



Maryland
Department of
the Environment

Commission for the Innovation and Advancement of Carbon Markets and Sustainable Tree Plantings

May 27, 2022
Regular Meeting



Meeting Agenda

- **2:00-2:10pm** - Welcome and updates
- **2:10-2:25pm** - Quantified Ventures
- **2:25-2:35pm** - Open discussion and questions
- **2:35-2:55pm** - Maryland WQFA
- **3:55-3:20pm** - Open discussion and questions
- **3:20-3:30pm** - Public comment period



Draft Work Plan and Timeline

(Meetings on Fridays – 2-3:30pm)


- **May 6**
 - MDE: Intro to Carbon Markets and the role of the State
- **May 27**
 - MDE and Invited Speakers:
 - Conservation Finance Act
 - Clean Water Commerce Act
 - Water Quality Revolving Loan Fund
 - Environmental Impact Bonds
- **June 17**
 - MDOT:
 - Tree mitigation for transportation projects
- **July 8**
 - Progress reports from all agencies
 - Key challenges/opportunities: long-term tree maintenance
- **July 29**
 - Progress reports from all agencies
 - Key challenges/opportunities: nursery stock or other logistics
- **August 19**
 - Progress reports from all agencies
 - Key challenges/opportunities: federal policies and leverage

September 1 - Finish Draft Report



Overview and Case Studies of Environmental Finance

May 27, 2022



**Quantified Ventures advises,
develops, and structures creative
financing solutions that drive
transformational health, social,
and environmental impact.**

Certified

Corporation

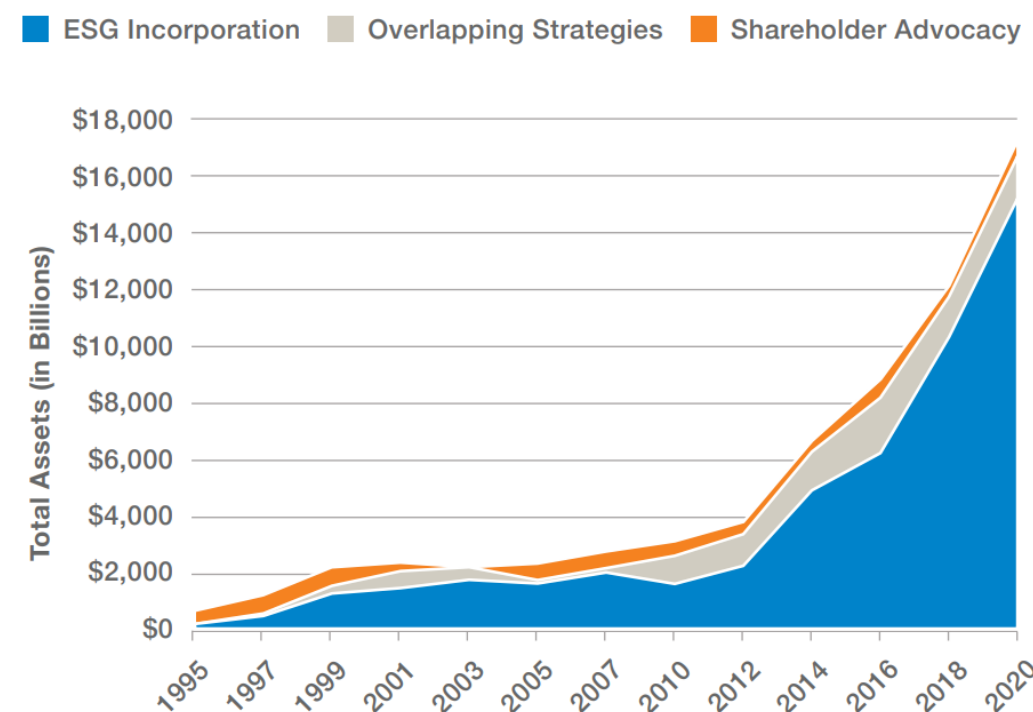
Overview of ESG-oriented investing

What is ESG-oriented investing?:

A rapidly growing segment of the investment sector that is concerned with the ESG impacts of their investments:

- Environmental: How does it improve the environment?
- Social: How does it improve human lives?
- Governance: How does it support best practices in the private or public sector?

