From Waste to Value: Biochar for Carbon Removal Credits and Soil Health Enhancement

Presented by:

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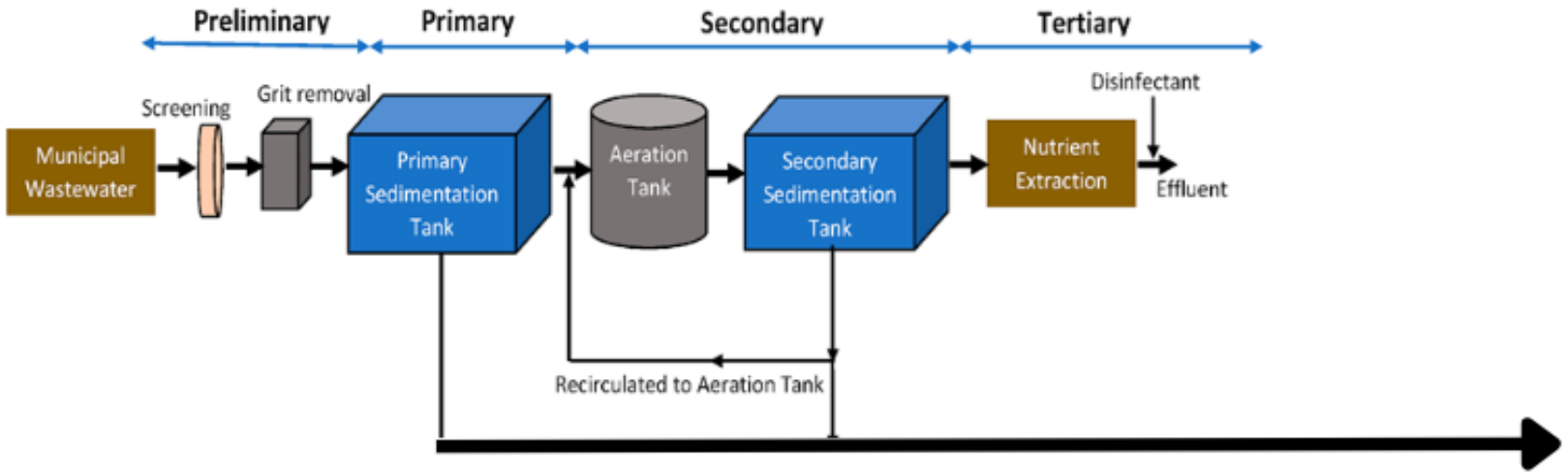
PROBLEM

Sewage Sludge Disposal Concerns in the USA



Final Product: Sludge Cake

- Sludge Production: U.S. generates over 13 millions dry tons of sludge per year.
- Disposal Methods: incineration, landfilling, land spreading, and water discharge
- Contains: heavy metals, pathogens, offensive odor, forever chemicals like PFAS (Per- and Polyfluoroalkyl Substances).
- Risks: soil and water contamination, greenhouse gas emissions, public health

PROBLEM

Invasive Alien Species – A Growing Ecological Threat in South Africa

- Invasive trees like Acacia, Prosopis, and Lantana camara cover over 100,000 km² — more than 8% of South Africa's land.
- These species spread aggressively, outcompeting native plants.

- **Why it is a Concern**:
- Consume massive amounts of water, contributing to water scarcity in already drought-prone regions
- Reduce biodiversity, disrupt natural habitats, and degrade soil quality.
- When removed, they create large volumes of biomass waste that is often burned or dumped

SOLUTION

We convert agricultural wastes to biochar and generate high-quality carbon removal credits, using continuous pyrolysis technology

Our Solution

Biomass Waste

- Sewage Sludge
- Invasive Alien Plants

Continuous Pyrolysis Process

+

Software (dMRV + LCA + IOT)

+

Soil Health Assessment (Track key physical, chemical and biological parameters)

