



"GFRF"



# GREEN FUTURE RECLAMATION FUND



PEOPLE



GREEN



FUTURE



FUNDS





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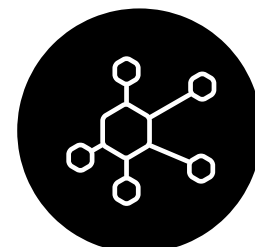
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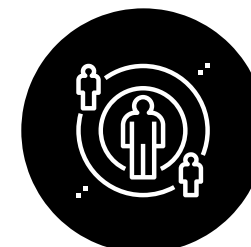
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# CURRENT SITUATION

## LARGE EXPORT

Indonesia is the world's largest exporter of thermal coal. In 2021, it increased its exports by 27 Mt to 434 Mt, exporting more than twice as much as Australia (199 Mt)\*

## INCREASED MINING

This development has caused a rapid increase in mining activities, making Indonesia the 6th largest country by distribution of land area by mining activities, just behind Russia and United States\*\*

## MORE CONCESSIONS

Due to the abundance of mineral resources in Indonesia (one of the Top 5 globally), the number of land concessions and mining companies is expected to keep increasing until 2045, in line with the government's mineral grand strategy.



## RECLAMATION LAW

By Law, companies are required to carry out reclamation activities, to clean up the damage, as they go through their mining activities. The government requires mining companies to set aside a portion of their budget for financing the reclamation of mined lands, and also set aside some funds in a state-owned bank.

## REGULATION

However, due to regulation and lack of willingness of the mining companies to disrupt their liquidity, the reclamation requirement is being flouted, leaving gaping holes that are eventually abandoned and filled with rainwater.

\*<https://www.iea.org/reports/coal-market-update-july-2022/trade>

\*\*<https://www.statista.com/statistics/1255879/distribution-of-mining-land-area-worldwide-by-country>





# PROBLEM

## SAFETY HAZARDS

These mining pits often become sites for fatal accidents and misadventures. Between 2011 and 2021, mining pits in East Kalimantan have claimed at least 40 lives.

## ECONOMIC & SOCIETAL IMPACT

This problem has also affected other areas of the economy such as agriculture, and has caused excessive destruction of livelihood, leading to increased poverty, displacement, and increased flooding.

## HEALTH RISK

Abandoned mines also release toxic chemicals into the soil and water, contaminating food supplies for inhabitants of communities.



## DEFORESTATION\*

According to Bloomberg, Indonesia has lost more tropical forest to mining than anywhere in the world; being one of the four countries alongside Brazil, Ghana, Suriname, that accounted for 80% of tropical forest loss due to industrial mining. This also causes the displacement of wildlife.

\*<https://www.business-humanrights.org/fr/derni%C3%A8res-actualit%C3%A9s/indonesia-study-reveals-indonesia-lost-more-tropical-forest-to-mining-than-anywhere-else/>







# SOLUTION



## MAIN ISSUE:

- INABILITY OF THE GOVERNMENT TO ENFORCE RECLAMATION COMPLIANCE.
- UNWILLINGNESS OF THE MINING COMPANIES TO TIE DOWN LARGE SUMS OF MONEY FOR A LONG TIME.



A SPECIAL PURPOSE VEHICLE TO OPERATE

## GREEN FUTURE RECLAMATION FUND

(GFRF)



ECO-  
REVITALIZATION  
BOND (ERB)