Sustainable Investing in the United States 1995–2020

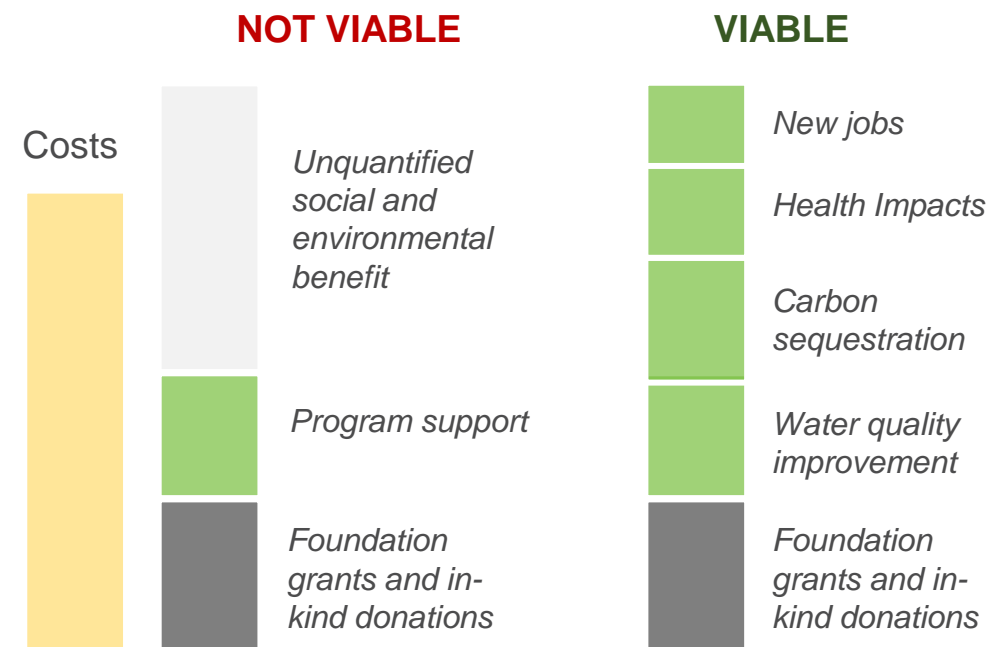


Source: US SIF 2020 Trends Report

Our approach to developing and scaling investments

- QV’s expertise in project development and transaction structuring hinges on two key elements:
 - What are the **benefits** associated with the project?
 - What **financing structure** is best suited for crowding in partners and payors based on those benefits?

Stacking Capital + Payors



Financing Structures to Deliver ROI +Impact

Financial Capital Markets <i>Financial: Market Rate</i>	Equity	Debt	
Impact Investing Markets <i>Financial + Social</i>	ESG Screening	Mission-Related Investment	Program-Related Investment
Philanthropy & Giving Markets <i>Social: Below Market Rate</i>	Credit Enhancement	Reimbursable Grants / Loss Reserve	Grants / Philanthropy

QV Case Study: Environmental Impact Bonds: ESG-labeled bonds that open access for government issuers to impact-oriented investors



What it is

- **ESG Label** earned by a **public financing** that funds projects with environmental and social impacts,
- Issuer commits to **predicting, evaluating, and disclosing** achieved project outcomes
 - Increases buyer demand, builds stakeholder + public trust, and broadcasts responsible innovation
- QV provides **technical consulting services** to generate customized metrics, evaluation protocols, quantitative analyses, and technical memoranda through **streamlined processes**
- Some EIBs include pay-for-performance features that share performance risk with investors

How it works

- Capital source(s): Traditional bond investors; ESG-oriented bond investors; impact investors
- Capital recipient(s): Public entities
- Capital uses: Public projects (green infrastructure, clean transportation, affordable housing, water infrastructure upgrades)
- Implementation: Public sector (e.g. public works or planning divisions)
- QV Role: Consultant, technical advisor

Results

- **\$225 MM+ in capital** closed or in structuring as EIBs around the country (Washington, DC; Atlanta, GA; Hampton, VA; Buffalo, NY; Memphis, TN; New Orleans, LA; Boise, ID)
- Disclosed outcome metrics include: **stormwater, impervious area, aquifer recharge, water quality, economic equality, and community health improvements**
- **Substantially increases investor demand:** typically, impact-oriented investor bids alone enough to fund the project and help drive down borrowing costs
- **Local, national, and industry news coverage** (NYT, Bloomberg, Bond Buyer, Barrons)

