

Investing in Water Stewardship: Proposed Benefits & Monetization Methods

April 2023



Return on Sustainability Investment (ROSI™) Framework

Sustainability Drivers of Financial Performance & Competitive Advantage

Embed:

When companies embed sustainability risks and opportunities into their strategy and decision-making processes, they...



Improve:

- Risk Management
- Stakeholder Engagement
- Operational Efficiency
- Talent Management
- Supplier Relations
- Media Coverage
- Customer Loyalty
- Sales & Marketing
- Innovation

Drive:

- Revenue Growth
- Greater Profitability
- Higher Corporate Valuation

Deliver:

- Quantifiable Business Value & Positive Societal Impact



Center for Sustainable Business

By embedding ESG risk and opportunities within core business strategy, the return on sustainable investment can be quantified, delivering the possibility of both financial value and positive societal impact.

Overview of Food & Agriculture Framework

NYU Stern CSB is developing a ROSI™ framework for food & agriculture with publicly available monetization tools to help the industry understand where and how sustainability can unlock financial value.

Based on research, experience, and engagement with industry leaders, we have identified the following sustainability strategies* used by the industry to include in the framework:

Water stewardship

Soil health

Climate change

Chemical management

Biodiversity and ecosystem
conservation

Animal stewardship

Food waste management

Sustainable sourcing

Food safety and nutrition

