

THE IMPACT FACILITY

Turning mineral wealth into community prosperity

Equipment leasing services to Artisanal Mines
in East Africa

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Executive Summary

Artisanal and small-scale mining employs over 40 million people and supports a further 250 million globally. Of these, 32 million are directly or indirectly associated with the recovery of gold, who produce about 20 percent of all mined supply. After agriculture, artisanal mining is the largest employer in Africa. In Tanzania, artisanal mining is booming and attracts around 700,000 workers. With global gold prices rising, a similar pattern can be seen in Kenya and Uganda, both of which are experiencing significant increases.

Despite its significance, however, the sector is largely informal, and its operators are mainly financed illicitly. Legitimate funding reaching the sector has generally been restricted to donor and philanthropic grants, with only a few forays from pioneering lenders. While interest in the sector from international organisations has risen strongly, the problems associated with it stubbornly persist. A new approach is needed to break the cycle and unlock the potential of artisanal and small-scale gold mining for rural Africa.



List of Acronyms

ASM	Artisanal and Small-Scale Mining
ASGM	Artisanal and Small-Scale Gold Mining
ASMO	Artisanal and Small-Scale Mining Organisation
CIP	Continuous Improvement Plan
EPRM	European Partnership for Responsible Minerals
FvO	Fonds Verantwoord Ondernemen, managed by the RVO
GCT	Genesis Charitable Trust
LVGP	Lake Victoria Gold Programme
MLA	Master Lease Agreement
MoU	Memorandum of Understanding
OPEX	Operating Expenses
p.a.	Per annum / Per year
PPE	Personal Protective Equipment
RVO	Rijksdienst voor Ondernemend Nederland [Dutch agency]
TES	TIF Engineering Services Ltd [Kenyan subsidiary]
TIF	TIF [UK Charity]
ToC	Theory of Change



1. Introduction

1.1 Setting the scene

The development of mineral resources generates significant wealth and, when managed wisely, has resulted in the positive transformation of the economies of communities, regions, and entire countries. Imprudent natural resource governance, however, can result in few benefits for its hosts and the communities neighbouring developments that experience the greatest disturbance to their lives and their natural environment. Dubbed the resource curse, the positive correlation of mineral-rich nations and poverty prevails still today, and notably in Africa, which is home to 30% of the world's remaining mineral resources. While inequitable distribution of rents from mining, and in some countries, systemic corruption is often to blame for this phenomenon, an often overlooked cause is the failure of small and medium sized enterprises (SMEs), including artisanal and small-scale mining operations (ASM), to form the economic linkages necessary to build sustainable local economies. There is a window of opportunity during the life of mineral development projects to build strong businesses, transferable skills, and the platform on which to provide diversified and durable local economies. Yet, historically, this is seldom fully grasped.

In the gold sector, with the prospect of finding deposits to support mega mining projects becoming forever scarcer, artisanal and small-scale operations, which require little capital to start up and a fast lane to cash flow positivity, present an attractive prospect for millions of rural people living on the margins of the global economy. Artisanal and Small-Scale Mining (ASM) accounts for more than 35 percent of exports for 22 of the world's poorest countries. It provides a livelihood directly for some 25 million people worldwide and supports another 40 million. Of these, 32 million jobs are directly or indirectly associated with the recovery of gold. Artisanal and small-scale gold mining (ASGM) employs 90 percent of all workers in gold mining globally, and 20 percent of all mined supply. After agriculture, ASM is the largest employer in Africa. In Tanzania, ASGM is booming and attracts around 700,000 workers. With global gold prices rising, a similar pattern can be seen in Kenya and Uganda, both of which are experiencing significant increases in ASGM.

The importance of ASM for rural Africa cannot be overstated. Despite its significance, however, the sector is largely informal, and operators often lack access to capital, equipment, technical assistance, and fair terms of trade for their product. In the absence of the practical knowledge of good management practices, technical guidance from government agencies or capacity building organisations,



ASGM is often linked with hazardous working conditions, child labour, inefficient mining and processing techniques and the widespread use of mercury for processing. Many artisanal mining operators (ASMOs) remain trapped in a stubborn cycle of poverty unable to reach their economic potential and build viable businesses.

