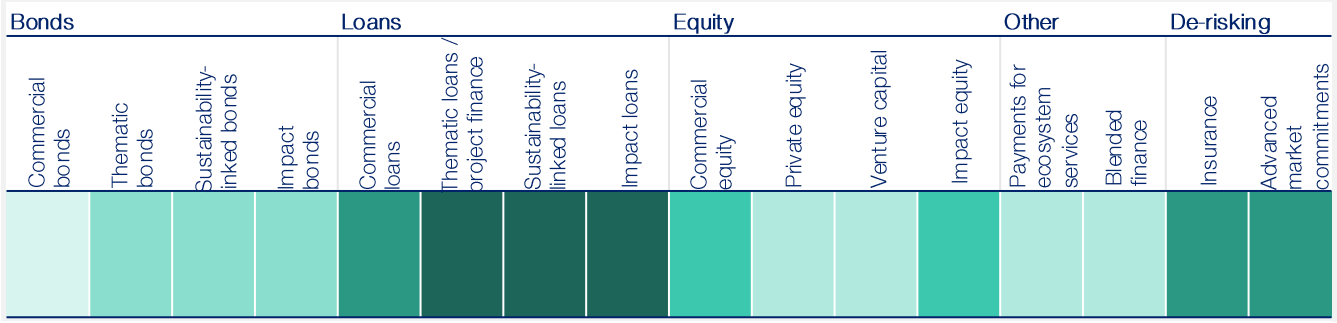
Responsible sorting and processing practices (e.g. leaching and dust)

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Increased focus for sustainable construction materials opens new market, potentially with premiums
- **Lower waste disposal costs:** Diverting waste from landfills reduces fees and associated disposal costs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** High technological maturity and moderate capital intensity favours commercial, thematic, sustainability-linked instruments, aligning well with circular economy and sustainability goals. Advanced market commitments and offtake agreements supports CDW recyclers plan investments in capacity which can improve price parity with conventional building materials. Environmental liability insurance coverage can support risks of contaminant exposure or improper waste handling.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▮ High suitability

Sustainable cement and concrete blends

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | **Construction Materials** | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Sustainable cement and concrete blends involves incorporating additives like slag, fly ash, and recycled construction and demolition waste to reduce pressure on land, raw materials and ecosystems by replacing virgin materials with byproducts

Archetype
Scalable

Financing target
Manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Re-use of byproducts:** Sustainable blends utilizes industrial byproducts and construction and demolition waste, which helps recycle materials that would otherwise contribute to waste, reducing quarrying and land-use change
- **Lower level of pollutants** compared to conventional production

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◐	◐

- **Mature practices:** Widely accepted practices with industry standards and certifications. Diverse additives allows for flexibility in formulation.
- **Modular retrofits:** Many plants can incorporate sustainable additives into existing production processes.

Conditions

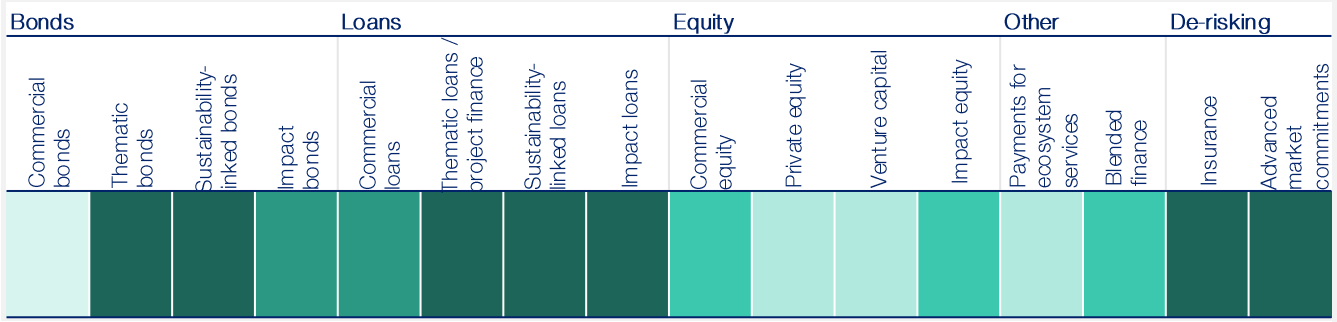
Limited behavioural "rebound effects" in consumption

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Increasing demand for sustainable blends
- **Lower operating costs:** Use of by-products as additives can lower raw material costs. With slag/fly ash, lower clinker content and energy consumption reduces production costs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Given the clear environmental benefits, thematic bonds and sustainability-linked loans are likely to be suitable. Commercial equity and debt financing are applicable where capital upgrades or adoption by established firms are required. Insurance products, including construction and equipment insurance for plant retrofits, can mitigate risks. Advanced market commitments may be structured with public infrastructure clients or green building developers, especially in regions with supportive regulatory frameworks rewarding low-emission materials.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Agrivoltaics

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | **Energy** | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Agrivoltaics is an innovative approach which combines agricultural production with solar energy generation by installing solar panels on agricultural land

Archetype
Scalable

Financing target
Renewable energy providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Maximizes land productivity:** Agrivoltaics enables dual land use, combining agricultural production with solar energy generation to optimize land efficiency and reduce new land use.
- **Promotes soil health:** Creates microclimate beneficial to crops, including maintaining soil moisture and reduced chemical run-off.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	●	◐

- **Demonstrated success in pilots:** Technologies still being refined and validated across diverse agricultural systems.
- **High capital costs:** Installation of solar panels requires significant upfront capital for equipment, infrastructure and installation.

Conditions

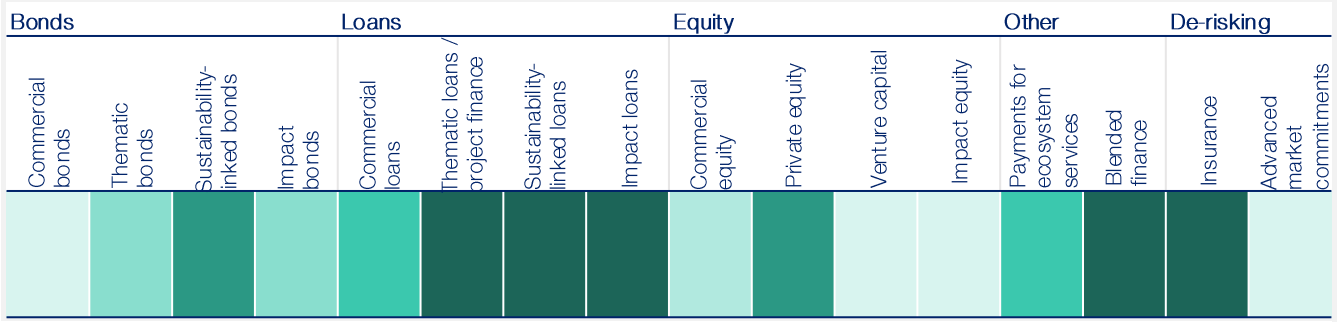
Limited agricultural land use conversion

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Supports expansion and reduced costs:** Partnerships with land owners can enable capacity expansion. Leasing costs likely reduced given dual land use and can replace dedicated land acquisitions by renewable energy providers.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Renewable energy companies developing agrivoltaics projects or capabilities are well suited to using project finance and equity co-investment or joint ventures to support expansion and project builds. Sustainability-linked loans or bonds could tie terms to verified operational outcomes (e.g. power generation or resource efficiency). Embedding insurance cover (e.g. parametric cover for weather or performance) could further de-risk cashflows.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Floating offshore wind platforms

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | **Energy** | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Floating offshore wind technologies harnesses wind energy in deeper waters where traditional fixed-bottom turbines are not feasible, enabling expanded offshore wind deployment and potentially mitigating nature impacts on seabed

Archetype
Emerging

Financing target
Platform design firms

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
	Further validation needed				✓	

- **Resource-positive:** Floating offshore wind platforms contribute to renewable energy adoption and impact on nature drivers. Further validation is required to assess this comprehensively, including on natural marine habitats.

Transformative impact

Technological / process maturity	Capital intensity	Scalability

- **Emerging technologies:** Many projects are still in pilot phase with further work required on impact of a variety of marine conditions.
- **Significant initial investment:** Upfront capital required for installation, infrastructure and technology development

Conditions

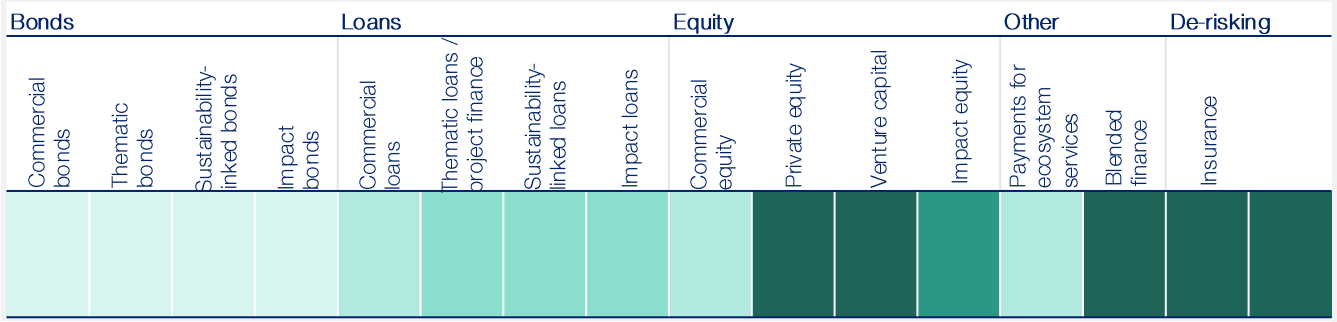
Further testing of nature impacts vs. fixed bottom structures

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Floating offshore platforms have higher energy generation potential to support the growing demand for renewable energy sources. Floating platforms need to become more cost-competitive relative to fixed bottom structures.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Platform design firms and innovators in floating offshore wind technologies typically require venture capital and impact equity to support extensive R&D, prototyping, and demonstration projects due to significant technological risks and capital requirements. Blended finance solutions can play crucial roles in de-risking investments and mobilizing capital for commercial-scale deployments. Public grants and subsidies can support early demonstration projects and accelerate market adoption.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Floating photovoltaics (FPV) for solar power

Floating photovoltaics (FPV) are solar power plants where photovoltaic modules are mounted on floating structures on bodies of water

Archetype
Emerging

Value chain target
Platform manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
	Further validation needed				✓	

- **Resource-positive:** By generating solar energy over water bodies, FPV can reduce need for fossil fuel extraction, with its resulting land use change. FPV do not require land, thus preserving agricultural and natural land areas without competing for land resources.