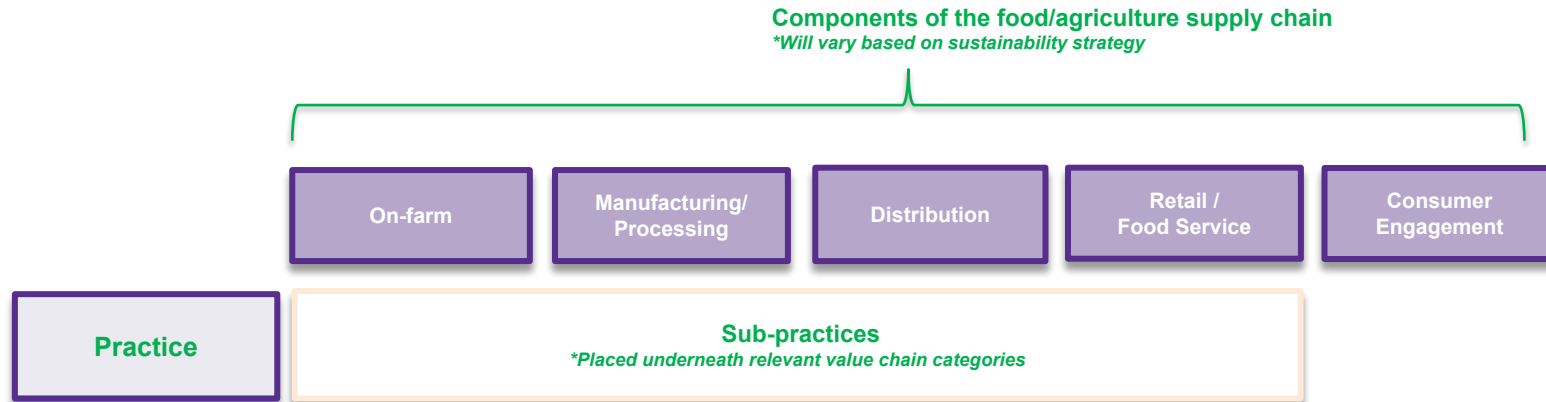
Sustainable packaging

Employee and supplier
well-being

Brand marketing and
communications

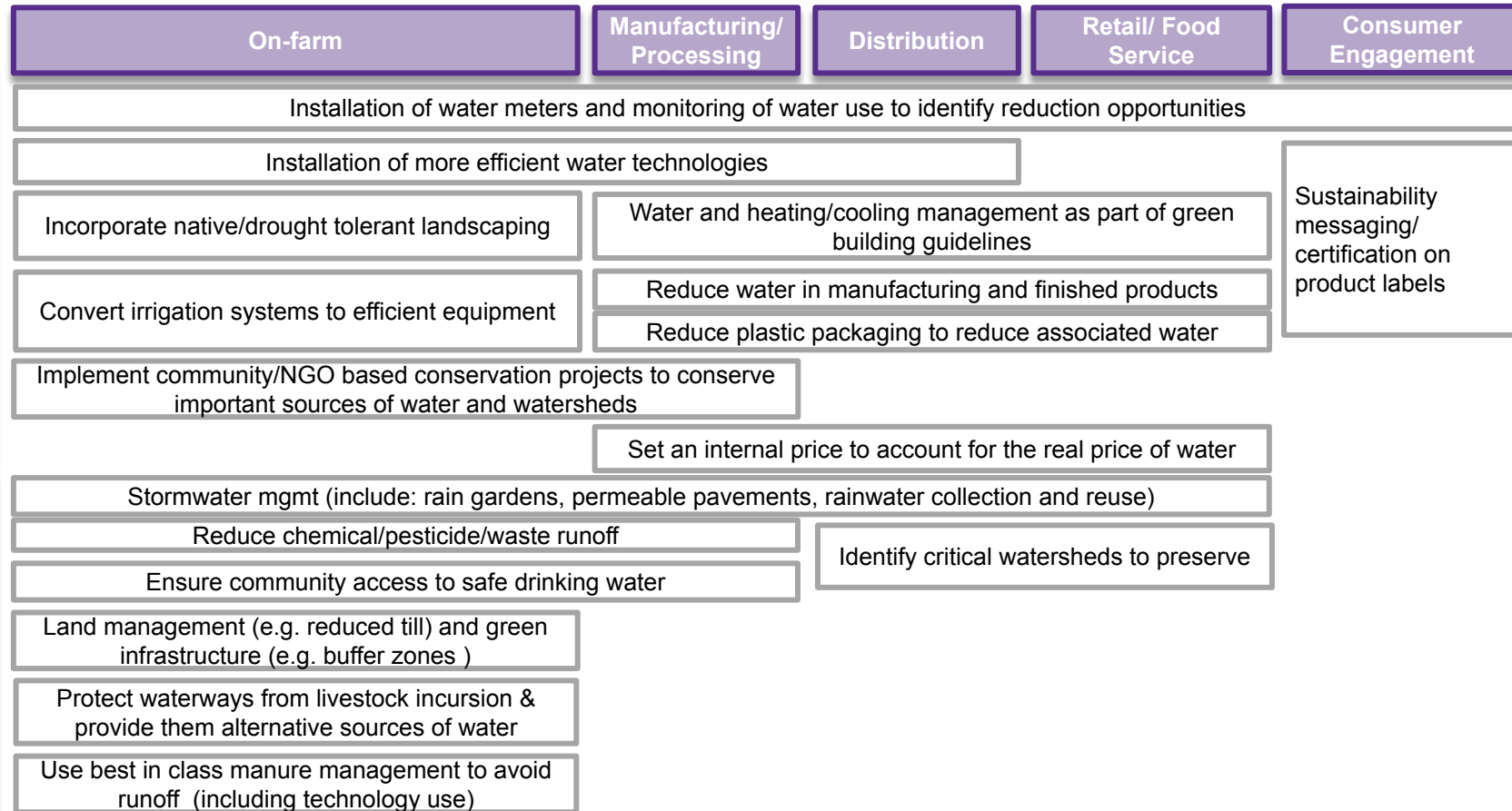
Identified Sustainability Practices and Sub-Practices Framework Layout

- Through our research, we identified key sustainability practices and sub-practices food and agriculture supply chains are implementing to achieve their sustainability strategies
- Each strategy includes sub-practices which are mapped under the relevant components of the food/agriculture supply chain, (if not relevant to a part of the supply chain, it is excluded)
- There are some benefits that are referenced across multiple strategies
- Compliance / enforcement practices are not explicitly listed in this framework but should be considered when implementing the twelve strategies
- Please see diagram below of the framework layout, which is illustrated for each strategy in the subsequent slides



Water Stewardship

Investing in Water Stewardship



Monetization Approach

Investing in Water Stewardship

Overview of Sustainability Strategy and Impact Categories

In the following slides, we will be focusing on benefits from the *Water Stewardship* sustainability strategy which are categorized based on the Impact Categories highlighted below

Sustainability Strategy Definition

Investing in Water Stewardship

Company implements water stewardship policies, reducing water use and runoff, and improving water quality across value chain

Impact Categories

Operational Efficiency (OE)

Benefits that...