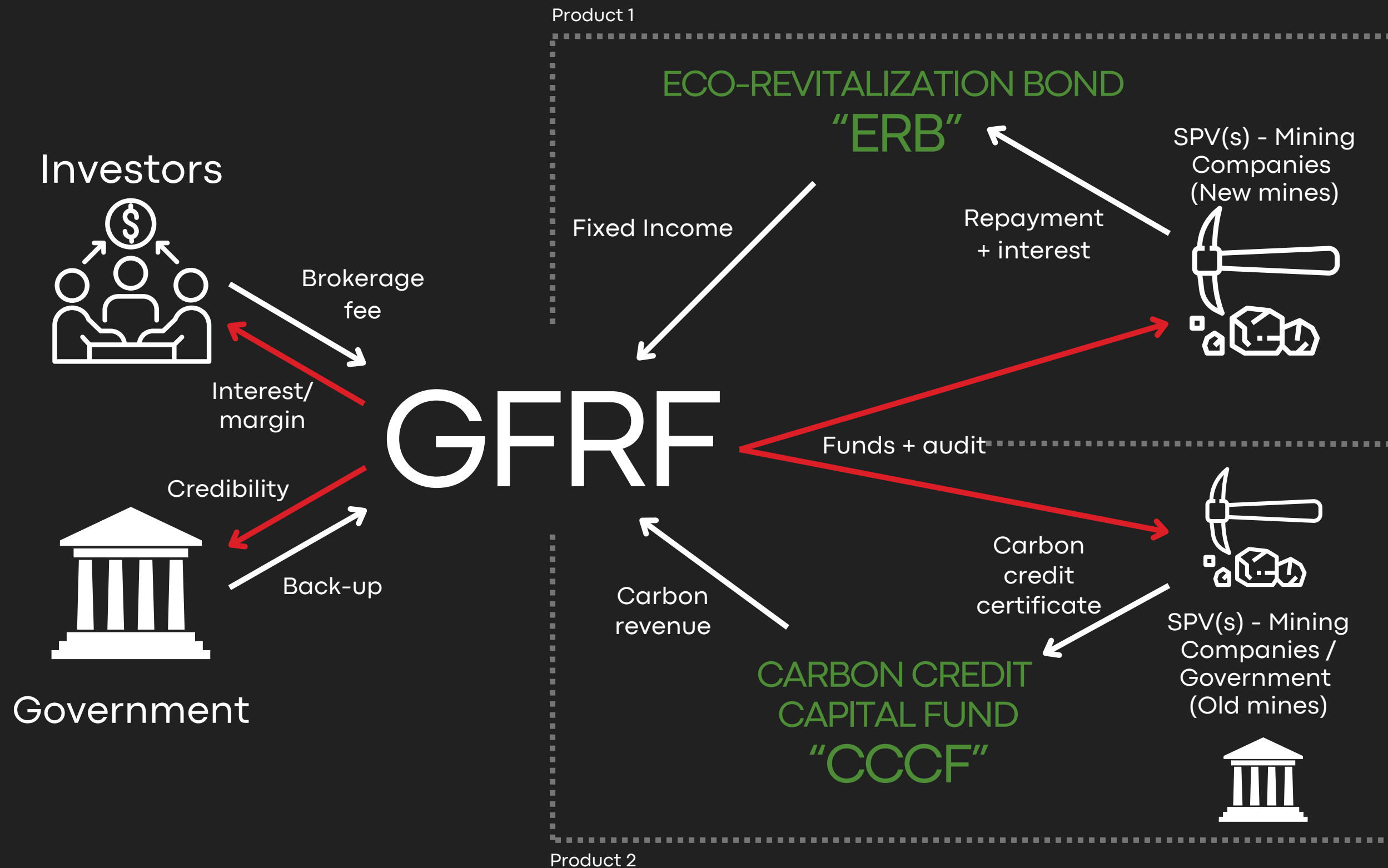
CARBON CREDIT  
CAPITAL  
FUND (CCCF)

This SPV is expected to connect investors to the mining companies, with the backing of the government, to reclaim abandoned mines and also to ensure immediate reclamation and restoration of new lands. These products will give the mining companies the financial flexibility they need for compliance and also help the government to solve the problem of mining pits in the country.





# FUND STRUCTURE







# FUND TRANSACTIONS DYNAMICS **PRODUCT 1** ECO-REVITALIZATION BOND (ERB)



- Aimed at improving reclamation of newly explored mines
- Hybrid of corporate & government fixed income securities
- Funded through subscription by institutional and private investors
- Seeking for Eurobond market (secondary market also possible)
- Lower risk, moderate return

## PROCESS



After land has been disturbed due to mining activities, the mining companies, with the government's backing, issues eurobonds, through an SPV, allowing investors to invest in the reclamation by subscribing to the bonds. The mining company, under the supervision of the government, carries out reclamation and is given time to make repayments on the bond.

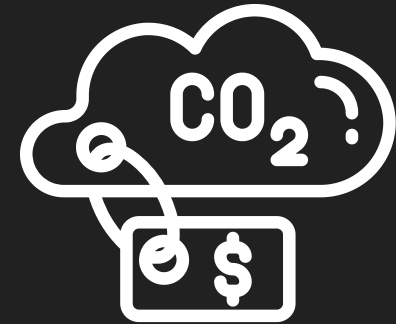






# FUND TRANSACTIONS DYNAMICS **PRODUCT 2**

## CARBON CREDIT CAPITAL FUND "CCCF"



- Aimed at improving reclamation of old mines
- Restoration to generate enough carbon credit in compliance with the Gold Standard
- Investor returns is from proceeds from the sale of carbon credits.
- Higher risk, high return

## PROCESS

After land has been disturbed due to mining activities by the mining company, investors are invited to participate in the reclamation, after which they get returns through sales of carbon credits generated from the reclamation and restoration.