This current unsatisfactory state need not persist, however. With access to capital on fair terms, capacity development support, and a route to fair markets, ASM can be a responsible driver of sustainable development in rural communities that have few other choices. The Impact Facility for Sustainable Mineral Supply Chains was established to catalyse this opportunity for millions of underserved people. It applies an innovative, investment-led approach that enables artisanal, small and medium-sized mining enterprises to build resilience and stand on their own feet, while incentivising responsible, safe and clean operating practices. The Impact Facility aims to build financially self-sustaining ASM operations using a model that can be replicated and galvanise positive impacts at scale.

1.2 Current programmes

The Impact Facility supports artisanal and small-scale mining operations (ASM operations) in Kenya, Uganda, Tanzania and the Democratic Republic of the Congo. It provides access to capital, technical assistance and to international markets. TIF collaborates with key partners under the Lake Victoria Gold Programme (LVGP), including leading a consortium of partners collaborating through a programme funded by the European Partnership for Responsible Minerals in Kenya and Uganda, as well as playing a key role in the consortium led by its strategic partner, Dutch development agency Solidaridad, in Tanzania. Geologically, the ASM operations across these two programmes extract minerals from a series of connected gold deposits, which are geographically clustered in the Lake Victoria region. This spatial concentration is sufficiently large to incorporate a high number of ASM operators, while making access to them manageable and affordable.

1.3 Fundraising

TIF's activities have thus far been supported by donor-funded grants covering start-up costs and for technical assistance for equipment transfer and installation or capacity development programmes for ASM operators. Over the last three years, TIF has actively sought to secure capital from impact investors and institutions to provide a financing facility for equipment loans to ASM operators. Several



conversations have been very promising and advanced to final approval, yet, while all offices have understood and voiced excitement for the impact potential of investing in ASM operations, the investment committees approached so far have required further evidence of a track record of repayments. COVID 19 in 2020 arrested the progress of two anchor investors and has deepened caution across the sector, a state of low-level optimism from which we are only now emerging. Investing in the ASM sector is at the early phases of the curve of adoption. While TIF has built and continues to nurture a list of investors willing to be the 'first to be second', onboarding pioneers has been the priority.

In the second half of 2020 and in 2021, TIF has allocated small investments and loans to ASM operators and has invoiced and received repayments. These investments can be considered pilots that demonstrate ASM operators' will and ability to repay loans for capital equipment that increases productivity at their sites.

TIF's experience of the last three years of forging trusting relationships with ASMOs, testing different models for equipment provision, increasing its knowledge of which equipment is the most beneficial for and demanded by ASMOs, and increased marketing and fundraising efforts, has resulted in attracting and establishing promising relationships with two investors. These relationships have been documented in MoUs, which include pre-negotiated terms, and a pathway and timeline for signing contracts.

TIF has signed an MOU for an investment commitment of EUR 350,000 from a private investor. This private investor targets a return of 6% per annum, which is currently below the current prevailing bank rate in Kenya, Uganda, and Tanzania.

A second MOU has been signed between TIF and an equipment leasing company based in Nairobi with a trans-African reach, for a preliminary investment commitment of USD 400,000 to be repaid at prevailing local bank rates. This agreement will also open the door to knowledge and experience of leasing arrangements in Africa, access to capital, and leverage existing arrangements for equipment importation, after-sales support, and insurance cover.

The interest and investment of the equipment leasing company and the private investor in the LVGP is a pivotal opportunity for TIF to build a track record of successful investments in ASM operations that will demonstrate the potential of the sector to other investors and move this category further along the adoption curve.