Optimize corporate and supply chain efficiencies to lower cost and increase profits

Sales and Marketing (SM)

Increase volume of sales through brand and marketing policies

Customer Loyalty (CL)

Attract an increasing community of conscious buyers & consumers, while reducing retention costs

Risk Management (RM)

Encourage risk mitigation and resilience within the value chain

Investing in Water Stewardship

Overview of Sustainability Strategy and Relevant Impact Category, continued

In the following slides, we will be focusing on benefits from the *Water Stewardship* sustainability strategy which are categorized based on the Impact Categories highlighted below

<i>Impact Categories</i>	Benefits that...
Stakeholder Engagement (SE)	Improve goodwill among the broader stakeholder community (e.g. NGOs)
Talent Management (TM)	Attract and retain high-quality talent
Supplier Relations (SR)	Improve the relationships between the company and its suppliers
Media Coverage (MC)	Increase a company's media presence with the development of traditional and social media content
Innovation (IN)	Create new revenue streams using sustainable business models

Investing in Reduced Water Use, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric Number	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce Water Use	Invest in baselining and monitoring water usage through installation of water meters and monitoring of water use to identify reduction opportunities	WS-1	Reduced operating costs for using less water	OE	Calculate differential of water input costs before and after reduction in water usage (minus CapEx for equipment and/or associated costs for alternative waterless processes) to achieve avoided cost savings
		WS-2	Reduced negative yield impact due to drought or flooding	RM	Estimate the probability of a drought or flood event occurring, estimate the likely impact on crop yields, and multiply yield reductions by average prices to capture avoided loss in revenues
		WS-3	Reduced risk by preempting future water use regulations	RM	Estimate the probability of restrictions on water use occurring and the estimated impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs. Alternatively, estimate the cost of future fines for overuse vs. the cost of monitoring technology to reduce use
	Invest in reduced water usage solutions, through efficient water technologies including conversion of irrigation systems, water efficient manufacturing etc.	WS-1, WS-2, WS-3	Reduced operating costs for using less water	OE	Calculate differential of water input costs before and after reduction in water usage (minus CapEx for equipment and/or associated costs for alternative reduced water processes) to achieve avoided cost savings

Investing in Reduced Water Use, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce Water Use	Invest in Reduced Water Usage Solutions through: native/drought tolerant landscaping	WS-1, WS-2, WS-3	Reduced operating costs for using less water	OE	Calculate differential of water costs before and after reduction in water usage (minus associated costs for landscaping) to achieve avoided cost savings
	Invest in Reduced Water Usage Solutions, through: crops that are more tolerant to less water	WS-1, WS-2, WS-3	Reduced operating costs for using less water	OE, SM	Calculate differential of water input costs before and after crops that have been bred for drought tolerance minus technical assistance/difference in seed costs; calculate the avoided risk of yield loss in the future based on historical data on yield loss
	Implement community-and/or NGO-based conservation projects to conserve important sources of water and watersheds including water access and rights	WS-4	Improved community relations leading to fewer disputes and lower costs	SM,OE	Calculate the time and costs associated with community issues (including fines and/or potential fines, hours spent on related local city/county matters, etc). Estimate savings associated with engagement in conservation projects to capture cost efficiency
		WS-3	Reduced risk for preempting future water use regulations	SM	Estimate the probability of restrictions on water use occurring and the estimated impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs. Alternatively, estimate the cost of future fines for overuse vs. the cost of monitoring technology to reduce use.

Investing in Improve Water Quality, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Improve Water Quality	Create green infrastructure (e.g. riparian buffer zones, etc.) to protect water quality	WS-2	Reduced negative yield impact due to drought or flooding	SM	Estimate the probability of a drought or flood event occurring, estimate the likely impact on crop yields, and multiply yield reductions by average prices to capture avoided loss in revenues
		WS-5	Reduced soil erosion and/or less runoff related to fertilizer and pesticide use reducing risk of future water quality regulations and restrictions	SM	Estimate the probability of regulations on water quality (for instance, manure use restrictions) and impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs
		WS-6	Fewer field repairs required due to less soil erosion	OE	Calculate field repair cost savings by comparing current costs per acre with costs per acre before implementing storm management system and multiply by the number of acres to calculate the benefit - can use custom rate estimates to include savings related to machinery, labor and fuel as well