GEOGRAPHY:



INDONESIA

ADDRESSABLE MARKET\*:

**USD 7,6** BN

TOTAL NUMBER OF APPROVED MINING COMPANIES\* **>4400**



TOTAL MINING CONCESSIONS:

**~10** MILLION HA

# OPPORTUNITY

AVERAGE RECLAMATION COST

**USD 7,000/Ha**



**30%**

EXPECTED SHARE OF ADDRESSABLE MARKET

**USD 20**

INITIAL CARBON PRICE (2023)

**20 yrs**

TIME HORIZON

**2 years**

REFORESTATION MATURITY AGE:

**87.307 HA**

ADDRESSABLE ABANDONED OLD MINE

**13MtCO<sub>2</sub>/Ha**

AVERAGE CARBON SEQUESTRATION





# INVESTMENT SUMMARY

EXPOSURE DETAILS	ERB	CCCF
ADDRESSABLE MARKET	\$7 BILLION	\$609 MILLION
TARGETED FUNDS	\$2,1 BILLION	\$182 MILLION
INVESTMENT TIME HORIZON	10 YRS (PER BOND ISSUANCE)	20 YRS
COUPON	9%	N/A
REVENUE	\$2,4 BILLION	\$668 MILLION
IRR	N/A	11.9%

## INVESTOR POOLS



- Institutional investors
- Impact investors
- Endowment/pension funds
- Private investors