Transformative impact

Technological / process maturity	Capital intensity	Scalability

- **Emerging technologies:** FPV is an emerging but rapidly growing technology with proven pilot projects.
- **Higher installation costs:** Deploying specialized floating structures and equipment is typically higher than ground-mounted systems

Conditions

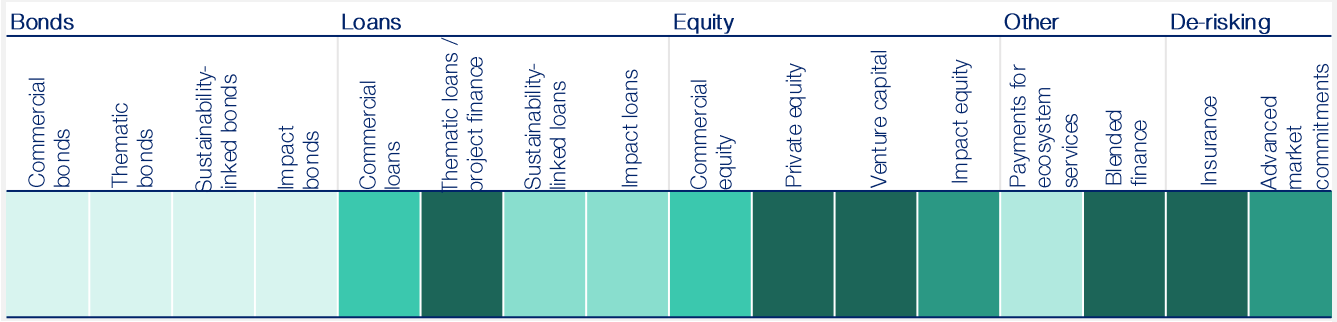
Further testing of nature impacts vs. ground-mounted PV

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** FPV have potential to support the growing demand for renewable energy sources, while avoiding competition with land use. FPVs need to become more cost-competitive relative to non-floating structures.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Platform manufacturers and innovators typically require venture capital and impact equity to support R&D, prototyping, pilots. Blended finance solutions can de-risk investments and mobilize capital for commercial-scale deployments. Public grants and subsidies can support early demonstration projects and accelerate market adoption. Structures leveraging advanced market commitments (e.g., power purchase agreements) from utilities or government-led clean energy programs are suitable. Insurance required for construction, operational risk and liability risks.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Innovative design structures for renewable energy

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | **Energy** | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Innovative design structures for renewable energies require fewer materials (e.g., lattice structures with less steel, recyclable turbine blades), are easier to disassemble, and often include nature-inclusive design (e.g. artificial reefs, bubble curtains)

Archetype
Scalable

Financing target
Renewable energy providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced use of virgin materials:** Lattice and modular designs use less steel and concrete and facilitate better material recovery and recycling at end-of-life.
- **Minimal terrestrial disturbance:** Innovations focus on offshore deployment, minimizing land-use impacts

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◐	◐

- **Growing industry adoption:** Innovative designs are not yet global standard. However large companies are advancing commercialization.
- **Global relevance:** Applicable to diverse geographies and water depths, but requires supply chains changes and regulatory acceptance

Conditions

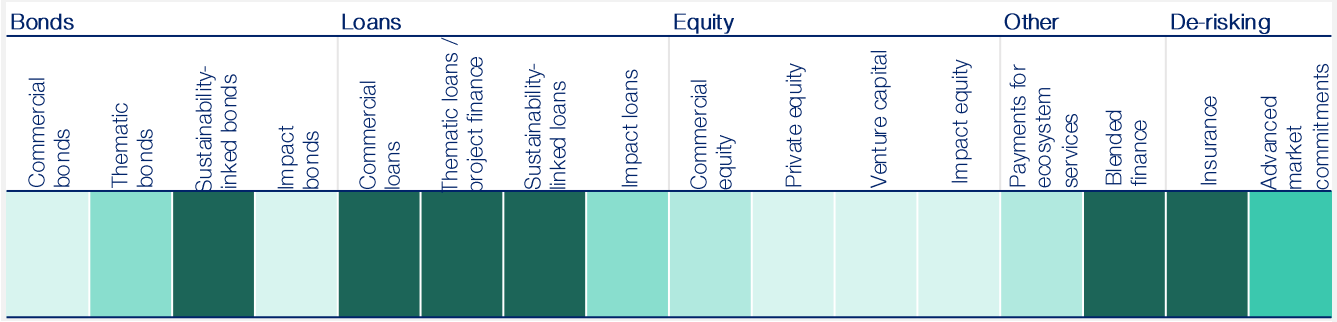
Performance parity relative to conventional structures

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Cost reduction potential:** Optimized use of materials such as steel and concrete lowers upfront capital and logistical expenses, enhancing project cost-effectiveness. Modular and easily assembled structures enables earlier revenue generation and reduces project timelines.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Renewable energy providers typically need financing to support purchase, implementation and testing of these innovative structures. Debt financing and sustainability-lined products are the main sources of capital given asset base and expected cashflows. Some bond products may be suitable, but the lower capital expenditure relative to conventional methods may require structured financing. Parametric cover can de-risk technology performance, weather related disruptions and energy efficiency outcomes.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Bio-based textile recycling

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | **Fashion & Textiles** | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Bio-based textile recycling collects and sorts used garments and then recycles them mechanically or chemically to make new fibres or pulp, reducing landfill and demand for virgin resources

Archetype
Scalable

Financing target:
Recycling plants

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Cuts water, chemicals, and waste:** Reduces landfill, textile microfibre pollution, as well as water and chemical use
- **Eases pressure on agricultural land:** Displaces new cotton crops and resulting land conversion, water use by leveraging used textiles.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	●	●

- **Scalable through technology mix:** Mechanical recycling is mature for pure cotton, while chemical and enzymatic routes—now at pilot to early commercial scale—offer broader feedstock use but need cost reduction and larger infrastructure to scale.

Conditions

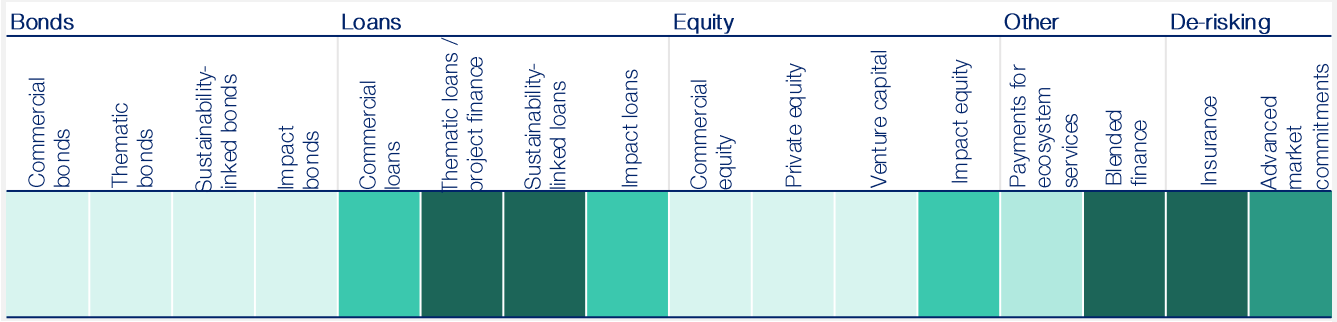
Use of non-toxic chemicals; no behavioural "rebound" effects in consumption

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Can support access to new, premium markets when quality standards are met. Returns improve with scale and stable offtake agreements, though early plants may face yield variability and high per-unit costs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Bio-based textile recycling plants are capital-intensive infrastructure assets, best suited to thematic or sustainability-linked loans and project finance structures that can absorb long payback periods. Blended finance can de-risk early-stage projects by combining concessional or public funds with commercial lending, especially for chemical or enzymatic recycling technologies which are still maturing. Impact equity may play a limited role in demonstration or scale-up phases but is less suitable once plants reach operational scale.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Biodegradable and compostable textiles production

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | **Fashion & Textiles** | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Biodegradable and compostable textiles production produces fibres designed to decompose naturally, reducing long-term waste and plastic pollution.

Archetype
Scalable

Financing target:
Textile manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduces plastic and microplastic pollution:** Enables fibres to safely decompose after use, preventing soil, river and ocean contamination.
- **Shifts textiles toward renewable inputs:** Replaces fossil-based synthetics with bio-based materials sourced from responsibly managed crops and forests.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◑	◑	◑

- **Early-stage biopolymer deployment:** Cellulosic fibres are commercialized, but PHA and PLA textiles remain in pilot-to-mid scale
- **Scalable constrained by feedstock and infrastructure gaps:** Higher input prices, feedstock gaps, and composting needs exist

Conditions

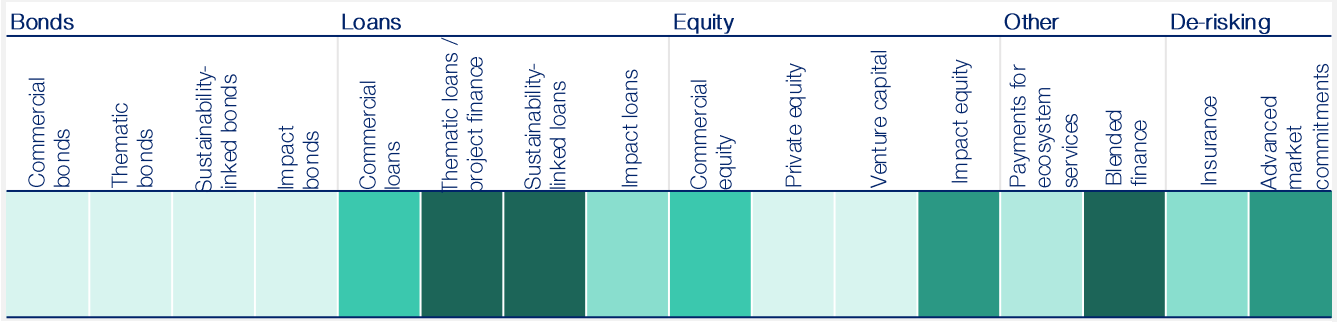
Sustainable feedstock use, additional benefits vs. cotton, wool

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Can support access to new, premium markets when quality standards are met. Returns improve with scale and stable offtake agreements, though early plants may face yield variability and high per-unit costs.