2. Artisanal Mining and The Impact Facility: financing a fundamental driver of community development for the future of rural Africa

2.1 From social problem to development opportunity

Artisanal and small-scale gold mining is a significant global livelihood and supplier of gold. To date, this sector has been left largely on the margins of the formal economy and mainly financed informally, with few conditions linked to environmental, social or governance performance. Funding reaching the ASM sector has generally been restricted to donor grants, with only a few forays from pioneering lenders. Artisanal and small-scale mining provides the minerals for a growing global economy, including gold for jewellery, financial guarantees and a growing demand from consumer electronics companies, as well as base metals for the green infrastructure required for de-carbonization and electrification. Employing over 40 million people and supporting a further 250 million globally, it is the chief source of income for many rural communities.

Yet public commentary on ASM, and ASM for gold (ASGM) in particular, is largely negative, dominated by activists and media reporting on a multitude of issues, such as gold smuggling, money laundering, links with organized crime, environmental destruction and child labour. While there are clear negative activities and effects associated with ASGM, ASGM enterprises are a catalyst for the generation of economic, social and environmental benefits. These benefits are not restricted to mine operators but are also felt in communities surrounding ASGM, by virtue of an economic multiplier effect far greater than many other sectors, such as agriculture. For ASGM to be an economic catalyst and part of a thriving responsible mining sector, it requires access to capital equipment, markets and capacity development. Although advances have been made in many areas, such as in responsible sourcing and progressive ASGM public policies, barriers remain to access finance—specifically, to the types of formalized finance that can incentivize positive economic and social impact and reach a scale to be applied to many members of the ASGM sector rather than just a few at a time

To date, ASGM has largely been financed by informal lenders, such as local mining community groups, family members and gold or mercury traders who offer finance in return for access to future gold production and profit sharing. Microfinance institutions rarely ever serve ASM mining organizations as they are perceived to be



too high risk. If loans are granted, these usually are conditional on very high interest rates of around 30%. A common approach in the informal financing of ASM is to take discounts on the purchase of gold, which can be up to 40%. TIF has witnessed cases in which unscrupulous entrepreneurs, as well as demanding repayment of machinery provided to the ASGM, were also entitled to 50% of the profits. In the worst cases, these informal arrangements can result in ASGM becoming trapped in perpetual debt cycles or intertwined with illicit financial flows.

Furthermore, while such informal finance can bridge operating costs between the recovery of gold and its sale, it is typically not invested in much-needed business improvements and capital equipment that enhance productivity and operating efficiency. Services and technology to support effective exploration, mining, processing and remediation activities remain largely out of reach for ASGM. In addition, this informal finance is not tied to any environmental, social or governance (ESG) criteria and so there is no inbuilt incentive for ASGM to improve practices, to safeguard workers' health and safety, or to drive mercury elimination. Grants from donors and development agencies primarily focus on addressing environmental and human rights issues associated with ASGM. However, few of these initiatives engage ASGM with the goal of unlocking their business potential. Continued reliance on donor or grant finance can reinforce a dependent donor-beneficiary model that is difficult to break.

We are, however, at a pivotal moment in the responsible and formal financing of ASM. There is increased recognition that economic sustainability, including the participation of the private sector in development programmes, is a critical factor in achieving development impacts that can be sustained beyond the life of donor and grant funding. With access to capital on fair terms and technical support, artisanal mining can be a responsible driver of resilient development in rural communities. Even with small investments, miners' can greatly improve their production efficiency and capacity, thereby improving their income and profits, gradually strengthening their businesses and allowing for increased investments in social and environmental performance. Similarly, certain equipment can also immediately positively impact health and safety, such as mercury management tools. When tied to terms for improved environmental, social and governance performance, finance can incentivize more responsible mining practices.

It is this unparalleled opportunity for impact in a sector that has the potential to be a future fundamental driver of community development in Africa that The Impact Facility has been established to grasp. The Impact Facility has adopted an innovative, investment-led approach that strengthens small and medium community enterprises to enable them to stand on their own feet, whilst



incentivising best mining practice aiming at financially self-sustaining programmes to create impact at scale.