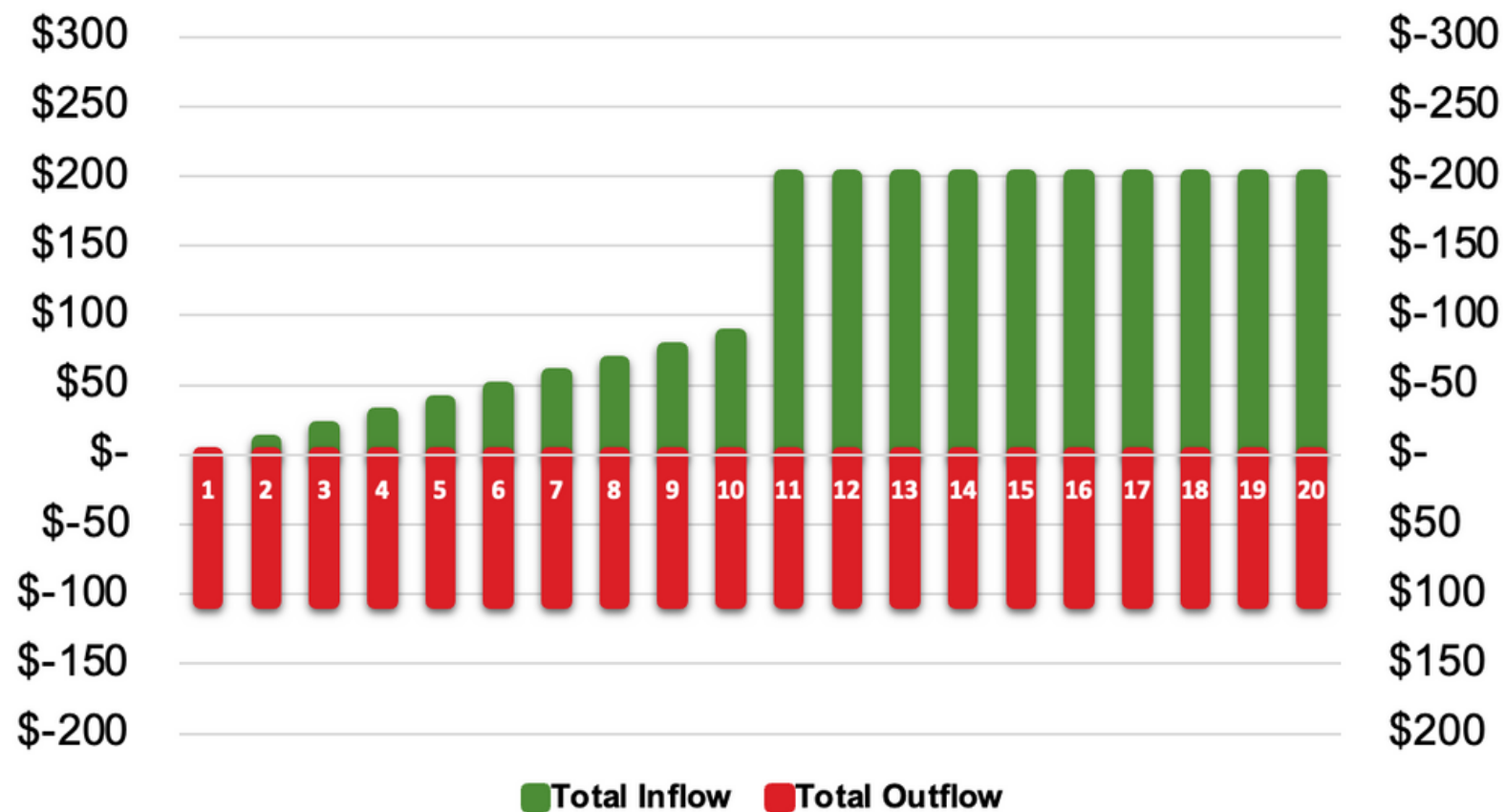


# CASHFLOW

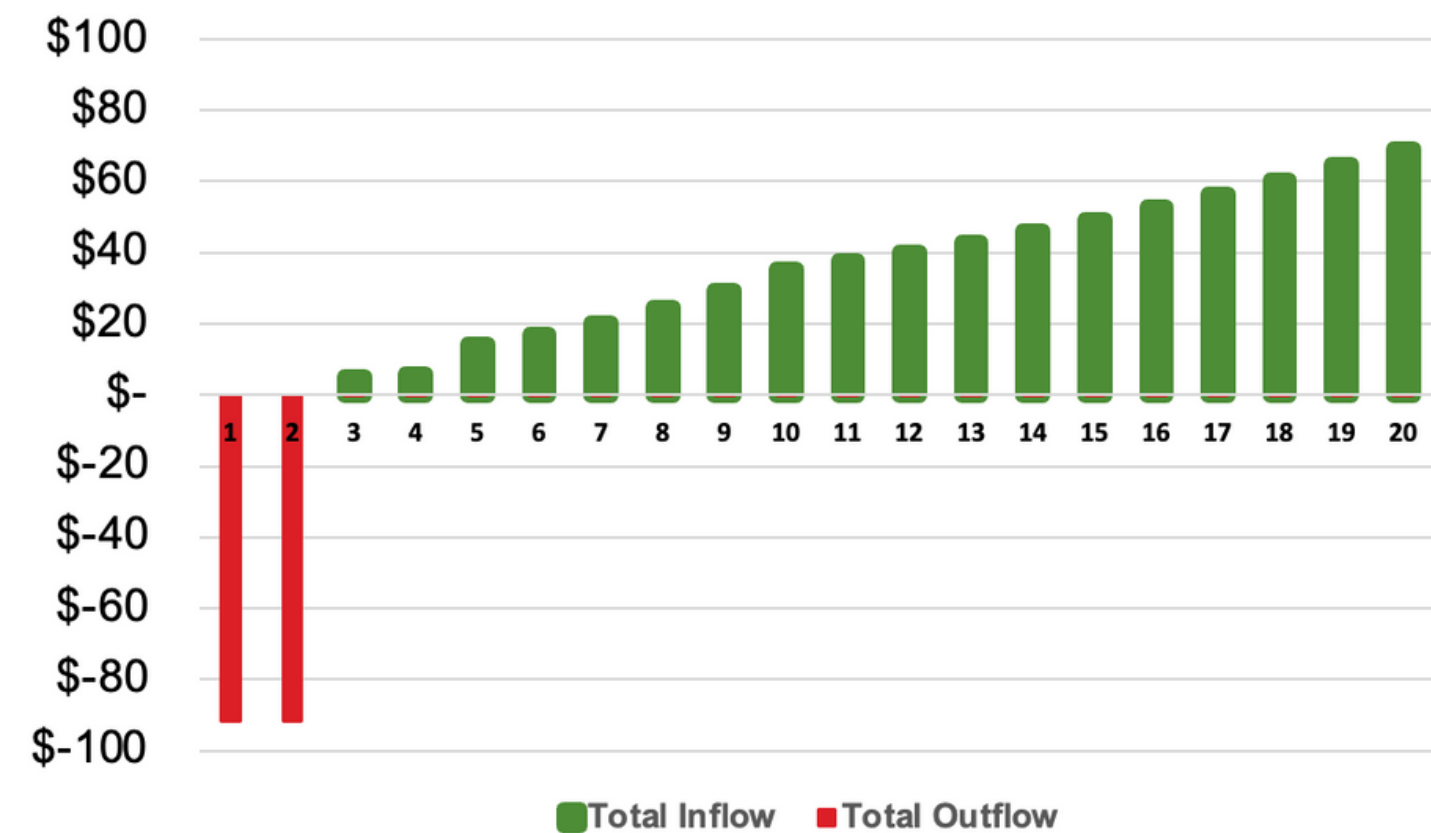
## ASSUMPTIONS:

- RECLAMATION COST \$ 7000/HA
- ADDRESSABLE NEW MINES 50.000 HA/YR
- EXPECTED MARKET SHARE 30%
- ERB INTEREST RATE 9%
- COUPON MATURITY PERIOD 10 YEARS
- CARBON PRICE \$20/MTCO2.HA
- CARBON PRICE INC. RATE 20% (YEAR 1-10) & 7% (YEAR 11-20)
- AVG TREE CO2 SEQUESTRATION 13 MTCO2/HA
- EXPECTED MARKET SHARE 30%
- CCCF TIME HORIZON 20 YEARS

## ERB CASH FLOW MODEL



## CCCF CASH FLOW MODEL







# SCALABILITY



AUSTRALIA



AFRICA

SOUTH  
AMERICA

The Green Future Reclamation Fund (GFRF) can be replicated globally to address the negative social and environmental effects of the mining sector. **Other nations with large mining operations, such as Australia, Africa, and South America,** can use the approach, which incorporates the use of corporate bonds and carbon credits to tackle this monstrous problem. This also presents an opportunity for businesses looking to be more responsible, to invest in this sustainable initiative, because the market for mine reclamation is expected to be worth billions of dollars.







# RISK & MITIGATION








ELEMENTS OF RISK		PROBABILITY	IMPACT	MITIGATION
1	FOREST DAMAGE	MEDIUM	HIGH	Collaborate with the Government to back up worst case or open an insurance option to cover any unforeseen damage particularly natural disaster occurrence
2	CURRENCY RISK	HIGH	MEDIUM	The capital will be raised and disbursed in US Dollar through issuing Eurobonds, to reduce the risk of devaluation through currency conversion
3	CARBON PRICE FLUCTUATION	HIGH	HIGH	Depending on the carbon credit market globally, longer-term agreements can be signed with investors through a futures contract
4	POLITICAL & REGULATORY CHANGES	MEDIUM	MEDIUM	To collaborate with the Government for long-term agreements to safeguard future transactions
5	INABILITY TO GENERATE CARBON CREDITS	LOW	HIGH	Confirm the carbon sequestration valuation and eligibility according to the Gold Standard before reclamation. CCCF is also focused on old abandoned mines, where generating carbon credits is more practical.
6	EXCECUTION RISK	MEDIUM	MEDIUM	The Fund will appoint a Project Manager to supervise reclamation activities, and the disbursement of the fund to the contractors shall be according to satisfactory review of milestones backed by an advanced payment guarantee by the contractors bank
7	COST OVERRUN	MEDIUM	HIGH	To use financial tools such as hedging to reduce risk of increase in expense of reclamation activities, such as personnel, equipment and materials costs.







# IMPACT

IMPACT	SDG CONTRIBUTION	DEFINITION	METRIC MONITORED
<b>ENVIRONMENTAL BENEFITS</b>	 	The fund can reclaim and rehabilitate mined land, restoring landscapes, preventing erosion, and promoting plant growth. According to research by the Indonesian Ministry of Environment and Forestry, restoring mined land in Sumatra increased bird species diversity by 50% and reduced soil erosion and runoff	<p>% Increase in diversity of bird species</p> <p>% Decrease in soil erosion and runoff</p>
<b>CARBON CREDITS</b>		The fund can sell carbon credits to offset greenhouse gas emissions and generate income for other environmental projects	Income generated from selling carbon credits (USD)
<b>COMMUNITY BENEFITS</b>	 	The fund can reduce the harmful effects on nearby communities, such as air and water pollution, soil contamination, and land degradation, by funding the reclamation of mined area.	Reduction in air pollution (PM 2.5, PM10, NOx, SO2); Reduction in and water pollution (pH, levels of heavy metals), soil contamination (levels of heavy metals), and land degradation (erosion rate)
<b>FINANCIAL GAINS</b>	 	Fund can generate revenue through carbon credit market to pay bondholders and fund ongoing reclamation operations	Return on investment for bondholders and funding for ongoing reclamation and rehabilitation operations (USD)