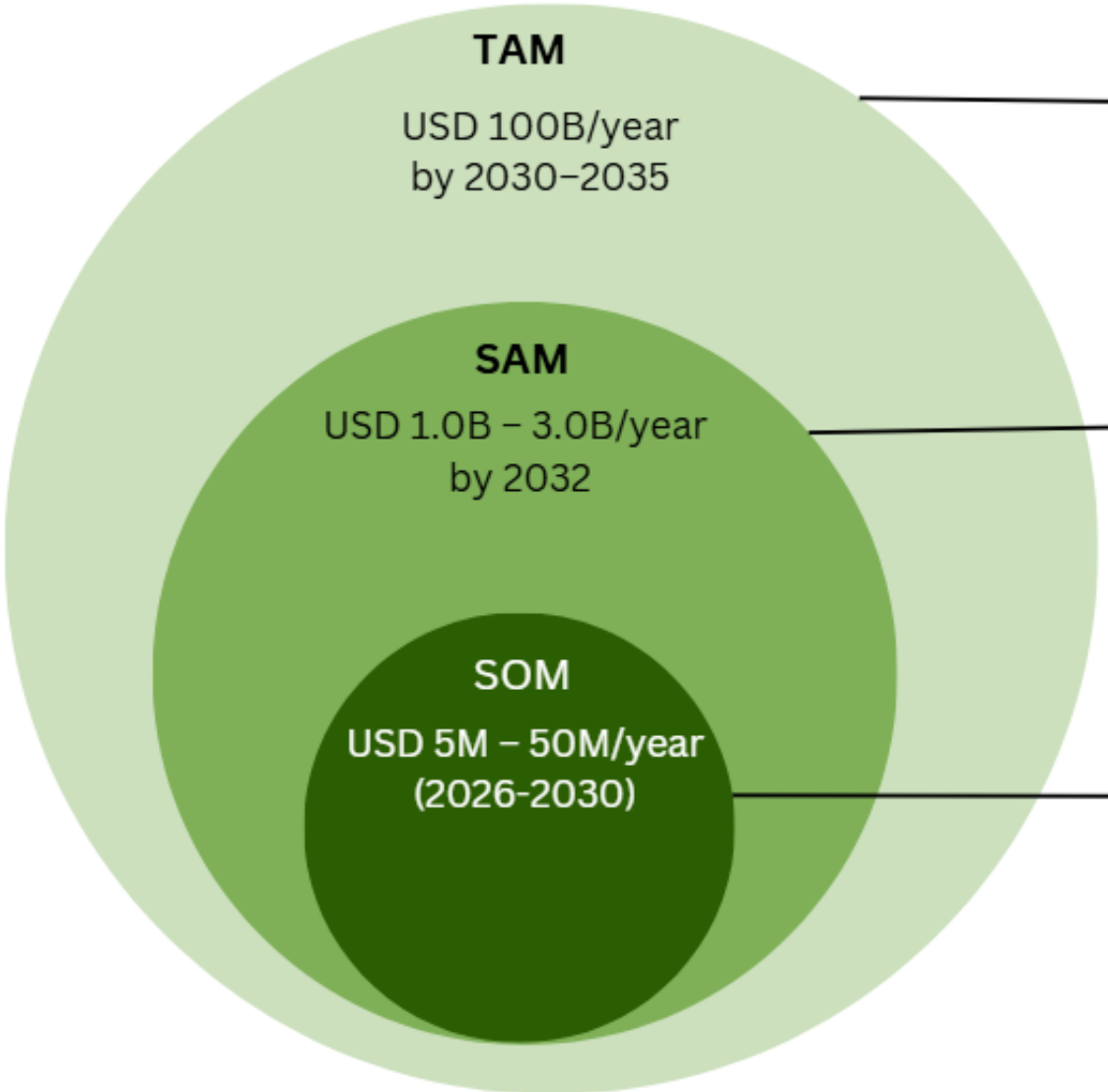
1. **High-quality Carbon Removal Credits (CDR)**

2. **Biochar**
   - Soil amendment
   - Other value-added properties (future)

3. **Regenerative Agriculture**

MARKET SIZE

Global Potential Market Size for Biochar Carbon Credit Removal



TAM (Total Addressable Market)

- Global biochar carbon credit market by ~2030–2035, if demand scales broadly.
- Based on projections for total CO_2 removal market; biochar could capture a large share.

SAM (Serviceable Addressable Market)

- Portion reachable by projects like yours (U.S. + South Africa, listed carbon credits) by ~2032.
- Derived from forecasted biochar carbon credit market (~USD 1.85B by 2032) and your regional scope.

SOM (Serviceable Obtainable Market)

- What SoilLogia could realistically capture in early years (first 5 yrs) in those regions with the feedstocks + listings
- Dependent on scale of facility, feedstock availability (sludge + invasive species), listing success, and buyer demand.

COMPETITIVE LANDSCAPE

Competitors	Origin/Region	Their Focus	Strengths & Scale	Limitations
Varaha Earth	India	Soil carbon projects, agroforestry, MRV tech, carbon credits	Strong local networks in India; good reputation; varied nature-based carbon projects.	Less focused on high-volume biochar carbon removal; feedstock limitations; less advanced industrial-scale pyrolysis for multiple biomass types.
Exomad	Bolivia	Biochar production for durable carbon removal, using forestry residues; large facilities; signing large carbon credit deals	Removing ~120,000 tCO_2/year now; building phases to scale to ~800,000 tCO_2/year by 2027; multiple sites; high-quality biochar content.	Biomass source mostly wood (forestry residues); geographic concentration in Bolivia; fewer feedstock types; soil health co-benefits present, but less diversified feedstock types; sometimes slower to access new markets.