2.2 The business-led approach of The Impact Facility

The Impact Facility (TIF) was founded by TDI Sustainability, the Fairtrade Foundation and Fairphone, and was established as a charitable incorporated organisation (CIO) in 2018 under the laws of England and Wales. The Impact Facility has the purpose to drive and enable the sustainable development of mining communities through providing small and medium-sized enterprises, including ASM mining organizations, with access to capital, technical capacity building and access to formal markets. To enable fulfilling its charitable objects, TIF has been set-up as a non-profit with a fully owned trading subsidiary, Impact Capital (ICL), which has the ability to provide financing to ASM operators by receiving, investing, and repaying investment capital from investors. TIF is governed by its [trustees](#) to ensure its charitable objects are closely followed and employs experts internationally and locally to implement its services to ASM operators.

The TIF management and operating [team](#) is robust in its diversity and depth of knowledge and experience. Its founder, Assheton Carter, has over 25 years' experience in structuring innovative green supply chains. He built the first ethical gold and diamond supply chain to jewellers in the USA and developed the world's first tracking system for conflict-free metals sourced from the Democratic Republic of the Congo (DRC). He was involved in the launch of two private equity firms investing in minerals and forest-based carbon. He is a known leader in mining and sustainable development. TIF's investments are guided by Ed Bowie, who established and managed two listed investment funds focused on the gold sector with total assets under management of US\$100 million. He designed equity and loan packages, access to finance strategies and concluded over 200 due diligence research projects for gold mining of all operational sizes. Carter and Bowie are supported by a team with technical, sector and supply chain specialisms, based in Europe and East Africa.

TIF takes a multifaceted approach to enable the sustainable development of mining communities through providing artisanal mining operations with:

1. Access to Capacity Development

TIF strengthens the technical capacity of artisanal mining organisations and other enterprises in mining communities through technical advice and transfer, training, and business management education.



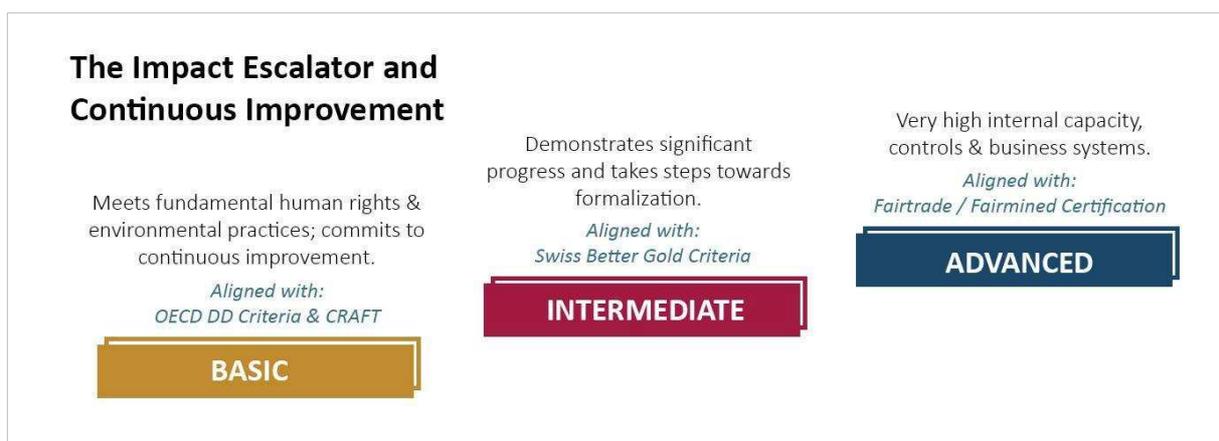
2. Access to Capital Equipment

TIF manages grants, capital investments and loans and allocates funds and arranges leases for the transfer of capital equipment to targeted ASM operations that have passed TIF's due diligence. Capital equipment is for the core productive and processing activities of ASM that set them on a path to long-term business viability. An objective of TIF is that ASM will build a track-record of repaying loans and meeting leasing terms, enabling them in the longer-term to access mainstream financing in their countries.