# ADVISORS & MENTORS



- Boy Sleddering - COO, Carbon Rabo Bank
- Kim van der Leeuw - Carbon Offset Specialist, Carbon Rabo Bank
- Anouska Morjaria - Senior Investment Officer, Foresight Group UK
- Rakhmat Mulyanto - Project Manager, Ex-Freeport & Adaro Energy Indonesia
- Anggara Pradhana - Manager, Pricewaterhouse Coopers Indonesia
- Yoriko Putera - Senior Associate, Copenhagen Infrastructure Partners
- Oluseyi Akinbi - Managing Director, Zedcap Partners
- Prof. Carla I Koen - Professor of Entrepreneurship, Tilburg University
- Kenneth Rasamny - Partner, Orrick, Herrington & Sutcliffe LLP
- Eric Newman - Associate, Orrick, Herrington & Sutcliffe LLP
- Matthew Nabhan - Institutional Consultant, Graystone Consulting







# MANAGEMENT TEAM



**AKSHAY KUMAR  
SHRIVASTAVA**



Akshay is a Chemical engineer and MBA (candidate) with 12+ years of diverse international experience in the chemical industry. He is skilled in business management, corporate strategy, and M&A and is passionate about driving investments to bring a sustainable impact.



**TEGUH  
ANWARSYAH**



Teguh is a chemical engineer and MBA (candidate) with 8 years of experience in industrial-type project development. He used to manage feasibility studies, investment analysis, and project management, also passionate about impact investing.



**EVER  
OBI**



Ever is an MBA candidate with 12 years experience in the financial services sector, where he has been a financial risk manager and a business executive in leading financial institutions. He is also an author, with two published creative books.







# THANK YOU







# INVESTMENT EXAMPLE

## 'THE WORLD'S BANK GREEN BONDS



In accordance to the World Bank bold support to the global shift into low-carbon and climate resilient in the client countries, the institution held a green bonds program for specific eligible projects that are considered resonate with the movement.

Such projects mentioned as renewable powerplant, GHG reduction from new technologies, fuel switching, waste management, energy-efficient building, and also carbon reduction through reforestation.

The issued bond will be considered equal to AAA rating, with maturity period varies around 10 year.

## APPALACHIA RECLAMATION PROGRAM



An abandoned coal mines in the Appalachian region, laid down on east coast of the US, were reforested through a project initiated by multi-state coalition near to this region, called Reclaiming Appalachia Coalition. The coalition aims to restore the abandoned sites of about 1 million acres that has designated as legacy coal mine sites.

The coalition took various funding ways such as green bonds, attracting impact investors, and also the recent one is composing a carbon offset proposal to the California Cap and Trade carbon market.



## APPALACHIA RECLAMATION PROGRAM



The Global Environmental Facility (GEF) is an international organization that provides funding for environmental projects in developing countries. GEF has invested in various reclamation initiatives, including mining reclamation projects, in several countries around the world, such as Colombia, Ecuador, and Peru. In the past, GEF has supported a project in Peru that focuses on the restoration of degraded land resulting from mining activities. The project includes reforestation activities, soil restoration, and the implementation of sustainable land management practices. The project is funded by GEF grants and has also received support from other sources, including the Peruvian government and private sector partners

- [HTTPS://RECLAIMINGAPPALACHIA.ORG/INNOVATIVE-FINANCING-FOR-ABANDONED-MINE-LAND-RECLAMATION%EF%BB%BF/](https://reclaimingappalachia.org/innovative-financing-for-abandoned-mine-land-reclamation%EF%BB%BF/)
- [HTTPS://WWW.E-MJ.COM/FEATURES/THE-GROWING-POPULARITY-OF-SUSTAINABLE-MINE-RECLAMATION/](https://www.e-mj.com/features/the-growing-popularity-of-sustainable-mine-reclamation/)
- [HTTPS://E360.YALE.EDU/FEATURES/RECLAIMING-APPALACHIA-A-PUSH-TO-BRING-BACK-NATIVE-FORESTS-TO-COAL-COUNTRY](https://e360.yale.edu/features/reclaiming-appalachia-a-push-to-bring-back-native-forests-to-coal-country)
- [HTTPS://WWW.THEGEF.ORG/PROJECTS-OPERATIONS/DATABASE](https://www.thegef.org/projects-operations/database)
- [HTTPS://TREASURY.WORLDBANK.ORG/EN/ABOUT/UNIT/TREASURY/IBRD/IBRD-GREEN-BONDS#2](https://treasury.worldbank.org/en/about/unit/treasury/IBRD/IBRD-GREEN-BONDS#2)