SoilLogia enters the market with a model designed to reduce these risks and broaden buyer appeal:

- **Feedstock Diversity & Security:** we source municipal sewage sludge in the United States and invasive alien trees in South Africa—two virtually unlimited, underutilized biomass streams.
- **Geographic Diversification:** by launching projects in both the U.S. and South Africa, we reduce geopolitical risk and open doors to multiple carbon markets, making us more attractive to global corporate buyers.
- **Soil Health Co-Benefits:** our process not only sequesters carbon but also restores soil fertility, improving food security and ecosystem health—an added value for companies seeking high-integrity credits with measurable social and environmental impact.
- **Investor Risk Mitigation:** large offtakers like Microsoft, Google, and other Fortune 500 firms increasingly prefer to diversify suppliers to spread procurement and performance risk. SoilLogia's multi-feedstock, multi-region approach provides exactly the diversified exposure that big climate investors demand.

CARBON REMOVAL FACILITY & CAPABILITY

We aim to purchase a BST-50 Pyrolyzer from **Beston Group Co., LDA**, that continuously processes 3.5 tons of feedstock biomass per hour.

Required Facility and Equipment

3D Layout of BST-50 System

Efficient Production:

- **High Throughput:** Each system processes 27,216 tons of biomass per year (based on 324 operating days).
- **Strong Yield:** Produces 9,525 tons of biochar annually (~35% conversion rate).
- **Carbon Removal Impact:** Generates over 23,000 carbon credits (tCO_2e) per year from a single unit.
- **Scalable Model:** With virtually unlimited biomass sources, multiple systems can be deployed to multiply biochar output and carbon credit generation.

FUNDING REQUEST & RETURN ON INVESTMENT (ROI)

1 Capital Requirements

We are seeking **$4,512,985.50** to build our full-scale biochar facility with one industrial pyrolysis system capable of producing biochar and carbon credits at scale.

Use of Funds	Amount (USD)	% of Total
CapEx – Pyrolysis system, site development, equipment	**$2,669,074.98**	**59%**
OpEx (Year 1) – Operations, staffing, feedstock sourcing	**$1,255,260.24**	**28%**
Contingency (13%) – Buffer for market/cost fluctuations	**$588,650.28**	**13%**
Total	**$4,512,985.50**	**100%**

2 Investor ROI for over the 8-year lifespan of each pyrolysis unit

Item	Amount (USD)
Projected Returns	$5.8M per year
Investor ROI (30% equity stake)	~$1.3M–$1.5M per year

Why This Works

- **High-Margin Market:** Carbon removal credits trade at premium prices and demand is surging.
- **Scalable Model:** Multiple systems can be deployed to replicate revenues across regions.
- **Feedstock Advantage:** Unlimited sewage sludge (USA) and invasive alien trees (South Africa) ensure reliable, low-cost biomass supply.

REVENUE MODEL, MARKET STRATEGY

Revenue Streams

- Carbon Credits – Verified removal credits sold through leading registries at $150/$tCO_2e$.
- Biochar Sales – High-quality biochar marketed as a premium soil amendment at $250/ton.
- Future Services – Soil health consulting, co-benefit verification, and ESG advisory.

Distribution & Partnerships

- Direct Sales: Corporate offtake agreements.
- Wholesale & Marketplaces: Carbon brokers, agricultural distributors.

Scalability Roadmap

- Phase 1: Deploy first system (U.S. or South Africa) – 9,525 tons biochar/year, 23,000 tCO_2e credits.
- Phase 2: Add multiple systems in the U.S. and South Africa leveraging virtually unlimited biomass.
- Phase 3: Replicate globally – target 5+ systems by Year 5 (~$25M annual revenue).

Metric	Value	Notes
Biomass Input	27,216 tons/year	Based on 324 operating days
Biochar Output	9,525 tons/year	~35% yield
Carbon Credits Generated	23,000 tCO_2e/year	Verified through registries
Revenue from Carbon Credits	$3.45M/year	23,000 × $150/$tCO_2e$
Revenue from Biochar Sales	$2.38M/year	9,525 × $250/ton
Total Revenue	**~$5.83M/year**	**Per system, pre-OPEX**