Suitability of financing and de-risking instruments



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Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Waterless and low-water dyeing and finishing processes

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | **Fashion & Textiles** | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Waterless and low-water dyeing technologies allows fabrics to be coloured and treated with little to no water and includes supercritical CO_2 dyeing, foam finishing, and digital printing

Archetype
Scalable

Financing target: Textile manufacturers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Alternative to water-intensive processes:** Replaces water-intensive dye baths, cutting freshwater water use by up to 95%. Reduces water and chemical inputs required compared to conventional processes.
- **Reduced discharge of potentially toxic chemicals:** Reduces wastewater, toxic chemicals discharged by conventional wet methods

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◐	●

- **Select applications in commercial stage:** Some processes, (e.g. supercritical CO_2 dyeing and foam finishing) are proven in commercial pilots. Further technological development required to adapt processes to broader fibre types and fabric blends.

Conditions

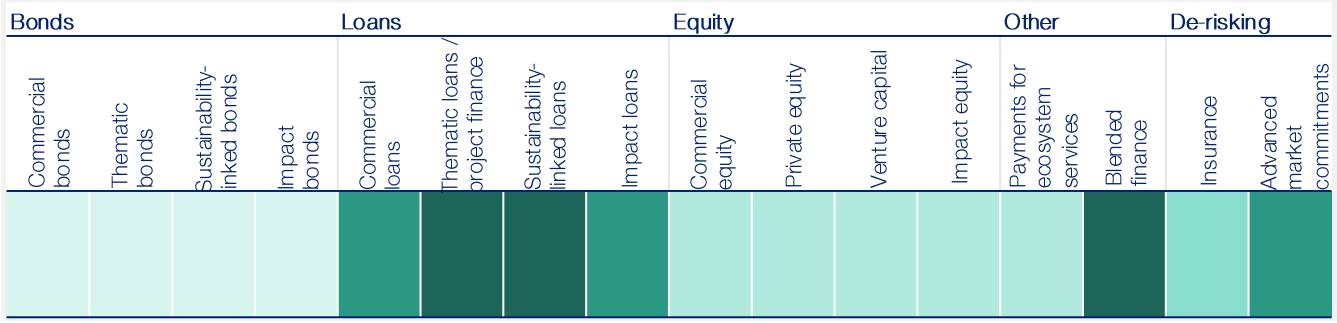
Use of sustainable energy sources during processing

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Water-efficient textiles can command premium pricing (e.g. those with GOTS and OEKO-TEX certification).
- **Operating cost savings:** Manufacturers can save on water, heating, energy and effluent treatment costs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Textile manufacturers and producers typically require moderate to high capital for equipment upgrades, process adaptation, and supply chain integration. Commercial loans and thematic loans can support investments in new infrastructure. Sustainability-linked and impact loans can be linked to KPIs around water consumption and pollution reduction. Blended finance mechanisms can de-risk investments for smaller producers. Advanced market commitments can play a strategic role by guaranteeing demand from brands and retailers, given the premium pricing for these textiles.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ ■ ■ ■ High suitability

Ecotourism

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | **Leisure** | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Ecotourism finances the development of tourism experiences and infrastructure that protect biodiversity, generate local economic benefits, and offer low-impact, nature-based travel.

Archetype
Scalable

Financing target
Hospitality developers

Nature impact

Land ecosystem	Freshwater ecosystem	Ocean ecosystem	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Economic incentives for conservation:** Protects natural habitats and acts as an alternative to more destructive land uses (e.g. logging, mining, agriculture)
- **Supports marine protected areas** (e.g. coral reefs, mangroves, seagrass beds)

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
●	◐	◐

- **Moderate capital requirements:** Development of eco-lodges, infrastructure and community capacity building are the main investment needs

Conditions

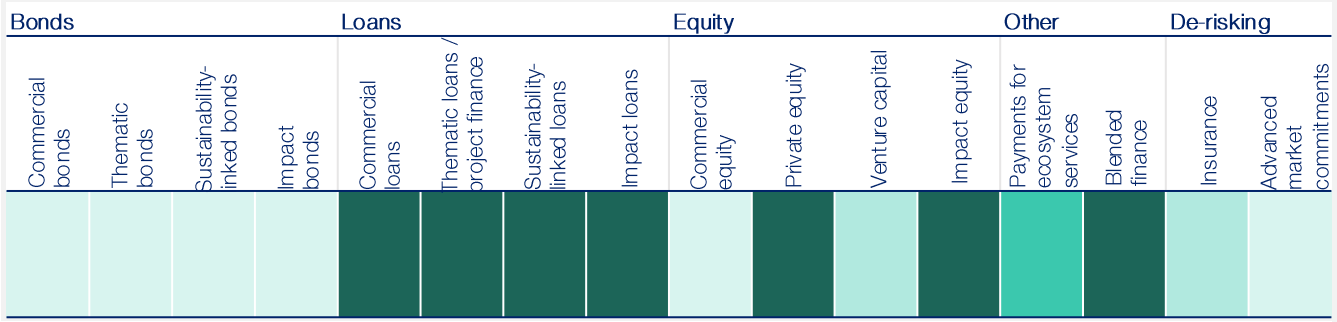
Ensure positive nature impacts hold with increasing scale

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	✓

- **Growing market:** Growing number of eco-conscious travellers and public interest on pressures of tourism on local areas
- **Sustainable practices:** Although moderate initial investment required, practices support retained asset values relative to conventional tourism

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Hospitality developers require moderate investment to build environmentally sustainable lodges and infrastructure that comply with eco-certifications and community engagement standards. Commercial loans and project financing are core instruments for established developers with stable cash flows and proven market access. Impact equity and private equity can support innovative projects that integrate social and environmental objectives. Blended finance mechanisms provide critical risk mitigation and capital for developments in emerging markets or underserved regions.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Steel slag recycling

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | **Metals & Steel** | Mining | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Steel slag, a by-product of steel making, can be used in downstream industries (e.g., as a fertilizer proxy in agriculture)

Archetype
Scalable

Financing target
Processors and recyclers

Nature impact

Land ecosystem	Freshwater ecosystem	Ocean ecosystem	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
●	●	●	●	●	✓	

- **Pollutant reduction**: Recycling steel slag reduces landfill disposal volumes and pollution risks associated with steel slag disposal which may contain trace amounts of heavy metals and other contaminants.
- **Use of waste products:** Recycling steel slag helps conserve natural resources by repurposing a by-product which otherwise go to waste.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◔	◑

- **Established applications:** Proven recycling technologies exist to use steel slag in concrete production and as a fertilizer substitute.
- **Minimal initial investment:** Many steel mills have existing infrastructure in place for handling by-products.

Conditions

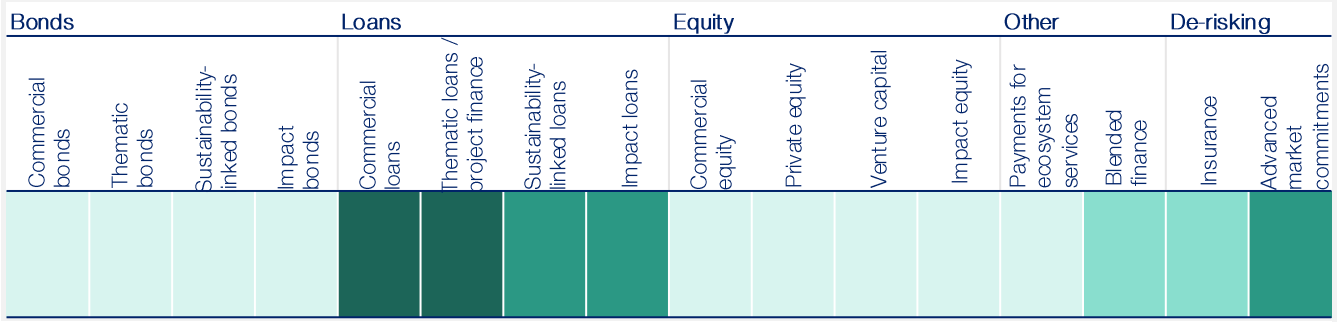
Matches efficacy and quality of conventional materials

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential**: By offering a cost-effective alternative to conventional fertilizers, steel producers can diversify revenues through agricultural market entry.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Steel slag recycling companies typically require moderate capital investments for processing infrastructure, quality control, and transportation. Established firms can access commercial loans and project finance to expand capacity and improve operational efficiency. Investments can focus on standardizing composition and quality of inputs to support growth in market demand. Advanced market commitments can also support demand certainty for steel slag processors and recycling companies.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Advanced analytics and AI integration for mining exploration

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

AI and advanced data analysis methods integrate geological, geophysical, sensor, and historical data to improve mineral exploration accuracy, reduce unnecessary drilling, and accelerate project discovery timelines.

Archetype
Operational

Financing target
Mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced risk of contamination:** Analysis helps to prevent exploration in sensitive water catchments and enables fewer ground-based operations which may result in accidental spills or sedimentation
- **Efficient resource allocation:** Companies can focus fieldwork only on high-potential areas, minimizing wasted expenditure.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◔	●

- **Primarily software and data investment:** Low upfront hardware costs reduce upfront capital intensity compared to physical exploration
- **Globally scalable:** Cloud and remote data platforms supports broad deployment. Drilling and core logging currently primary data captured.