Investing in Improve Water Quality, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Improve Water Quality	Adopt soil health practices to reduce soil erosion and preserve water quality	SH-5	Conservation soil health practices lead to improved soil structure, reducing soil erosion and leads to reductions in nitrogen and phosphorus (N&P) runoff, minimizing water use and pollution	RM	Use a research-based estimate for the amount of N&P reduction per acre related to a specific soil health practice and apply to the impacted acres. Multiply the total amount of N&P reduced by the market value to parties seeking water quality offsets (e.g. municipalities) to quantify the benefit. Use estimated value, or actual value as determined through discussions
		SH-12	Farmers that install buffer zones trap sediment leading to reduced risk of liability related to chemical run-off	RM	Estimate the probability of potential fines and multiply by the estimated fine amount to calculate the avoided cost. Alternatively, estimate the probability of restrictions on water use occurring and the potential impact on yields. Multiply potential yield reduction due to restricted water use by average crop price to calculate benefits of avoided costs.

Investing in Improve Water Quality, ON FARM

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Categ.	Suggested Monetization Methods
Improve Water Quality	Reduce chemical/pesticide use via the 4Rs and IPM	WS-7	Less use of chemicals/pesticides can reduce cost of inputs and mitigate risk of potential liabilities	OE	Calculate fertilizer and pesticide cost savings by comparing current costs per acre with costs per acre prior to 4R and/or IPM and multiply by the number of acres to calculate the benefit. Subtract any negative yield impact, if there is any
		WS-8	Access to water credits from companies, municipalities or state government for showing improvements in water quality	IN	Note - this is for cases where companies or the municipality have developed programs to support payments for water quality. The payment is tied to improvements in water quality and can be calculated based on the value assigned to improvement by the municipality
	Community access to safe drinking water	WS-4	Improved community relations leading to fewer disputes and lower costs	SM,OE	Calculate the time and costs associated with community issues (including fines and/or potential fines, hours spent on related local city/county matters, etc.) Estimate savings associated with engagement in conservation projects to capture cost efficiency
	Protect waterways from livestock incursion and provide alt sources of water	WS-5	Reduced soil erosion and/or less runoff related to fertilizer and pesticide use reducing risk of future water quality regulations and restrictions	SM	Estimate the probability of regulations on water quality (for instance, manure use restrictions) and impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs
	Ensure best in class manure mgmt to avoid run off into water bodies (incl tech applied)	WS-5	Reduced soil erosion and/or less runoff related to fertilizer and pesticide use reducing risk of future water quality regulations and restrictions	SM	Estimate the probability of regulations on water quality (e.g. manure use restrictions) and impact on yields. Multiply potential yield reduction by average price to calculate benefits of avoided costs

Investing in Reduce Water Use, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce Water Use	Invest in reduced water usage solutions, for example through: <ul style="list-style-type: none"> - Installation of more efficient water technologies - Water management and cooling/heating optimization as part of green building guidelines - Incorporating low flow urinals and high efficiency faucets in retail locations within company operations 	WS-8	Reduced operating costs for using less water	OE	Calculate differential of water input costs before and after investment in water efficient technologies (minus CapEx for equipment and/or associated costs for alternative waterless processes) to achieve cost savings
		WS-9	Reduced operating costs for wastewater management based on reduction in water use	OE	Calculate differential of waste management costs before and after reduction in water usage to achieve avoided cost savings
		WS-10	Reduced impact of supply disruptions due to water scarcity	SM	Calculate estimated reduction in # of supply chain disruptions likely to occur due to water shortage after the installation of water efficient technologies. Multiply the reduction in incidents by the estimated cost per disruption (or loss of sales per disruption or increase in costs) to calculate the benefits. *Price of water estimated to increase as overconsumption and deterioration of water resources occurs over time
		WS-11	Reduced risk for preempting future water usage regulations	SM	Estimate the probability of restrictions on water use occurring and the estimated impact on production costs and sales to calculate benefits of avoided costs

