



THE CHALLENGE

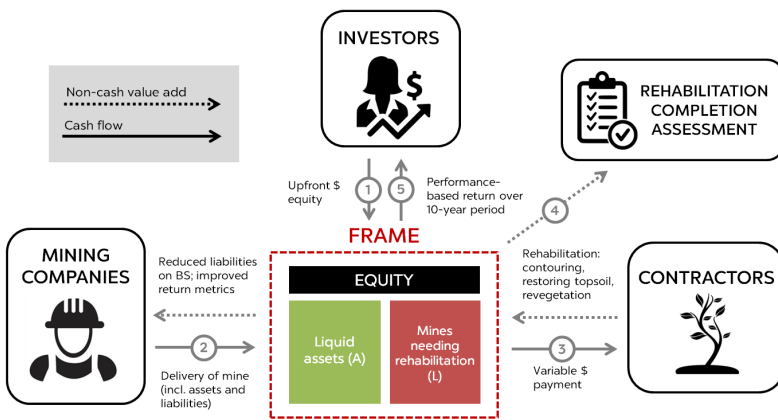
Opposing Priorities Lead To Neglected Lands

While mining is a primary industry for the Australian economy, it has negative environmental consequences: erosion, formation of sinkholes, loss of biodiversity, and water and soil contamination. As of 2018, there were an estimated 60,000 abandoned mine sites in Australia alone¹. These abandoned mines represent billions of dollars in rehabilitation liabilities without any reversal in sight, leaving uncertainty for all stakeholders—mine operators, residents, and native fauna and flora.

The risks associated with this system are grave, as the likelihood of operators defaulting before rehabilitation occurs is quite high due to revenues trailing off towards the end of a mine’s lifecycle, resulting in mines being abandoned for decades. Additionally, the decline in thermal coal demand means an accelerated rate of expected mine closures in the upcoming decade. After excavating all economically feasible minerals, it is in the mine operators’ interest to turn their attention to the next developments, but significant time and resources are required for full rehabilitation of the mine. This is especially a problem for smaller mines, which have fewer resources to invest in rehabilitation. The process can take years to complete, bloating operators’ balance sheets and bogging down their return metrics.

OUR INNOVATIVE SOLUTION

The Fund for the Rehabilitation of Australian Mines and Environment (FRAME), clears away uncertainty for currently operating or recently suspended mines by taking ownership over the entire rehabilitation process resulting in significant environmental benefits:



- (1) Equity is paid in by investors. Funds will be drawn first from GPs until exhausted, then from LPs.
- (2) FRAME will acquire both the escrowed cash and the associated mine rehabilitation liabilities from current operators.
- (3) By partnering with large contractors experienced in rehabilitation, such as New Hope Mining², FRAME will estimate, facilitate, and pay for the full cost of the mine rehabilitation, a 10-year period with a 5-year drawdown.
- (4) At the close of every year, independent ecologists and government compliance officers will assess remaining liability. Unused cash will be invested in short-term Australian government bonds.
- (5) Equity and cost savings are returned to investors. Because government mandated rehabilitation liability funds include several layers of contingencies, we expect the escrowed cash received from operators to be approximately 10%-30%+ greater than the actual cost of rehabilitation.

This way, FRAME will ensure that mine rehabilitation occurs without the risk of external economic factors (such as operator bankruptcy or fluctuating commodity prices) debilitating successful restoration of land. Furthermore, FRAME will work with the government to assess adherence to rehabilitation success criteria and administrate hand-backs of rehabilitated sites to the government.

For operators, this upfront payment removes future uncertainty and allows them to focus their resources in more lucrative endeavors. Moreover, by taking both liquid assets and rehabilitation liabilities from current operators, FRAME helps compress the operator’s balance sheet to boost their financial metrics.

KEY FUND DETAILS

Fund Size	USD \$60 M
Investment Criteria	<ul style="list-style-type: none"> ◆ Average mine size of 800-1,200 ha ◆ MineCos with full rehabilitation included in mining operation plan ◆ MineCos with fully funded rehabilitation liabilities including the 15% capital buffer as required by Australian regulation ◆ MineCos must agree to engage with accredited contractors
Target IRR	17% - 42% (net of fees)
Fees	2% management fee on committed capital, 20% performance fee on returns >15%
Minimum Investment	USD \$100,000
Target Investors	Family offices, strategic investors, impact-oriented investors and institutions
Asset Class/ Structure	Special Purpose Vehicle (SPV), Private Equity
Time Horizon	10 year timeline with 5 year drawdown, plus a 2 year extension period
Metrics for Social Impact	<ul style="list-style-type: none"> ◆ Time to restoration ◆ Surpass government performance indicators on soil and erosion condition and species richness (pH, topsoil depth, water infiltration levels etc.)