# FINANCIAL MODELS

S/N	Assumptions		Unit
1	Total Mining Companies	4.403	
2	Total Mining Concessions	10.000.000	Ha
3	Unreclaimed Lands	87.000	Ha
4	Reclamation Cost per Hectare	7.000	\$
5	Time Horizon (ERB)	20	Yrs
6	Time Horizon (CCF)	20	Yrs
7	ERB Interest Rate	9%	
8	Carbon Price Incremental Rate (1-10 Years)	20%	
9	Carbon Price Incremental Rate (11-20 Years)	7%	
10	Avg. Tree CO2 Sequestration	13	MtCO2/Ha
11	Expected Share of Market (ERB)	30%	--> <i>new mines</i>
12	Expected Share of Market (CCCF)	30%	--> <i>old mines</i>
13	Issuing House Fee (ERB)	0,1%	
S/N	Yearly Market Size Assessment		Unit
	<b>ERB</b>		
1	Expected Yearly Mining	50.000	Ha
2	Target Area Yearly	15.000	Ha
3	Target Funds Yearly	105.000.000	\$
	<b>CCCF</b>		
1	Targeted Old Mines	26.100	Ha
2	Target Fund Size	182.700.000,00	\$







# FINANCIAL MODELS YEAR 1-10

A	Eco-Revitalization Bonds (ERB)	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Principal Bond Repayment	\$ 1.050.000.000	0	0	0	0	0	0	0	0	0	0
	Interest Repayment	\$ 1.370.250.000	0	9.450.000	18.900.000	28.350.000	37.800.000	47.250.000	56.700.000	66.150.000	75.600.000	85.050.000
	<b>Total Inflow</b>	<b>\$ 2.420.250.000</b>	0	9.450.000	18.900.000	28.350.000	37.800.000	47.250.000	56.700.000	66.150.000	75.600.000	85.050.000
	Capital Expense	\$ 2.100.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000
	Brokerage Fee	\$ 2.100.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000
	<b>Total Outflow</b>	<b>\$ 2.102.100.000</b>	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000	105.105.000
	<b>Net ERB Cashflow</b>	<b>\$ 318.150.000</b>	-105.105.000	-95.655.000	-86.205.000	-76.755.000	-67.305.000	-57.855.000	-48.405.000	-38.955.000	-29.505.000	-20.055.000
	ERB Cumulative cash flow	\$ 318.150.000	-105.105.000	-200.760.000	-286.965.000	-363.720.000	-431.025.000	-488.880.000	-537.285.000	-576.240.000	-605.745.000	-625.800.000

B	Carbon Credit Capital Fund (CCCF)	Total	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	Carbon Price	-	20	24	29	35	41	50	60	72	86	103
	Restorable Land (Ha)	-	13.096	13.096	26.192	26.192	26.192	26.192	26.192	26.192	26.192	26.192
	Carbon Sequestration (Tonnes)	-	0	0	170.249	170.249	340.497	340.497	340.497	340.497	340.497	340.497
	Carbon Credit Sales	\$ 670.471.922	0	0	4.903.161	5.883.793	14.121.104	16.945.325	20.334.390	24.401.268	29.281.521	35.137.826
	<b>Total Inflow</b>	<b>\$ 670.471.922</b>	0	0	4.903.161	5.883.793	14.121.104	16.945.325	20.334.390	24.401.268	29.281.521	35.137.826
	Capital Expense	\$ 183.344.700	91.672.350	91.672.350	0	0	0	0	0	0	0	0
	Brokerage Fee	\$ 670.472	0	0	4.903	5.884	14.121	16.945	20.334	24.401	29.282	35.138
	<b>Total Outflow</b>	<b>\$ 184.015.172</b>	91.672.350	91.672.350	4.903	5.884	14.121	16.945	20.334	24.401	29.282	35.138
	<b>Net CCCF Cashflow</b>	<b>\$ 486.456.750</b>	-91.672.350	-91.672.350	4.898.258	5.877.910	14.106.983	16.928.380	20.314.055	24.376.866	29.252.240	35.102.688
	CCCF Cumulative cash flow	\$ 486.456.750	-91.672.350	-183.344.700	-178.446.442	-172.568.532	-158.461.550	-141.533.170	-121.219.115	-96.842.248	-67.590.008	-32.487.321
	IRR	11,89%										
	PBP	10										