Conditions

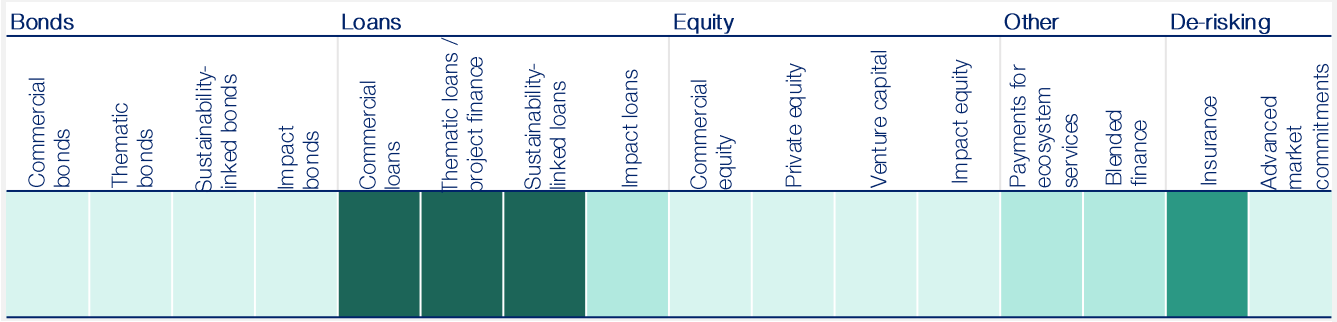
Nature KPIs required to ensure net positive impact for nature

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Cost reduction potential:** Lowered direct exploration costs through data-driven prioritization and operational efficiency. Companies can leverage pay-per-use AI platforms to lower fixed investment. Reduces overall mining company financing needs and leverage.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Given the high technological maturity and low capital intensity, this opportunity is well suited to conventional loan products to support mining companies purchase equipment, training and integrating practices. Some thematic and sustainability-linked debt instruments may be applicable (e.g. tied to reduced ground disturbance). Insurance products can be used to cover cyber risk, data integrity and operational continuity of data and AI platforms.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Autonomous drone and remote sensing for mining exploration

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Drones and vehicle-mounted systems now use advanced sensors to rapidly and precisely map mineral compositions over large areas, enabling faster, less invasive exploration.

Archetype
Operational

Financing target
Mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Minimized ground disturbances:** Drones and remote sensing enables non-intrusive mapping, reducing the need for ground-based exploration teams and heavy equipment that disturbs large land areas.
- **More efficient exploration:** High-quality data reduces exploratory disturbance (e.g. drill-holes) and associated fuel and materials

Transformative impact

Technological/ process maturity | Capital intensity | Scalability

- **Established applications:** Core technology is well established, but improvements focus on **full autonomy and sensor fusion**.
- **Rapid deployment:** Satellite imagery and remote sensing data is available worldwide and can be quickly deployed across multiple sites.

Conditions

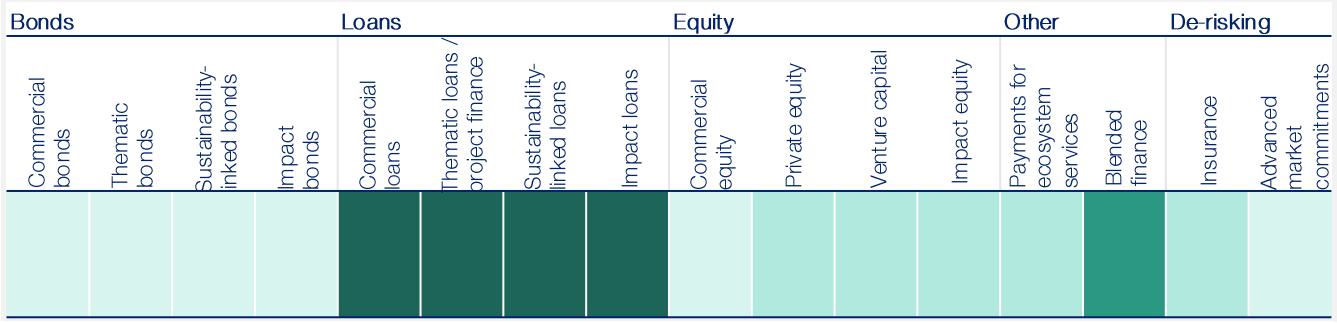
Nature KPIs required to ensure net positive impact for nature

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Faster project timelines:** Drones accelerate data collection and improve discovery rates. They reduce high capital expenditure exploration activities (e.g. large field crews, transportation, survey equipment).

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Mining companies typically rely on commercial loans, equipment financing, and project finance to fund capital expenditures required for integrating drone and sensor technologies into exploration operations. High technical maturity, low-cost, and scalable technology suits standard commercial finance. Some mining companies have used sustainability-linked loans to provide additional incentives by linking financing terms to social and environmental metrics.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Direct lithium extraction (DLE) techniques

Direct lithium extraction (DLE) methods utilize advanced techniques, such as solvent extraction, ion exchange, and membrane filtration, to selectively extract lithium from brine or other sources

Archetype
Scalable

Financing target
Mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
				Further validation needed	✓	

- **Water preservation:** DLE technology significantly reduces water usage compared to traditional brine evaporation methods, reducing pressure on scarce freshwater resources
- **Reduced land impact.** DLE typically requires less land than conventional extraction methods such as hard rock mining.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability

- **Emerging technologies:** Some methods (e.g. solvent extraction, ion exchange) still being optimized, with some successful case studies.
- **Site-specific adaptability:** Current efficacy of DLE can vary based on specific brine composition and local geological conditions.

Conditions

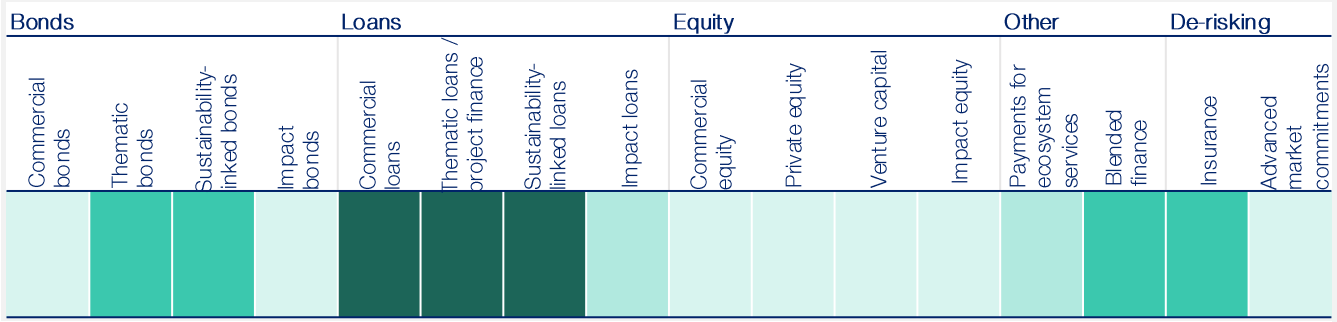
Accepted by local community and meets ecosystem standards

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Growing demand for lithium, fuelled by electric vehicles and renewable energy storage expansion, positions DLE as a high-value opportunity. Lower operating costs achievable through increased yield, resource use and quicker production times.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Mining companies implementing direct lithium extraction technologies face significant capital requirements for advanced processing facilities and infrastructure upgrades. Commercial loans and project finance are suitable for these firms given their scale and relatively stable revenue streams. Sustainability-linked loans and green bonds align well with environmental targets, including water conservation and reduced ecological footprint.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Earth observation and imaging technologies for mine site management

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Earth observation and imaging technologies enhance mine management techniques by enabling precise terrain mapping, environmental monitoring, and operational optimization.

Archetype
Operational

Financing target
Technology companies

Nature impact

Land ecosystem use change	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Reduced ground footprint:** High-precision data from LiDAR and imaging technologies enable targeted exploration and operational optimization, significantly minimizing unnecessary land disturbance and infrastructure development.
- **Reduced emissions:** Less air pollution than ground-based exploration

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◔	●

- **Established technology:** LiDAR widely used in mining, forestry and civil engineering applications and can be integrated with other tools
- **Moderate upfront investment:** Some capital required for data processing and equipment. Many companies offer this as a service

Conditions

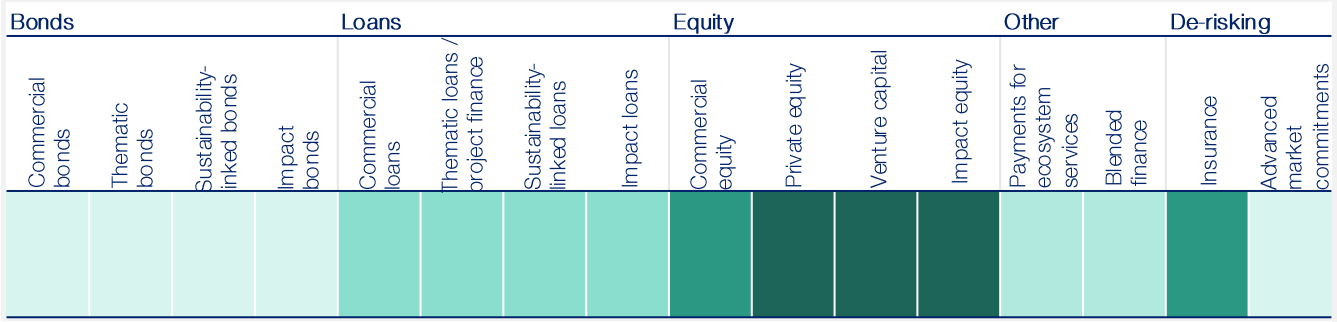
Nature KPIs required to ensure net positive impact for nature

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Growing market demand:** Technologies widely used to identify mineral targets and monitor environmental changes in real time, shortening exploration cycles and improving decision accuracy
- **Cost reduction potential:** Supports cheaper operations oversight

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Technology and analytics companies providing earth observation solutions for mining generally require funding during early and growth stages to develop advanced imaging hardware, software, and AI-driven analytics platforms. Venture capital and impact equity investments can support innovation, product development, and market entry. High-value LiDAR equipment and sensors can require property and operational insurance.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

In-situ leaching directly from ore bodies

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

In-situ leaching is a mining technique that allows for the extraction of valuable minerals directly from the ore body without the need for traditional mining methods.

Archetype
Scalable

Financing target
Mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
				Further validation needed	✓	✓

- **Reduced surface disturbance:** By enabling extraction without large-scale surface excavation, in situ leaching significantly lessens land disruption and conserves surrounding ecosystems compared to traditional methods. Process often utilizes existing mining sites avoiding the need for new land development.