QV Case Study: Soil & Water Outcomes Fund: Impact Fund that unites joint interests of public and private actors through transactions



What it is

- **Private-sector revolving fund** to provide incentive payments to private agricultural landowners that implement conservation practices
- Outcomes of practices are quantified and verified using USDA-approved models, soil and water sampling, and remote sensing
- Verified outcomes are sold to outcomes payors in both public and private sectors
- Outcomes revenue repays investors and recapitalizes the Fund for next season

How it works

- Capital source(s): Federal and state (funding + loan programs), private investment, philanthropy
- Capital recipient(s): Soil & Water Outcomes Fund
- Capital uses: Payments to cover farmer costs of conservation practices + incentive fee
- Implementation: QV (operations), farmer (practices); third-party validator (verification)
- QV Role: Fund manager, financial analysis + capital raise

Results

- Scaled from 2020 pilot of 10,000 acres in two watersheds to 120,000 acres in 10 states in 2021
- Outcomes generated in 2021:
 - 111,500 tons of CO₂e sequestered
 - 1,900,000 pounds of nitrogen pollution avoided
 - 112,400 pounds of phosphorus pollution avoided
- Outcomes customers include municipalities, multinational corporations, federal and state agencies, and environmental nonprofits
- Recognized with a 2022 EPA PISCES award for innovation in SRF utilization

QV Case Study: Post Mining Reforestation: Project Financing that leverages innovative private-sector carbon transactions to match public funds



What it is

- Project team of landowners, implementation partners, and local nonprofits to address unfulfilled restoration needs of post-mine lands that restored original land contours (1977 federal regulations) without restoring ecological value
- Reforestation practices address compacted soils and forest regeneration pathways that would not be accomplished without costly interventions
- Utilize innovative carbon markets (ex ante, or forecasted) to raise private financing that closes the gap between available public funding and total project needs

How it works

- Capital source(s): Federal funding, private investment
- Capital recipient(s): QV
- Capital uses: Site preparation, tree planting, continuous management, carbon enrollment
- Implementation: QV (lead), private + nonprofit reforestation specialists, carbon credit developers
- QV Role: Project developer, financial analysis + capital raise

Results

- Initial capital for 1,130 acres of reforestation with a goal of 20,000 acres in Phase II
- Supplements \$2.2M NRCS grant for reforestation w/ private investment to enable financial viability of reforestation on abandoned mine lands
- Project financing model blends public funding with private investment that grows with the wider carbon markets
- Reforestation enables significant habitat restored for migratory bird species like Golden Wing Warbler, a threatened species



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MWQFA Update on Forestry Funding Programs

Maryland Trees Commission

May 27, 2022

State Revolving Fund (SRF) Overview

Established by Congress in 1987, the Clean Water State Revolving Fund (CWSRF) provides low-interest loans and grants through a combination of state and federal funds. The Drinking Water State Revolving Fund (DWSRF) was created by Congress in 1996 under the same state and federal partnership model. These funds are managed by MDE's Maryland Water Quality Financing Administration (MWQFA).

The CWSRF provides funding for the development and implementation of watershed financing partnerships, where local governments, large non-profits, and other organizations with financial capacity support small non-profits and others with technical expertise and existing landowner and stakeholder relationships.

The DWSRF provides loans, grants, and technical assistance for drinking water infrastructure including source water protection in source watersheds and aquifers. The DWSRF funds capacity development for organizations that protect drinking water supplies and helps protect source watersheds.

Who is eligible to apply: local governments, water and sewer authorities, private entities that provide public services, non-profits such as watershed and neighborhood associations, and Land Trust Alliance accredited land trusts.



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Maryland State Grants and Policy Overview

The Maryland Bay Restoration Fund (BRF) was established in 2004 to help the State meet nutrient reduction targets established by the Chesapeake Bay Program and TMDL, which are defined in Maryland Chesapeake Bay Watershed Implementation Plan (WIP).

The WIP includes targets for all water quality management sectors including wastewater, stormwater, reforestation and riparian buffer establishment, wetland restoration and enhancement, and implementation of agricultural best management practices.