KEY ASSUMPTIONS

- ◆ Average mine size of 1,000 ha; average mine liability of USD \$100 M
- ◆ Government will continue to require contingencies over total costs, representing a 15% buffer
- ◆ Investment in Australian government bonds will yield 1.50%
- ◆ Contractors take 12% margin on top of direct costs

SOCIAL IMPACT



Adoption

Mine operators do not prioritize the environment. By separating rehabilitation activity from mineral extraction, FRAME will significantly reduce the number of mines abandoned in Australia each year.



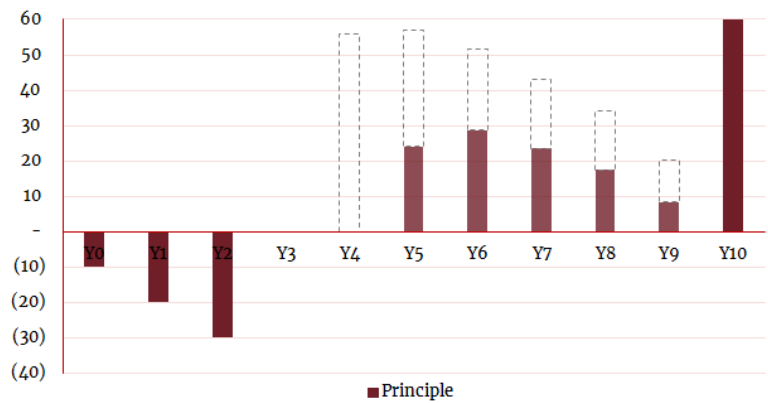
Revegetation

Seeding is the most costly and labor intensive part of rehabilitation. By focusing on rehabilitation, FRAME will be able to tap into the cost-savings by leveraging economies of scale, without sacrificing quality.

HIGH SCALE POTENTIAL

- ◆ **Horizontal scaling:** Future international scale possibilities, in order of mine population as of 2019 (China - 10,000, Canada - 10,000, South Africa - 6,000, Germany - 200); transition to larger funds including 10+ mines (\$100M+)
- ◆ **Vertical scaling:** Engage with later parts of the rehabilitation cycle, including working with local communities to find new uses for reclaimed land. This can include farming, agriculture, or commercial building.

ANNUAL CASH FLOWS TO INVESTORS



USD \$ millions

Cash flow to investor	Y0	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Base-case CF	(10)	(20)	(30)	-	-	24	29	23	17	8	60
Base IRR	17%										
Base Cash-on-Cash	11.2x										
Upside CF	(10)	(20)	(30)	-	56	57	52	43	34	20	60
Upside IRR	42%										
Upside Cash-on-Cash	32.2x										

*Upside case reflects scenario where costs are cut to match the realized savings of a single sample

DUE DILIGENCE

Risk	Mitigation
Government buy-in Government may not support the creation of our funds	<ul style="list-style-type: none"> ◆ Emphasize how employment rates would benefit from job creation with implementation of FRAME ◆ Highlight cost savings from efficient rehabilitation operations and cost monitoring ◆ Demonstrate impact on aiding environmental objectives by increasing the rate of mines rehabilitated ◆ Australian government has been focusing on supporting innovative businesses ideas to support jobs and growth to offset the decline after the mining investment boom⁴
Change in regulation Reversal or relaxation of existing environmental regulations	<ul style="list-style-type: none"> ◆ Environmental protection laws have been in effect for over 20 years⁵ ◆ Australians' attitudes are shifting, reflecting higher recognition and rising concern of environmental issues according to the World Wide Fund for Nature Australia's 2018 report⁶
Force majeure Natural disasters could significantly increase rehabilitation costs and prolong rehabilitation	<ul style="list-style-type: none"> ◆ To ease impact of natural disasters such as wildfires, which could significantly increase costs, we could: <ul style="list-style-type: none"> ● Diversify mine locations to multiple states across Australia ● Purchase insurance
Cost overruns Liabilities could exceed our fund assets	<ul style="list-style-type: none"> ◆ Monitor rehabilitation costs throughout the process to manage total costs effectively ◆ Move to fixed contracts over time to limit exposure from spikes in variable costs ◆ 15% buffer set by government creates safety cushion
High leverage Profit or loss are magnified	<ul style="list-style-type: none"> ◆ Investment of proceeds into government securities during the mining period ◆ Monitor rehabilitation costs of a mine throughout the process to manage total costs effectively ◆ Diversification of mine types and geographical locations ◆ Distribution waterfall will withhold an additional 15% reserves to help insulate against downside risk

RESOURCES

[1] [Ensis](#), "As Australia's Mining Boom Wanes, Rehabilitation of Abandoned Mines Offers Lessons For The World," 2018; [2] [New Hope Mining](#), 2018; [3] [Queensland Government](#), "Financial assurance security deposit for an environmental authority", 2018; [4] [National Innovation and Science Agenda Report](#), 2015; [5] [The Environment Protection and Biodiversity Conservation Act](#), 1999; [6] [Australian Attitudes to Nature](#), 2017; [6] Queensland Department of Environment and Science Rehabilitation requirements for mining resource activities V2.01.