Transformative impact

Technological / process maturity | Capital intensity | Scalability

- **Established in certain sectors**: Commercial applications mostly in uranium, and emerging for others (e.g. copper, gold, lithium)
- **Moderate investment:** In many cases, existing mining infrastructure can be adapted for in-situ leaching.

Conditions

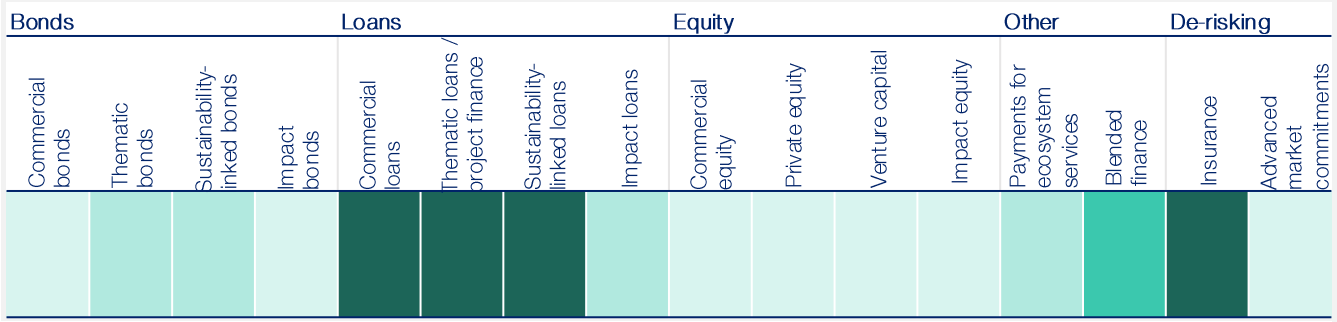
Safeguards for groundwater contamination

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	✓

- **Revenue potential:** This technique unlocks access to previously inaccessible or deep ore bodies, creating new revenue opportunities.
- **Lower costs:** Typically lower infrastructure (e.g. roads and processing plans), labour and material costs compared to traditional methods.

Suitability of financing and de-risking instruments



- **Financing Suitability**: Mining companies implementing in-situ leaching typically require moderate capital investments for wellfield infrastructure, fluid management, and environmental monitoring systems. Their relatively stable operations make commercial loans and project finance suitable financing options. Sustainability-linked loans can further incentivize improvements in environmental performance, such as reduced water consumption and minimized surface disturbance. Environmental and groundwater contamination risks require specialized liability and pollution insurance

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Metal recovery from seawater desalination brine

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Metal recovery from desalination brine converts concentrated brine into useful chemicals such as magnesium, lithium and other minerals

Archetype
Emerging

Financing target
Operators and mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	

- **Minimal land use change:** Mining of seawater desalination brine typically occurs in coastal areas where desalination plants are already established, leading to minimal additional land use change.
- **Resource efficiency:** Converts waste brine into useful chemicals which reduces reliance on traditional mining methods

Transformative impact

Technological / process maturity	Capital intensity	Scalability
		

- **Technological Readiness:** Pilot and commercial projects focus on lithium and magnesium extraction, with others in experimental stages
- **High investment:** Extracting minerals requires upfront investment in specialized equipment with varying mineral values

Conditions

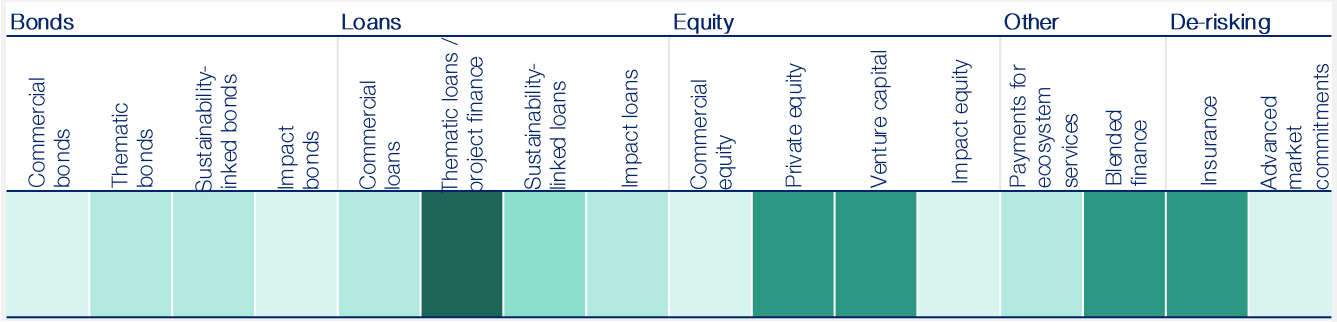
Further validation of energy use and ocean impacts

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue Potential:** This technique unlocks access to additional ore with minimal land use change, creating new revenue opportunities for mining companies, particularly as demand for chemicals and minerals grows.

Suitability of financing and de-risking instruments



- **Financing Suitability:** Desalination operators and mining companies typically require moderate to high capital investment for integrating extraction technologies and upgrading facilities. Sustainability-linked instruments can be linked with KPIs including brine re-use, mineral recovery efficiency. Blended finance instruments can be suitable to scale pilot newer applications.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

New methods for dust suppression in mining processes

New methods for dust suppression focus on reducing dust emissions while conserving water resources

Archetype
Operational

Financing target
Industrial operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced particulate emissions:** Effective dust suppression technologies significantly decreases airborne particulate matter, enhancing air quality for workers and surrounding communities.
- **Reduced pressure on local water resources:** New methods reduce consumption of water, particularly beneficial in water-scarce regions.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◔	●

- **Proven solutions:** Polymer sprays, foams and advanced dust-binding chemicals are commercially available and widely adopted.
- **Minimal infrastructure required:** Most new systems can be retrofitted to existing operations with limited additional outlay.

Conditions

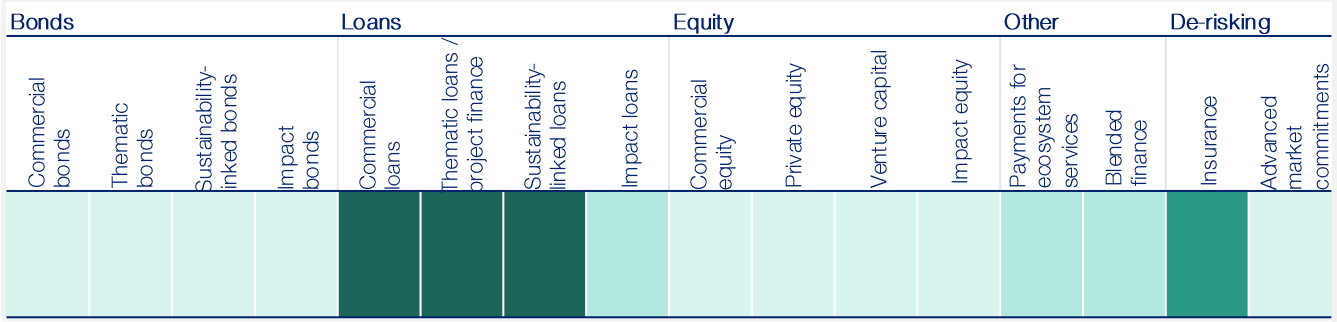
Use of non-toxic polymer sprays, foams and chemicals

Financial impact

Revenue increase	Opex reduction	Capex reduction
–	✓	–

- **Cost reduction potential:** Advanced systems use less water compared to traditional methods, yielding operational cost savings, particularly in water-scarce regions. They also require less frequent reapplication, and fewer health related expenses for workers.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Industrial operators adopting water-efficient dust suppression technologies typically require moderate capital investments for new methods, which are often more expensive up-front but deliver cost savings over time. Commercial loans and equipment financing are well suited to finance these retrofits. Additionally, sustainability-linked and thematic loans tied to water conservation and environmental performance could be structured.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Post-mining transition activities

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Post-mining transition refers to the comprehensive process of rehabilitating and restoring ecosystems following the closure of mining operations

Archetype
Scalable

Financing target
Operators and mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Pollution prevention**: Robust post-mining rehabilitation significantly reduces environmental pollution, mitigating soil contamination and preventing impacts on water quality
- **Land restoration:** Practices involve reforestation and land rehabilitation which can restore ecosystems and improve land use

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	●	◐

- **Significant capital requirements:** Implementing comprehensive rehabilitation plans often requires investment in restoration activities, infrastructure and monitoring systems
- **Legal obligations on mining companies** to facilitate these

Conditions

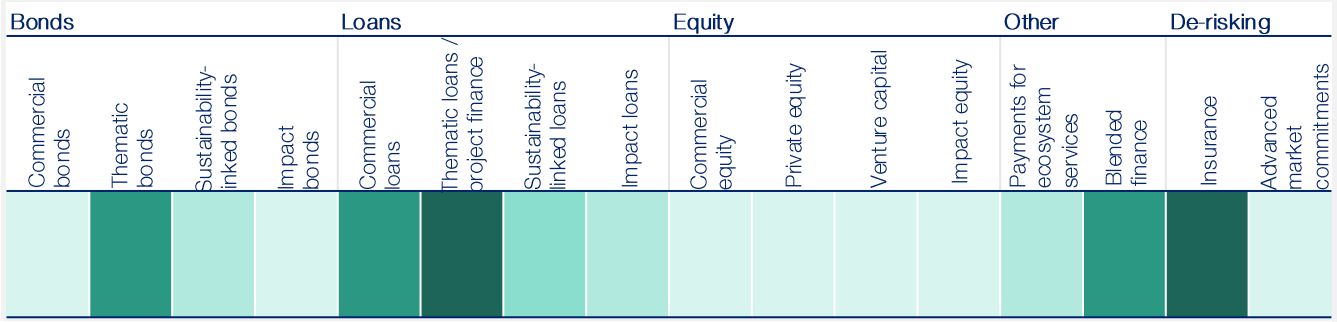
Mitigation hierarchy- avoid impacts rather than restore