The BRF can provide grants to communities with regulated stormwater discharges (MS4's) to implement green infrastructure that reduces volume of stormwater runoff and improves water quality of these discharges. This work includes tree plantings.

The Maryland Water Supply Grant can provide funds to water utilities to help protect source water, thus reducing public health risks posed by the formation of disinfection byproducts and reducing the costs of water treatment.

The Clean Water Commerce Act uses \$20M a year in BRF funds for purchase of nutrient reduction outcomes from wastewater and watershed projects.



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MWQFA Forestry Loan and Grant Programs

- Water Quality Revolving Loan Fund (Clean Water State Revolving Fund)
- Drinking Water Revolving Loan Fund (Drinking Water State Revolving Fund)
- Bay Restoration Fund / Water Supply Grant

Clean Water Funding	Additional Subsidy/Grant	FY22
CWSRF Base (\$7.867M GO + \$38.435 EPA + \$130.701M Repayments)	50% per project for a DAC, up to \$1.5M	\$176,823,133
CWSRF Supplemental (Bipartisan Infrastructure Law)	Up to 49% of appropriation	\$43,401,000
CWSRF Emerging Contaminants (Any CEC's including in stormwater)	100% of appropriation	\$2,278,000
Bay Restoration Fund (Minor WWTP's receive priority per statute)	Up to 50% per MS4 stormwater project	\$75,000,000
Drinking Water Funding		Clean Water Total = \$297.5M
DWSRF Base (\$4.034M GO + \$14.724M EPA + \$39.09M Repayments)	50% per project for a DAC, up to \$1.5M	\$57,848,539
DWSRF Supplemental (Bipartisan Infrastructure Law)	Up to 49% of appropriation	\$32,892,000
DWSRF Emerging Contaminants (PFAS priority, can address any CEC's)	100% of appropriation	\$13,813,000
Water Supply Grant (Targeted to small systems in DAC's under order)	Up to 87.5% of total costs, up to \$1.5M	\$2,556,284
		Drinking Water Total = \$107.1M



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Maryland Conservation Finance Act of 2022

- Signed into law April 21, 2022. Makes Maryland the first state in the nation with a policy of considering watersheds and natural infrastructure as capital assets.
- Defines Blue and Green Infrastructure: Oyster Reefs, Mussels, Aquatic Vegetation, Shorelines, Stormwater Projects, Tree Plantings, Community Parks
- Establishes that blue and green infrastructure are eligible for same forms of assistance as traditional water, sewer, and stormwater infrastructure
- Establishes Green and Blue Infrastructure Policy Advisory Commission and also Task Force on State and Local Government Accounting for Natural Capital
- Defines environmental outcomes for foundation of markets to facilitate added private and institutional investment in Maryland's communities and the Chesapeake Bay, including its 64,000 square mile watershed



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Accounting Practices for Natural Infrastructure

- The Governmental Accounting Standards Board (GASB) defines a regulatory asset as decentralized infrastructure not owned by a utility but still affecting compliance status of the utility. These assets could be green infrastructure on private land within a utility's jurisdiction that contributes to MS4 compliance or trees planted in a drinking water utility's source watershed, and should be included in any CIP.
- Defines environmental outcomes for foundation of sound trading markets to ensure that state, private, and non-profit investment is measured and productive.
- Task Force on State and Local Government Accounting for Natural Capital: MDE, MDA, MDNR, DBM, State Treasurer, Chesapeake Bay Commission, University of Maryland Environmental Finance Center, County Governments, City Governments, CPA's, CFO's of water utilities, sustainability experts, and natural resources non-profits will all be represented on the Task Force.
- MDE's Carbon and Nutrients Workgroup is working to integrate carbon, nutrient, and sediment accounting systems to track tree planting, carbon sequestration, and water quality progress, and coordinate disadvantaged community standards internally and update funding prioritization systems.