Investing in Reduce Water Use, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce Water Use	Implement community-and/or NGO-based conservation projects to conserve important sources of water and watersheds including water access and rights. This can include certification where offered.	WS-12	Risk mitigation to include avoided legal, management, and/or communications costs related to policymakers and their concerned constituents which may engage in efforts to oppose / disrupt company operations	SM	Calculate the legal or management time costs associated with legal action against the company using historical data from past lawsuits, and/or publicly available data on settlement costs. If no historical data exists, determine a range of potential costs via the legal and communications teams
		WS-10	Reduced impact of supply disruptions due to water scarcity	SM	Calculate estimated reduction in # of supply chain disruptions likely to occur due to water shortage after the installation of water efficient technologies. Multiply the reduction in incidents by the estimated cost per disruption (or loss of sales per disruption or increase in costs) to calculate the benefits The price of water estimated to increase due to overconsumption and deterioration of water resources
		WS-11	Reduced risk for preempting future water usage regulations	SM	Estimate the probability of restrictions on water use occurring and the estimated impact on production costs and sales to calculate benefits of avoided costs

Investing in Reduced Water Use, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Reduce Water Use	Identify critical watersheds and take action to preserve them	WS-10	Reduced impact of supply disruptions due to water scarcity	SM	Calculate the estimated reduction in # of supply chain disruptions likely to occur due to water shortages after the installation of water efficient technologies. Multiply the reduction in incidents by the estimated cost per disruption (or loss of sales per disruption or increase in costs) to calculate the benefits. Note price of water estimated to increase due to overconsumption and deterioration of water resources
		WS-11	Reduced risk for preempting future water usage regulations	SM	Estimate probability of restrictions on water use occurring and the estimated impact on production costs and sales to calculate benefits of avoided costs
	Account for the real price of water (i.e. set internal price)	WS-14	Raised internal awareness and provides incentive to minimize water use (i.e. incentives to reduce water among business units are aligned, lead to administrative cost savings)	OE	Assign an internal price for water per unit used by incorporating water risk factors. Incorporate this “shadow” cost into decision making by determining the number of units that are added or saved in new product design or other changes, and multiplying by the internal price that has been agreed to.
	Sustainability messaging/certifications on product labels enhances consumer relations	MC - 7	Increase in sales based on consumer engagement from marketing campaigns	SM	Calculate incremental profit attributed to promoting sustainability by comparing sales revenue before and after launch of a campaign
		MC - 8	Lower customer acquisition costs (CAC)	OE	Calculate the cost differential between CAC before and after implementation of the promotion OR calculate estimated # of customers who purchase company products for the first time (using a consumer engagement campaign) multiplied by CAC per customer to achieve avoided costs

Investing in Improve Water Quality, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Improve Water Quality	Investment in stormwater management systems (e.g. using rain gardens, permeable pavements, rainwater collection and reuse)	WS-15	Reduced risk for future water quality regulations	SM	Estimate the probability of regulations related to water quality occurring (taxes, loss of or limitations on water permits) and estimated associated costs to calculate benefits of avoided costs
	Reduce chemical/pesticide use and waste generation	WS-4	Reduced impact of supply disruptions due to water scarcity	SM	Estimate the probability of regulations related to water quality occurring (taxes, loss of or limitations on water permits) and estimated associated costs to calculate benefits of avoided costs
		WS-16	Reduced operating costs for using less chemical inputs	OE	Calculate differential of chemical input and waste management costs before and after process changes (minus CapEx for equipment and/or associated costs for BAU) to achieve cost savings

Investing in Improve Water Quality, COMPANIES

Overview of Benefits and Monetization Methods

Practice	Sub-Practice	Metric #	Proposed Benefits	Impact Category	Suggested Monetization Methods
Improve Water Quality	Improve community access to safe drinking water	WS-10	Reduced impact of supply disruptions due to water scarcity	SM	Calculate estimated reduction in # of supply chain disruptions likely to occur due to water shortage after the installation of water efficient technologies. Multiply the reduction in incidents by the estimated cost per disruption (or loss of sales per disruption or increase in costs) to calculate the benefits. Note that the price of water is estimated to increase due to overconsumption and deterioration of water resources
		WS-11	Reduced risk for preempting future water usage regulations	SM	Estimate probability of restrictions on water use occurring and the estimated impact on production costs and sales to calculate benefits of avoided costs
		WS-12	Risk mitigation to include avoided legal, management, and/or communications costs related to policymakers and their concerned constituents which may engage in efforts to oppose / disrupt company operations	SM	Calculate the legal or management time costs associated with legal action against the company using historical data from past lawsuits and/or publicly available data on settlement costs. If no historical data exists, determine a range of potential costs via legal and communications teams



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