Financial impact

Revenue increase	–	Opex reduction	✓	Capex reduction	–

- **Cost reduction:** Rehabilitation liabilities are typically recognized as provisions on mining company balance sheets. Comprehensive transition plans can reduce long-term environmental remediation costs and associated penalties for mining companies.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics**: Mining companies require significant capital investment - often for long time horizons. Commercial loans and project finance provide can be appropriate, and sustainability-linked loans can incorporate measurable ecosystem restoration and environmental compliance targets. Thematic bonds are also well suited for large-scale programmes. Blended finance can support remediation in socially or environmentally sensitive regions. Comprehensive environmental liability insurance is required to manage legacy risks (e.g., water contamination, land instability)

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Tailings re-mining for metal recovery

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | **Mining** | Technology | Transportation & Logistics | Waste Management | Cross-sectoral

Tailings re-mining for metal recovery extracts metals from mine waste by leveraging microbes or biotechnological approaches to recover valuable resources and reduce environmental impact

Archetype
Scalable

Financing target
Operators and mining companies

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Preservation of virgin resources:** Remining facilitates the recovery of metals from low-grade ores and existing waste streams, reducing pressure on primary resource extraction.
- **Bioremediation potential:** Microbial processes involved in remining the tailings can help remove pollutants from contaminated sites.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◐	◐

- **Emerging techniques:** Some processes have been operationalized (e.g. for gold and copper), with many still in development.
- **Significant upfront capital required:** Establishing operations requires investment in R&D and infrastructure

Conditions

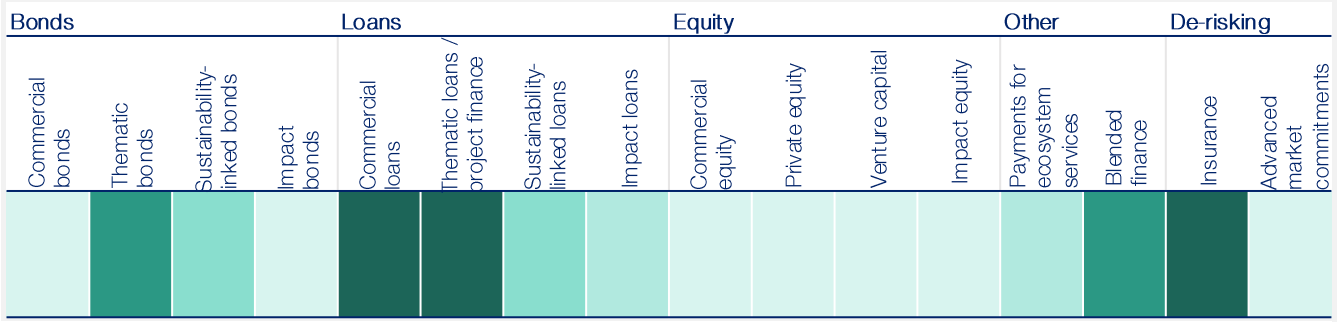
Mitigation hierarchy - minimize tailings in first instance

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential:** Recovering valuable metals from previously uneconomical ore bodies unlocks new revenue streams for mining companies in the face of rising demand from emerging sectors.
- **Ongoing costs** for microbial cultivation and waste management.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Mining companies require financing to invest and integrate remining operations into existing workflows, including commercial loans and project finance to expand operations and infrastructure. Sustainability-linked products can be suitable where environmental benefits such as resource recovery and reduced tailings hazards are measurable. Environmental liability and site remediation insurance important due to risks of leaching and groundwater contamination. Microbial processes introduce biological uncertainties, increasing the value of insuring operational failure risks.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Data centre water management

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | **Technology** | Transportation & Logistics | Waste Management | Cross-sectoral

Data centre water management focuses on minimizing water usage and maximizing efficiency in cooling systems, especially crucial given the increasing demand for water in data centre operations

Archetype
Scalable

Financing target
Data Centre Operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

– **Reduced stress on local water resources**: In water-scarce regions, efficient water management technologies in data centres reduces competition for limited freshwater resources among communities, agriculture and industry by consuming less water and energy

Transformative impact

Technological / process maturity	Capital intensity	Scalability

– **Ongoing innovations:** Mature water-efficient cooling technologies exist with ongoing innovation in reused and closed-loop systems

– **Global applicability and industry momentum:** Solutions relevant for new builds and retrofits- with growing regulatory and client demand.

Conditions

Shared focus with other KPIs including GHG emissions and land use

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

– **Sustainability credentials:** More sustainable data centres can benefit from faster permitting and potential premiums from clients

– **Reduced operating costs:** Lower water bills and energy savings from more efficient cooling systems.

Suitability of financing and de-risking instruments

Bonds				Loans				Equity				Other		De-risking	
Commercial bonds	Thematic bonds	Sustainability-linked bonds	Impact bonds	Commercial loans	Thematic loans / project finance	Sustainability-linked loans	Impact loans	Commercial equity	Private equity	Venture capital	Impact equity	Payments for ecosystem services	Blended finance	Insurance	Advanced market commitments

– **Financing suitability characteristics**: Data centre operators require financing to implement and upgrade water management systems within their existing infrastructure. Commercial loans and project finance can be used to fund equipment procurement and system integration. The industry is actively engaging with work to define broader sustainable impacts on water use which could support sustainability-linked instruments in the future. Water risk insurance and operational liability insurance are important due to potential risks associated with system failures, water quality issues, and regulatory non-compliance.

Legend: Negative impact | Positive impact | Low | High | Low suitability | High suitability

Re-use of heat from data centres

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | **Technology** | Transportation & Logistics | Waste Management | Cross-sectoral

Data centre heat re-use systems capture and re-purpose the significant amounts of waste heat and transfers the thermal energy for nearby buildings, district heat systems, or industrial processes

Archetype
Ecosystem

Financing target
Technology providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced water and energy system demand**: Significant reduction in resource use by displacing fossil-fuel based heating systems with a waste by-product and reducing need for water-based cooling.
- **Reduced pollution:** Reduces air pollution and emissions from lower fossil fuel heating demand

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	◐	◐

- **Emerging technology:** Integration of heat recovery with data centres is new, with improvements required in transportation efficiency.
- **Variable scalability:** High in urban contexts with dense data centre clusters and heating infrastructure, but less applicable in rural areas.

Conditions

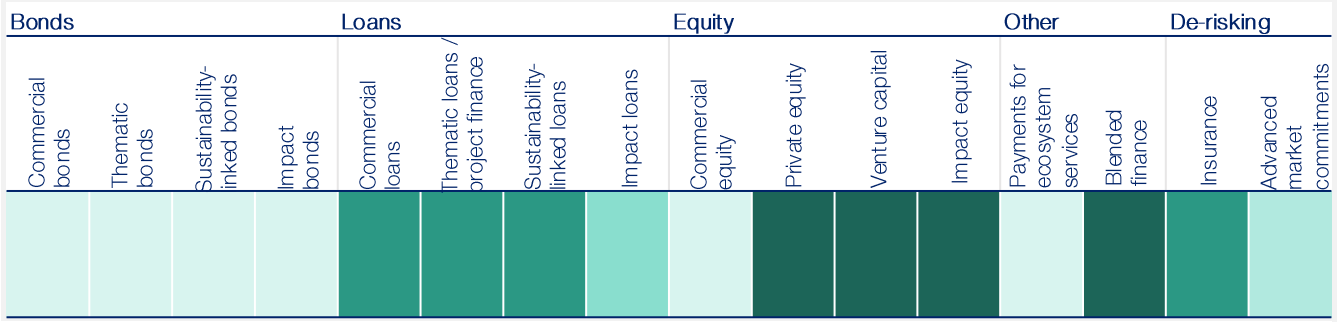
Parallel improvements on additional data centre nature impacts

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Significant market potential:** With data centre growth, technology providers generate revenue from sale or licensing of solutions
- **Investment requirements**: Significant investment required for prototyping, testing infrastructure and manufacturing capabilities.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics**: Technology providers require substantial early-stage investment to fund R&D, prototyping, and pilot projects. Venture capital and impact equity are primary sources for these innovation-driven, higher-risk investments. As technologies mature, commercial loans and project finance can support scale-up in manufacturing and deployment. Blended finance models can reduce risk and attracting private finance. Insurance products mitigate operational and technology risks. Enabling infrastructure required for heat to be transmitted through networks to end-users

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

Sustainable cold chains for perishable goods

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | **Transportation & Logistics** | Waste Management | Cross-sectoral

Sustainable cold-chains for perishable goods are energy-efficient, low-emission storage and transport systems that reduce food loss, cut refrigerant leakage, and improve temperature control across supply chains.

Archetype
Emerging

Financing target
Cold-chain operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced waste and spoilage:** Requires less land and water use to produce perishable goods for consumption
- **Lower emissions and pollution:** Alternative refrigerants, leak detection, and renewable power cuts emissions while reducing organic waste and methane generation.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◐	◐	●

- **Ongoing innovations:** Efficient compressors and smart monitoring are widely deployed. Industry innovating (e.g. in natural refrigerants)
- **Varied capital needs:** Modular units are relatively affordable but full networks and logistics hubs can require significant investment

Conditions

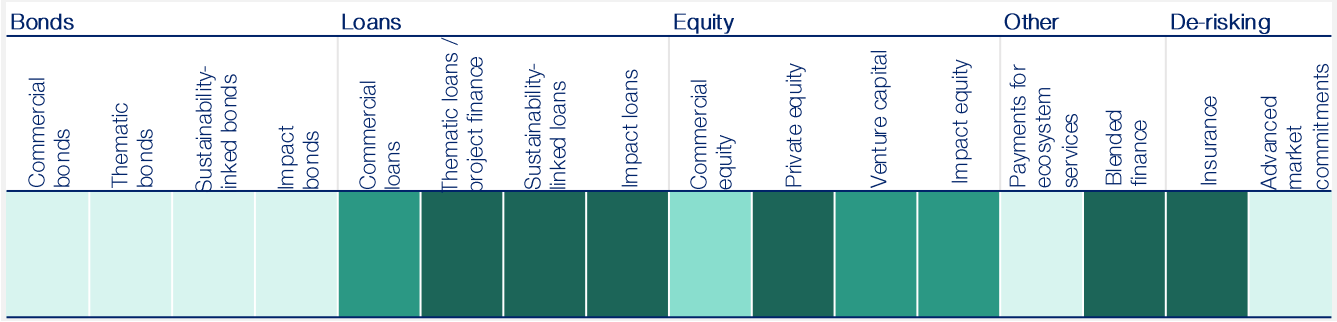
Low GWP refrigerants, leak detection, high energy efficient units and low carbon power

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Revenue potential:** Reduced spoilage and more effective operations improves asset use.
- **Investment premium for efficient systems:** Upfront investment is higher, but lower operating costs from energy and refrigerant efficiency

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Cold-chain operators can require financing for system installation or retrofits Commercial and sustainability-linked loans serve as foundational capital sources, aligning financial terms with achieved environmental metrics (e.g. energy efficiency). Thematic and project finance, often supported by DFIs, catalyse large-scale renewable and efficiency upgrades, especially in underserved markets. Private equity can support network growth, while venture and impact investors target last-mile innovations and solar-hybrid solutions.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▪ High suitability

Sewage nutrient recovery

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | **Waste Management** | Cross-sectoral

Sewage nutrient recovery technologies capture phosphorus and nitrogen from municipal or industrial wastewater (e.g., struvite crystallization, ammonia capture) and turn them into usable fertilizer inputs.