EXECUTION ROADMAP & KEY MILESTONES

Phase	Timeline	Milestone
Phase 1 – Launch & Procurement	Month 1	• Secure funding • Initiate project listing and registry with Puro.Earth • Order & procure pyrolysis system • Begin site preparation & permitting
Phase 2 – Build & Install	Month 2-6	• Complete facility construction • Install and calibrate pyrolysis equipment • Set up biomass feedstock logistics
Phase 3 – First Production & Soil Application	Month 7	• Begin large-scale biochar production • Immediate soil application to lock in carbon
Phase 4 – Verification & Credits	Month 8-9	• Facility audit by VVB committee • Verification & issuance of CORCs (Carbon Removal Certificates)
Phase 5 – Continuous Scaling	Month 10+	• Ongoing production & carbon credit sales • Plan additional pyrolysis systems for expansion

IMPACT & SUSTAINABILITY

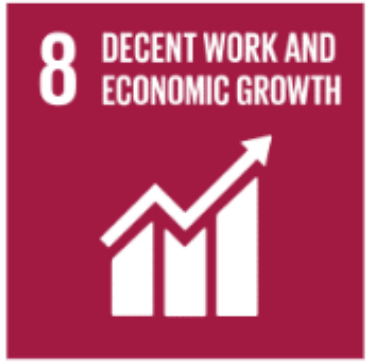
23,000+ tCO_2e removed annually per facility

27,000+ tons of biomass waste per year diverted from landfills & incineration

Soil Restoration (9,500+ tons/year of biochar improving soil health)

Water Retention & Quality (biochar improves water holding capacity, reduces runoff)

Food Security (higher yields and better soil resilience)



Job Creation (20+ local jobs per facility in U.S. and South Africa)

VALIDATION & RECOGNITION

Traction & Validation:

- **Pilot Projects:** Successful pilot-scale biochar systems in the U.S. and South Africa.
- **Corporate Partnerships:** In talks with Google for carbon offset agreements, pending Puro.Earth registry.
- **Scalability:** Fully feasibility-tested, with unlimited biomass for immediate expansion.
- **Market Readiness:** Investment-ready model generating biochar & carbon credits.

- **Media Coverage:**
- **USA Today:** *Reclyzer Biochar – Transforming Waste into Wealth: SoilLogia's Mission to Foster Climate Health Without Compromise*. Learn more
- **Economic Insider:** *Transforming Waste into Opportunity: Antonio Timoteo, Ph.D., Advances Soil Health and Net-Zero Carbon Goals with SoilLogia LLC*. Learn more
- **Quantum Commodity Intelligence:** *Biochar Start-up Seeks $6 Million in Seed Funding for Flagship Plant*. Learn more
- **Biochar Today:** *SoilLogia to Raise $6M in Seed Funding to Scale Sustainable Biochar Production*. Learn more

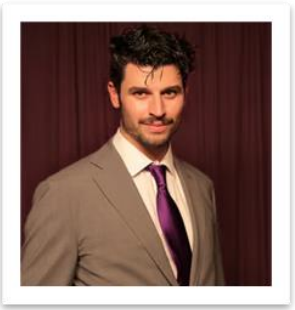
OUR TEAM – DRIVING SOILLOGIA'S VISION

Antonio Timoteo, Ph.D.
Chief Executive Officer

Expertise:
- Soil health
- Regenerative agriculture
- Waste management.

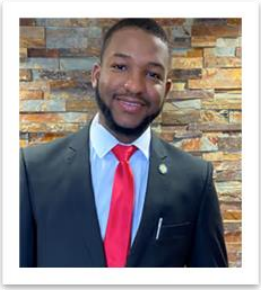
Sara Duarte, Ph.D.
Carbon Developer

Expertise:
- Biochar amendments
- CDR Standard & certifications



Austin Lieber, Ph.D.
Chief Sustainability Officer

Expertise:
- Carbon removal technology



Marc Presume, MSc.
Chief Operating Officer

Expertise:
- Agronomy
- Data Scientist

Sandeep Rana, Ph.D.
Chief Marketing Officer

Expertise:
- R&D business
- B2B Marketing

Keith Thompson
Biochar Specialist

Expertise:
- Community-focused biochar project D.

Wayne Omagamre, Ph.D.
Chief Technology Officer

Expertise:
- Chemist and environmental toxicologist

INVEST IN SOILLOGIA – TURN WASTE INTO WEALTH

- **Funding Ask:** $4,512,985.50 to build first pyrolysis facility and scale operations.
- **Investor Offer / ROI:** 30% equity on profits per year, 8-year lifespan per unit
- **Readiness / Traction:** Pilot-tested in U.S. & South Africa, unlimited biomass sources identified
- **Corporate Engagement:** In talks with Google & other corporate buyers, pending registry listing

Invest in Soil. Lock Carbon. Grow Returns. Together, we turn waste into wealth and restore the planet.

SoilLogia
Innovation • Research • Sustainability

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