# FINANCIAL MODELS YEAR 11-20

A	Eco-Revitalization Bonds (ERB)	Total	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
	Principal Bond Repayment	\$ 1.050.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000
	Interest Repayment	\$ 1.370.250.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000	94.500.000
	<b>Total Inflow</b>	<b>\$ 2.420.250.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>	<b>199.500.000</b>
	Capital Expense	\$ 2.100.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000	105.000.000
	Brokerage Fee	\$ 2.100.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000	105.000
	<b>Total Outflow</b>	<b>\$ 2.102.100.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>	<b>105.105.000</b>
	<b>Net ERB Cashflow</b>	<b>\$ 318.150.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>	<b>94.395.000</b>
	ERB Cummulative cash flow	\$ 318.150.000	-531.405.000	-437.010.000	-342.615.000	-248.220.000	-153.825.000	-59.430.000	34.965.000	129.360.000	223.755.000	318.150.000

B	Carbon Credit Capital Fund (CCCF)	Total	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
	Carbon Price	-	110	118	126	135	145	155	166	177	190	203
	Restorable Land (Ha)	-	26.192	26.192	26.192	26.192	26.192	26.192	26.192	26.192	26.192	26.192
	Carbon Sequestration (Tonnes)	-	340.497	340.497	340.497	340.497	340.497	340.497	340.497	340.497	340.497	340.497
	Carbon Credit Sales	\$ 670.471.922	37.597.473	40.229.296	43.045.347	46.058.522	49.282.618	52.732.401	56.423.669	60.373.326	64.599.459	69.121.421
	<b>Total Inflow</b>	<b>\$ 670.471.922</b>	<b>37.597.473</b>	<b>40.229.296</b>	<b>43.045.347</b>	<b>46.058.522</b>	<b>49.282.618</b>	<b>52.732.401</b>	<b>56.423.669</b>	<b>60.373.326</b>	<b>64.599.459</b>	<b>69.121.421</b>
	Capital Expense	\$ 183.344.700	0	0	0	0	0	0	0	0	0	0
	Brokerage Fee	\$ 670.472	37.597	40.229	43.045	46.059	49.283	52.732	56.424	60.373	64.599	69.121
	<b>Total Outflow</b>	<b>\$ 184.015.172</b>	<b>37.597</b>	<b>40.229</b>	<b>43.045</b>	<b>46.059</b>	<b>49.283</b>	<b>52.732</b>	<b>56.424</b>	<b>60.373</b>	<b>64.599</b>	<b>69.121</b>
	<b>Net CCCF Cashflow</b>	<b>\$ 486.456.750</b>	<b>37.559.876</b>	<b>40.189.067</b>	<b>43.002.302</b>	<b>46.012.463</b>	<b>49.233.335</b>	<b>52.679.669</b>	<b>56.367.246</b>	<b>60.312.953</b>	<b>64.534.860</b>	<b>69.052.300</b>
	CCCF Cummulative cash flow	\$ 486.456.750	5.072.555	45.261.622	88.263.924	134.276.387	183.509.723	236.189.392	292.556.638	352.869.590	417.404.450	486.456.750
	IRR	11,89%										
	PBP	10										







# SENSITIVITY ANALYSIS

		CARBON OFFSET INITIAL PRICE (\$/CO2 CREDIT)				
		10	15	20	25	30
CO2 SEQUESTRATION (MTCO2/HA.ANNUM)	10	2.8%	6.4%	9.2%	11.5%	13.5%
	11	3.6%	7.3%	10.1%	12.5%	14.6%
	12	4.4%	8.1%	11.0%	13.5%	15.6%
	13	5.1%	8.9%	<b>11.9%</b>	14.4%	16.6%
	14	5.7%	9.7%	12.7%	15.3%	17.5%
	15	6.4%	10.4%	13.5%	16.1%	18.4%