Archetype
Scalable

Financing target: Wastewater treatment operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduces nutrient pollution:** Captures phosphorus and nitrogen from wastewater before discharge, cutting eutrophication in water bodies
- **Reduces mining, synthetic fertiliser dependence:** Turns recovered nutrients into fertilizers, reducing dependence on mined phosphates and synthetic nitrogen, mitigating resource depletion, GHGs, and land

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◐	●

- **Proven and scalable retrofit solution:** Commercial struvite and brushite recovery systems offer modular, low-risk integration into existing wastewater plants. However, capital intensity varies with technology choice, plant scale, and feedwater characteristics.

Conditions

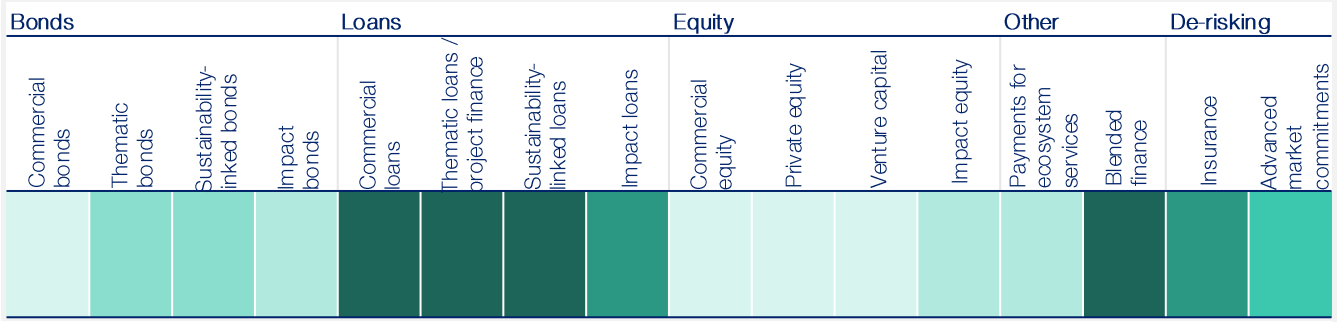
Recovered outputs match efficacy and quality

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Additional revenue streams:** Sustainable fertilizer alternatives can be sold by wastewater treatment operators.
- **Lower operating costs:** Use of nutrient recovery technologies can reduce wastewater discharge, chemical and sludge handling costs.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Wastewater treatment operators face moderate to substantial capital expenditure for retrofitting or installing nutrient capture and processing systems. Commercial loans and project finance provide foundational financing vehicles. Sustainability-linked loans offer additional value by tying financial terms to achievement of metrics such as phosphorus and nitrogen recovery rates or reductions in effluent nutrient loads. Insurance products addressing operational risks and liability exposures may be required.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ High suitability

AI-based leak detection technologies

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

AI-based leak detection technology allows companies and utilities to detect and address more complex water leaks in real-time, significantly reducing water consumption and expenses

Archetype
Emerging

Financing target
Technology providers

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits: Climate	Co-benefits: Social
●	●	●	●	●	✓	✓

- **Enhanced water management:** Real-time leak detection enables prompt repairs, optimizing water use, reducing consumption losses, and prevents larger-scale disruptions and damage.
- **Lowers pollution risk:** Reducing leaks can minimize risk of water contamination from soil pollutants.

Transformative impact

Technological/ process maturity	Capital intensity	Scalability
◔	◑	●

- **Emerging technologies:** AI-based leak detection has successful use-cases but widespread adoption is still in progress.
- **Wide applicability:** Systems can be applied across various sectors, including residential, commercial and municipal water systems.

Conditions

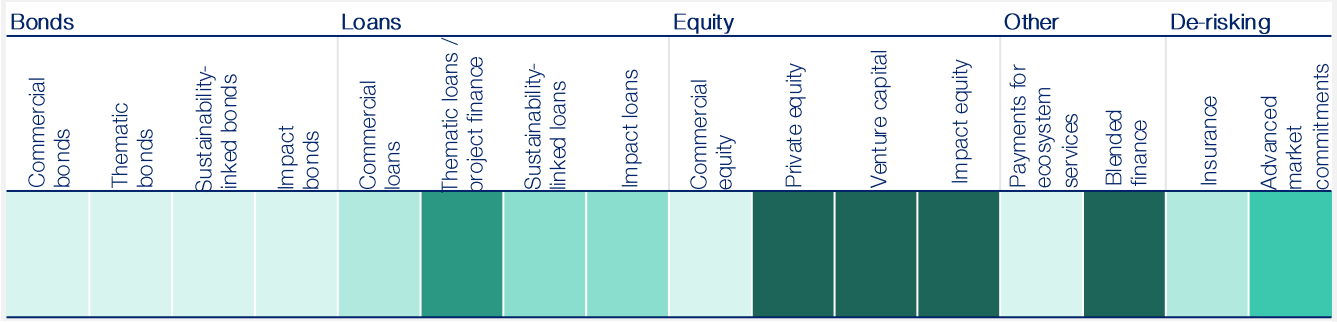
Safeguards for security and data vulnerabilities

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Revenue potential from diverse sources:** Building managers, utilities and municipalities are likely to be attracted by savings on water bills due to reduced water loss, with moderate upfront investments.
- **Moderate capital investments** for specialized sensors and software

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Technology providers developing industrial water management solutions, including emerging innovations such as AI-based leak detection, typically require substantial early-stage capital for &D, prototyping, and piloting. Venture capital and impact equity are the most suitable financing instruments, reflecting the higher technological risks and innovation intensity required to scale these opportunities. Blended finance structures combining public concessional capital with private investment can de-risk pioneering products and accelerate commercialization.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ▮▮▮▮ High suitability

Battery recycling

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

Battery recycling is the process of recovering valuable materials from end-of-life batteries, such as lithium-ion, cobalt, manganese, copper, and aluminium

Archetype
Ecosystem

Financing target
Innovators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Reduced resource eed:** Recycling batteries recovers valuable materials like lithium, cobalt, and nickel, reducing the demand for primary resource extraction and land use from mining activities.
- **Reduced pollution:** Recycling prevents hazardous materials (e.g. lead, mercury and cadmium) from entering landfills

Transformative impact

Technological / process maturity	Capital intensity	Scalability

- **Lack of end-of-life batteries** to recycle currently limits scalability
- **Technological improvements:** Some technologies (e.g. pyrometallurgy and hydrometallurgy) are commercially available but ongoing R&D is yielding new methods for recovering valuable metals.

Conditions

Limited behavioural "rebound effects" in consumption

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Nascent but rapidly growing market:** New revenue opportunities from recyclers and established battery and auto manufacturers
- **Significant capital investment** in specialized technologies and facilities is required

Suitability of financing and de-risking instruments

Bonds				Loans				Equity				Other		De-risking	
Commercial bonds	Thematic bonds	Sustainability-linked bonds	Impact bonds	Commercial loans	Thematic loans / project finance	Sustainability-linked loans	Impact loans	Commercial equity	Private equity	Venture capital	Impact equity	Payments for ecosystem services	Blended finance	Insurance	Advanced market commitments

- **Financing suitability characteristics:** High capital expenditure and moderate scalability makes it attractive for project finance, and sustainability-linked loans. Both equity and debt instruments suitable, depending on specific company size, but both well-established and early-stage companies are active in the area. Venture capital is also suitable for early-stage companies active across all value chain steps. Sustainability-linked and thematic instruments suitable as sustainability targets can be monitored (e.g. meeting thresholds on metals recovery rates).

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Industrial water management systems

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

Industrial water management systems are comprehensive water management approaches optimizing the use, treatment, and recycling of water

Archetype
Operational

Financing target
Industrial operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
●	●	▮●	●	▮●		✓

- **Reduced resource use:** Industrial water management systems optimizes water usage by recycling and reusing process water
- **Reduces demand on freshwater supplies:** Reduces amount of freshwater withdrawn from rivers, lakes and aquifers, contributing to preservation of aquatic habitats

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◔	●

- **Established technologies:** Proven methods, including advanced filtration, reverse osmosis, and membrane bioreactors, have demonstrated viability and effectiveness across many industrial sectors
- **Integrated solutions:** Many systems can be retrofitted.

Conditions

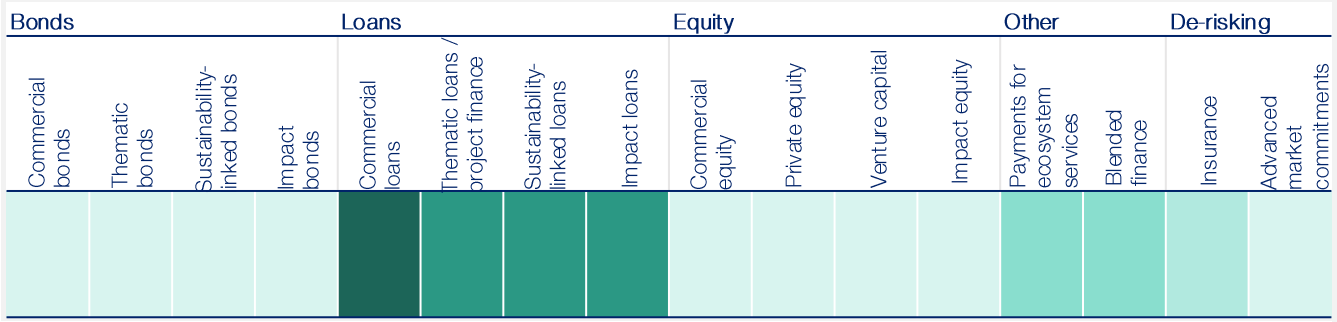
Use of low carbon energy sources

Financial impact

Revenue increase	Opex reduction	Capex reduction
–	✓	–

- **Reduced operating costs:** By reducing freshwater consumption, minimizing wastewater treatment costs and increasing regulatory compliance, Industrial water management systems can lead to significant cost savings for companies (e.g. productivity during drought)

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Industrial operators investing in water management systems typically require moderate financing for infrastructure upgrades and process integration. High technological maturity and low capital intensity makes this opportunity highly suitable for commercial instruments. Sustainability-linked loans can incentivize achievement of water efficiency and pollution reduction targets.