3. Access to Markets

Where advantageous, TIF enables access to fair and premium markets for the ASM mined products, often internationally. Facilitating a fair price and surety of demand can capture more of the value in the trading chain with the ASM producers, greater profits can be reinvested into the ASM operation and distributed to workers and auxiliary small and medium sized enterprises in the local community.

To build the reputation of ASM as a responsible sector and to have measurable impact for people and the environment, TIF combines its offer of access to capacity development, capital equipment and markets with a framework to guide gradual improvements in environmental, social and governance (ESG) performance. This is known as the Impact Escalator. The Impact Escalator has been developed by TIF and its partners, to set out the ESG expectations the mines will gradually need to meet to receive TIF services. The Impact Escalator lifts ASM operators' ESG practices to meet TIF's and customers' expectations and gain access to markets, which are consistently and globally raising the bar on standards and reporting.



TIF's Impact Escalator, aligned to globally-accepted due diligence mechanisms



A demonstrated commitment to positive change by ASM operators is conditional for continued access to TIF's services, ensuring improvements are incentivised at every step of the escalator. All efforts are designed to maximize positive impact and avoid excluding communities. If ASM operators are able to demonstrate they are meeting or exceeding the basic criteria on the escalator, and commit to continued improvement, they will continue to have the support of TIF.

TIF works with and through local implementing partners that have strong networks, experience, and track records of building the capacity of ASM operators and enable their implementation of ESG improvements. Current partners include Solidaridad in East and Central Africa, FaDev in Tanzania, and NCCK and Groots in Kenya.

As a mission-driven organisation, TIF's success is measured by its impact in the mining communities in which it invests. Impact indicators and metrics are used to measure, monitor, and evaluate the performance of the portfolio of projects and to strengthen the impact model to build sustainable mining communities.

2.3 Overview of The Impact Facility's programmes

The Impact Facility has piloted its business-led approach in mining communities recovering gold, gemstones, and cobalt. TIF supported small mining enterprises in Brazil enabling on-site improvements and establishing a route to market to Swarovski's cutters and polishers in Bangkok. Similarly, the TIF team facilitated the export of emeralds cut by women-run workshops in the Swat Valley, Pakistan, to jewellers in London. In 2020, TIF launched the [Fair Cobalt Alliance](#), a large coalition of supply chain businesses, including Tesla, Glencore, Signify, Volvo and ATL, with the purpose of improving artisanal cobalt mining practices in the Democratic republic of the Congo.

In the ASM gold sector, TIF has been active in Uganda, Kenya and Tanzania since 2018, where ASGM is a significant livelihood contributor. TIF has worked alongside Fairtrade Foundation, Fairtrade Africa and Solidaridad through a programme funded by Comic Relief to support mine sites through capacity building and the provision of mercury-free processing equipment. In Uganda, TIF has worked together with Solidaridad, Fairphone, Unicef, Fairtrade, Philips and Hivos / Stop Child Labour to contribute to more responsible ASM gold mining, reduce child labour and strengthen ASGM operators through providing access to equipment. In Kenya, TIF was part of a consortium comprising Fairtrade Africa, the National Council of Churches in Kenya (NCCK), Groots and Fairtrade Foundation that resulted in the onboarding and technical support of nine ASM operations located



in West Kenya. In Tanzania, with the support of Genesis Charitable trust, ten mine sites were assessed on their ESG performance and equipment needs and received capacity building training to elevate their social and environmental performance. Additionally, TIF has collaborated with FaDev, a Tanzania based CSO sharing the objective of professionalizing ASM. Since 2019 TIF and FaDev have strengthened ASGM operators through the provision of technical training on financial literacy and mercury-reduction and supporting the sourcing and provision of equipment. TIF's efforts leveraged and aligned with separate programmes executed by partner organisations such as Solidaridad or the NCKK ensured continuous ESG capacity building over time, based on the co-developed impact escalator framework, increasing the capacity and trust relations with ASGM operators.