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Urban Tree Planting and Greening of Cities



Goal: Facilitate investment in neighborhoods to create park space, mitigate the urban heat island effect, clean up trash, protect urban ecosystems, and improve overall quality of life



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Riparian Buffer Restoration and Protection



Goal: Protect riparian buffer and forests to improve drinking water quality, provide habitat, prevent forest fire, and manage trash and debris entering rivers and the Bay



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Trees for Trout Partnership – MDE/MDNR/USFS



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Watershed-Scale Management and Restoration



Goal: Active management of forests for ecosystem service benefits, through practices such as prescribed burns in pine forests and removal of dead wood and invasive species in hardwood forests



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Watershed-Scale Management and Restoration

Not just tree plantings, for active management of forest ecosystems that promotes absorption of runoff or protects base flows in streams is eligible for funding, forests create additionality with increased carbon sequestration and wildlife habitat resulting from forest management.



Not just trees and forests, native grasslands also absorb runoff and sequester carbon and provide habitat. Water quality funds can restore natural ecosystems and promote ecosystem service benefits.



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Maryland Forest Finance Implementation Tool

THE MARYLAND FOREST FINANCING IMPLEMENTATION TOOL

WELCOME TO MDE'S FOREST RESTORATION CALCULATOR

PROJECT PLANNING TOOL

ESTIMATED PROJECT COSTS

ESTIMATED MDE CREDIT LOAN REPAYMENT

Questions for the audience:

Who has used the FFIT so far?

Who would like to schedule a time to receive detailed guidance from MDE?



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Proprietary MDE/EPA calculator to provide prospective applicants estimates of cost per acre per pound of pollutant reduced (TN, TP, and TSS), Impervious Acre (EIA) cost per acre, and cost per MS4 Credit

Innovative Finance Mechanisms – Pay for Performance



- The Conservation Finance Act defines Environment Outcome as “A commodity that is modeled or directly measured as a single, quantifiable, and certified unit of improvement to the environment, including a nutrient or carbon benefit.”
- The Act also authorizes MWIFA funds to “serve as a guarantee for long-term pay-for-success contracts for the purchase of environmental outcomes that provide water quality benefits” adding pay for performance contracting to the State Finance and Procurement Article; and

“support loans and loan guarantees for the protection of source water areas or the Chesapeake and Atlantic Coastal Bays watersheds through property acquisitions or easements to control nonpoint source pollution.”



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Questions?



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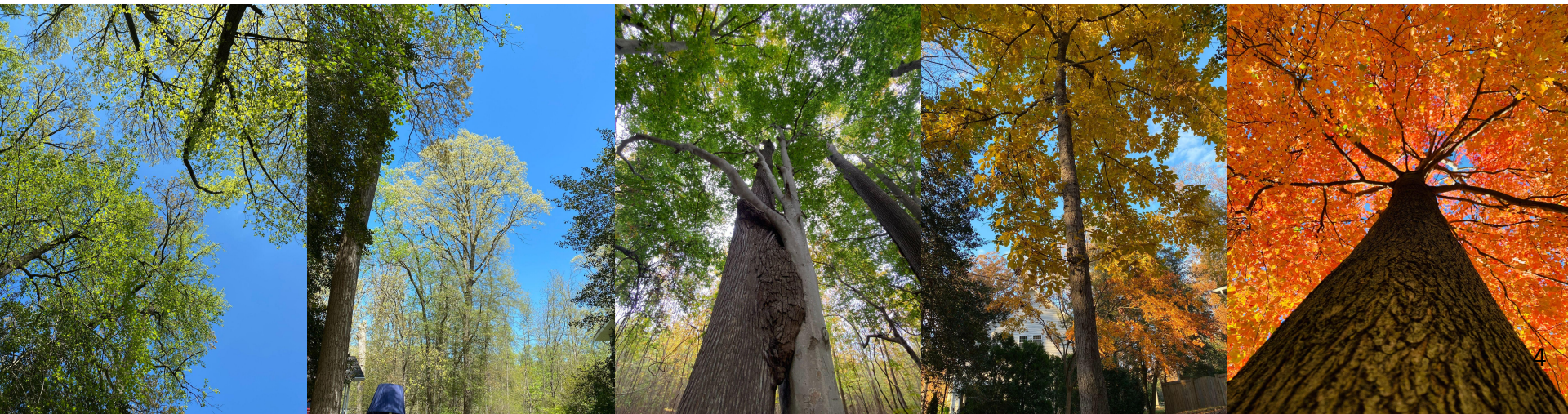
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Questions and Discussion

Commission Members and Implementation Leads





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Public Comment Period

Please add name and affiliation in the chat box and we will take comments in the order received.



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