Legend: Negative impact ● ▮● Positive impact Low ◔ ● High Low suitability ▮▮▮▮ High suitability

Integrated heat systems

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

Integrated heat systems optimize the capture, distribution, and reuse of heat across sectors (e.g., industry, buildings, power), reducing energy waste and environmental impacts

Archetype
Operational

Financing target
Industrial operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Resource efficiency and reduced extraction**: By capturing and reusing waste heat, integrated heat systems significantly reduce fossil fuel consumption and electricity demand
- **Pollution and emissions control**: Lowers emissions by eliminating on-site fuel combustion and using efficient thermal energy transfer

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	◔	●

- **Proven technologies:** Use of district heating, industrial heat recovery and heat pumps is mature, particularly in urban and industrial clusters.
- **Leverages existing infrastructure:** Retrofitting existing systems and using shared pipelines or networks reduces upfront capital

Conditions

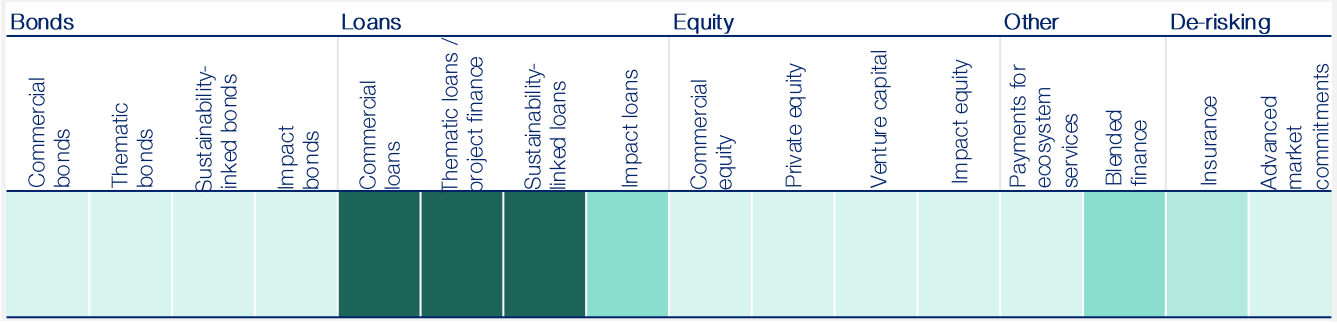
Matches efficacy and performance of conventional systems

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	✓	–

- **Long-term cost savings:** Diversifying heat sources locally helps buffer consumers from fossil fuel price volatility, contributing to energy cost stability.
- **Sale of excess heat** or participation in district heating markets.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Industrial and utility operators implementing integrated heat systems generally requires low to moderate capital investment. Commercial loans and project financing are suitable for corporates. Sustainability-linked loans could offer incentives tied to achieving energy efficiency and greenhouse gas reduction targets.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Wastewater treatment technology

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

Wastewater treatment technology enables industrial facilities to efficiently treat harsh wastewater on-site, recovering significant amounts of water and achieving significant cost savings while promoting sustainability

Archetype
Scalable

Financing target
Industrial operators

Nature impact

Land ecosystem	Ocean ecosystem	Freshwater use	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Enhanced water quality:** Effective wastewater treatment improves local water body quality, delivering significant benefits for freshwater ecosystems.
- **Lower pollutant discharge:** Effective treatment reduces contaminants, such as heavy metals and organic compounds.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
●	●	◑

- **Established core technologies:** Standard systems widely used, with innovations focused on advanced treatments and nutrient removal
- **Wide applicability:** Technologies can be applied across diverse industries, including mining, manufacturing, and food processing.

Conditions

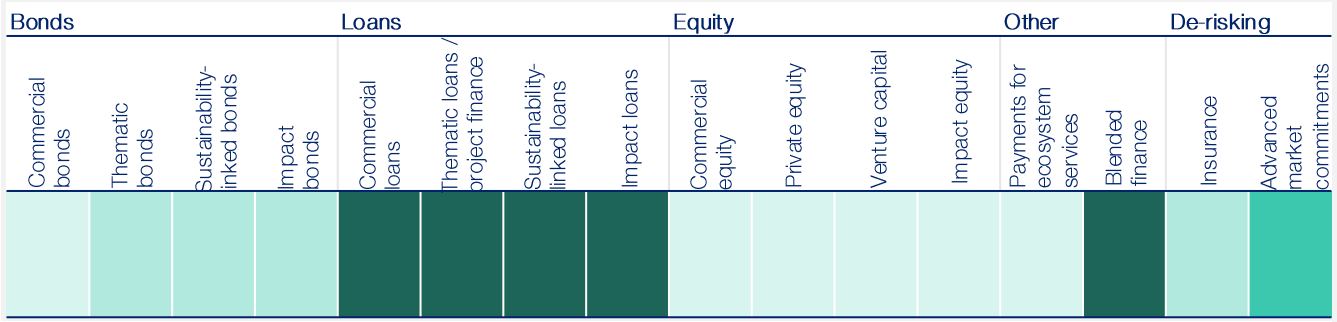
Matches treatment efficacy across contaminants

Financial impact

Revenue increase	Opex reduction	Capex reduction
–	✓	–

- **Long-term cost savings:** By treating wastewater on-site and recovering minerals, facilities can lower operational expenses associated with external treatment services. Although current adoption rates are low, there is substantial growth potential.

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Industrial operators adopting onsite treatment systems require significant funding given capital intensity. Commercial loans and project finance provide foundational financing vehicles. There is also a significant public interest in water conservation which makes it a good fit for sustainability-linked and thematic instruments. There is also a strong opportunity for blended finance to support adoption.

Legend: Negative impact — Positive impact | Low — High | Low suitability — High suitability

Electronic waste recycling

Agri, Food & Forestry | Automotive | Chemicals, Plastics & Pharma | Construction Materials | Energy | Fashion & Textiles | Leisure | Metals & Steel | Mining | Technology | Transportation & Logistics | Waste Management | **Cross-sectoral**

Electronic waste recycling is the process of properly managing and processing discarded electrical and electronic equipment to recover valuable materials, reduce environmental hazards, and promote resource efficiency

Archetype
Ecosystem

Financing target
Waste recycling companies

Nature impact

Land ecosystem	Freshwater ecosystem	Ocean ecosystem	Resource use	Pollution	Co-benefits	
					Climate	Social
					✓	✓

- **Prevention of leaching:** Effective recycling mitigates environmental contamination by properly managing hazardous substances like lead and mercury, preventing their release into landfills and ecosystems
- **Recovers critical materials:** Recycling recovers valuable metals and rare earth elements, reducing need for virgin resource extraction.

Transformative impact

Technological / process maturity	Capital intensity	Scalability
◐	●	◐

- **Limited standardization:** Technologies need to be optimized to better manage the diverse and complex nature of e-waste
- **Infrastructure challenges:** Regional variations in infrastructure for e-waste collection and processing currently limits scalability

Conditions

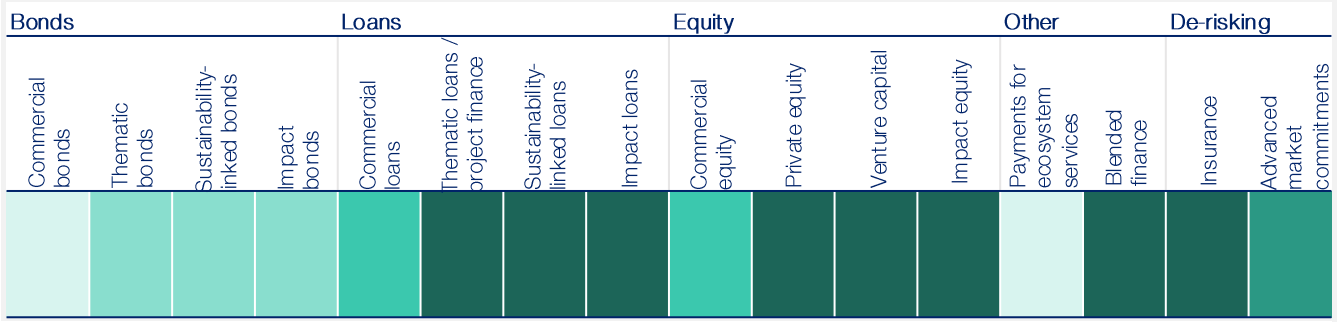
Safeguards to protect release of toxic materials

Financial impact

Revenue increase	Opex reduction	Capex reduction
✓	–	–

- **Diverse revenue streams:** Facilities generate income through sales of recovered materials and offering recycling services. This is supported by increasing regulations around e-waste management (e.g. Extended Producer Responsibility mandates).

Suitability of financing and de-risking instruments



- **Financing suitability characteristics:** Electronic waste recycling companies typically require moderate to high capital for collection, sorting, dismantling, and material recovery. Commercial loans and project financing suit established recyclers. Early-stage firms use venture capital and impact equity for pilot projects. Sustainability-linked loans and green bonds provide financing tied to increased material recovery and reduced mining impacts. Advanced market commitments can support investments in enabling infrastructure. Environmental and pollution liability insurance is essential given toxic exposure risks.

Legend: Negative impact ● Positive impact | Low ○ ● High | Low suitability ■ ■ ■ ■ High suitability