To date, donor funding has enabled TIF to build and register a robust, fit-for-purpose charitable organisation; develop a suite of ASM-relevant environment, social and governance (ESG) due diligence and capacity development frameworks and tools; recruit and develop relevant expertise and skills and, pilot several business models for the provision of appropriate operating equipment to ASM, including clean technology for low-to-no mercury gold processing machinery. Pilot investments focussed on the provision of processing equipment, generators and water pumps have been implemented generating significant and valuable learnings. Lastly, these programmes enabled dozens of mines across East Africa to be assessed on their ESG performance and investment readiness, continuously build capacity of targeted mine sites accordingly, and develop an ecosystem of over 40 mines within our reach.

Beyond our work in East Africa, the TIF team contributed to the GEF's Global Planet Gold programme by authoring a paper titled "Unlocking Finance for Artisanal and Small-Scale Gold Mining" published in late-2019. TIF staff was further involved in the capacity of a technical consultant conducting field work in Guyana mapping the value chain of ASGM (this work started in 2019 and will conclude in 2021), as part of Guyana's Planet Gold programme led by the local branch of Conservation International. And lastly, yet notably, TIF staff was leading the development of the Swiss Better Gold Associations (SBGA) gold standard designed based on the same principles of continuous improvement, tailored for application in the context of South America.

Currently, TIF collaborates with its partners in the Lake Victoria Gold Programme (LVGP), including leading a consortium of partners collaborating through the 4-year EPRM funded programme in Kenya and Uganda, as well as playing a key role in the consortium led by our strategic partner Solidaridad in Tanzania. The EPRM program, started in 2021, adopts an investment-led approach for equipment



provision to ASMOs operating in Kenya and Uganda. Related to and coordinated with the EPRM programme is TIF's partnership with Solidaridad, a non-profit development organisation, in a project also funded by the Dutch government that follows a similar model of engagement with ASGM in Tanzania. This programme started in 2021 and will likely run for a four year period, pending the approval of the first phase (year 1) and satisfying the co-financing requirements. Geologically, the ASM operations across these two programmes extract minerals from a series of connected gold deposits geographically clustered in the Lake Victoria region. This spatial concentration is sufficiently large to incorporate a high number of ASM operators, while making access to them by TIF personnel manageable and affordable.

These coordinated projects have the goal of enabling miners to access professional mining equipment, technical assistance and markets, and are based on the thesis that through accessing these resources ASM operators' can become truly viable, enduring producers. In both programs a key component is to enhance the social and environmental performance of ASGM operators. This approach is transformative from a social point of view, as ASM operators follow an enabled path to adopting safer mining practices and creating decent working conditions, facilitated through the technical support of the TIF team and partner organizations following the Impact Escalator framework. It leverages donor support and demonstrates the power of blended finance and impact investing through the tangible benefits experienced by mining communities.



3. Access to capital and equipment: the case for leasing services

A clear lesson has emerged from donor reports, specialist consultants' analyses and TIF's own experience of ASM projects that have set out to address the social and environmental impacts associated with the sector. Such capacity development programmes fail to move ASGM mine sites in East Africa beyond a basic performance level on the Impact Escalator. In other words, their potential for social impact is constrained. This is because the fundamental needs of the business are neglected, and thus the possibility to generate revenue and profits to invest in mine-site improvements is limited. ASGM operators are currently struggling with inefficient operations and low productivity and need capital equipment to be more efficient, have cleaner processing plants and to generate the profits to reinvest into their own capacity. Their potential can be unlocked, however, if they are able to access capital equipment on reasonable terms. For this reason, TIF has prioritised the provision of equipment appropriate for ASGM operations.

3.1 Insight into the needs of ASGM operators

Through the information it has gathered in East Africa and globally, TIF has formulated a clear picture of the equipment needs of miners to improve their productivity, the levels and types of organisational capacity required to be successful when introducing new equipment, and what most incentivizes miners to climb the Impact Escalator. The following are some of the key insights relevant to this proposal:

- **Value for money is more important than the cost of capital equipment.** Most ASGM operators reported very negative experiences with low quality capital equipment, especially with Indian or Chinese brands, and showed a strong preference for equipment that is known to function well and to last. ASGM operators have a keen understanding of value for money as they understand their fundamentals of their business require them to recover and process gold consistently to maintain steady cash flow. They know too that gold is a volume business, and economies of scale are important. For this, reliable productive equipment is key.
- **Repayment over time is preferable to loans against collateral or outright purchases.** ASGM operators are often trapped in a vicious cycle of poor



mechanisation and low efficiency, leading to high production costs and low profit margins, unable to save sufficient capital to fully finance larger investments that could adequately address these inefficiencies. For this reason, TIF would expect miners to merely provide 5-10% of the requested investment as co-financing, without additional requirements for collateral. There is strong confidence in ASM operators that re-payment is possible, however, supported with TIF's (limited) repayments in 2021.

- **Participation in the selection of equipment is key.** ASGM operators have built a knowledge of and different levels of trust in different models and brands of equipment. To build their confidence in TIF and in the deal, TIF has learned that ASM operators' active participation in choosing capital equipment is key.
- **Greater choice of equipment is strongly desired.** Currently, ASM operators have a limited choice of equipment, mostly locally produced in makeshift workshops with few options to source parts, or cheap mass produced models from India or China that have a reputation of poor performance, being easily broken and difficult to repair. ASGM operators consistently ask for support in finding, procuring, importing, and installing reliable (often foreign) equipment.
- **Technical assistance is a must:** Initial and continued technical support and training to fully understand how to operate and maintain new equipment is both needed and requested by ASGM operators.
- **Access to spare parts is a must:** if and when depreciated / broken parts need replacing / fixing.

3.2 Possible financing models for the provision of capital to equipment to ASGM operators

TIF has evaluated and piloted different models for ASM operators' access to capital equipment, including toll milling, direct loans and equipment leasing. The following list provides a brief analysis of the options considered.

- **Cash-Purchase.** A simple way for ASM operators to access equipment would be through direct cash purchase for equipment provided by TIF. TIF would organise the import and delivery of the equipment and include a margin in the transfer price to the ASGM. This option is largely ruled out for the majority of ASMG operators, because:



- ASGM operators lack capital to buy good quality machinery, that is more expensive than local alternatives and comes with additional costs associated with importation.
 - There is a limited local offering of high-quality equipment, leading to miners routinely purchasing low-quality alternatives, often financed through informal loans or production sharing agreements. These 'informal finance' traps contribute to the poverty cycle which TIF hopes to break for ASGM operators
- **Loan for equipment purchase.** Addressing the need for capital to procure needed and requested capital equipment, one option could be to extend a (modest) loan to miners. With the loaned money, they could procure the equipment of their choice. The challenges with this approach are:
 - 1) A lack of collateral to secure the loan,
 - 2) limited local availability of high-quality equipment and
 - 3) Issues around repayment if / when the equipment breaks down.
- **Toll milling service / Pay-per-use processing:** TIF had the opportunity of trialling the provision of a pay-per-use service to miners in Uganda, like toll milling, where ASM operators bring gold ore to a processing station and pay per volume to recover gold. The equipment provided was designed to reduce mercury use. TIF experienced difficulties attracting customers due to a lack of trust from miners. Mining generally is a conservative industry that follows a 'if it ain't broke, don't fix it' philosophy. It takes considerable time to build trust and to familiarise ASM operators with new equipment. TIF has learned from this experience that it requires a permanent local presence and strong relationships with miners to operate such a scheme, which would add its operating costs. Furthermore, and more importantly, this setup lends itself only to processing of material, not the actual extraction of the mineral. The business challenge for most ASGM operators is extracting sufficient volumes of gold from the mine, not the processing of the gold. Currently, increasing productivity is seen as a priority by most miners, therefore. This model holds promise for the future but is considered difficult to scale currently without a significant investment in field personnel needed to operate it.
- **Rental Equipment.** Using rental equipment is a practice that is already quite common among ASGM. This is especially equipment such as excavators or earth movers, water pumps or generators, which are rented from local



entrepreneurs. Such 'investors' expect either cash payment or a production share in return for their equipment. TIF's experience is that rental terms are often disadvantageous in the medium-to-long-term but help miners address production challenges when the company has no or too little liquidity to invest into equipment themselves.

Assuming fair terms are applied, rentals are a great way to resolve liquidity issues and kickstart production. Long-term rentals should only be considered for machines that require significant capital and are not needed by the miners on a regular basis, such as the occasional hiring of excavators to remove overburden or prepare a site.

TIF has ruled out rentals as the core solution to providing miners with access to equipment but would remain open to explore rental applications in cases where the circumstances justify such a setup. Generally speaking, rentals require a local footprint big enough to manage, operate and maintain (short-term) rental equipment through trained staff. This results in significant OPEX costs to establish rental offerings to begin with and would likely result in charges higher than the cost of leasing (as explained below).

- **Equipment Leasing / Lease to Purchase Arrangements.** Lease-to-Purchase Agreements (LPAs) are well known and often used in many sectors across the African economy. The lessor arranges the purchase and delivery of equipment in return for monthly payment against the principal and an interest rate. LPAs allow ASGM operators to use equipment from day one of the lease period, with the right to step back from the contract if need be, but with the intention of acquiring ownership over the asset over the life of the LPA. Depending on the structure of the LPA, the lessor can assume responsibility for periodic servicing of the equipment, including the provision of spare parts, and, importantly, handling all and any warranty-covered repair claims towards the manufacturer.

This arrangement is suitable for ASGM operators as it meets the needs identified earlier for making repayments over time, access to and choice of quality equipment, continued technical assistance and access to spare parts. The lessee commits to maintaining the equipment on a day-to-day basis and making lease payments on-time and in full. The equipment is an asset that serves as a security that can be withdrawn at any point, should the miner default or step back from the contract.

TIF was able to pilot the provision of equipment under lease-to-purchase



contracts with several ASM operators in 2020 and 2021 in Kenya, Uganda, and Tanzania. TIF has been able to successfully lease out generators and water pumps that have been and currently are being repaid by the ASMOs in line with their contracts.

The Impact Facility concluded that equipment leasing through LPA's is the most promising model to provide access to capital equipment for ASGM operators at scale. It does not require significant investment by ASM operators upfront, is cheaper than renting equipment in the long-term and enables operators to assume ownership over time, without TIF having to maintain an overhead heavy operation required for short-term rentals.



4. Establishing an ASGM equipment leasing service

Logging three years of operational experience throughout East Africa, TIF has concluded that leasing equipment to ASM operators through lease to purchase agreement (LPAs) is the most suitable model to achieve its mission. The LPA approach meets ASM operators' needs for affordable equipment financing and TIF's strategy to operate efficiently and maintain a lean team focussed on providing high-quality equipment identified by ASGM operators. Lessons learned as well as identified risks have been considered to shape a leasing service that is most fit for ASM operators and TIF.

Through its involvement in the programmes described in Section 2, TIF has developed an ecosystem of more than forty ASM operators that have expressed interest in receiving production and processing equipment, many of them formally and in writing. Past and continuing donor-funded programmes led by TIF and our partner, Solidaridad, allow for the provision of capacity development services, to ensure the investment readiness of mine sites seeking LPAs with TIF.

Currently, two promising investment and business partnerships are under way that open the opportunity to kick-start a scalable impact business in Tanzania, Kenya and Uganda. The partnership with an equipment leasing company based in Nairobi, brings the company's rich experience of leasing ranging from vehicle and industrial plants, all the way to large-scale mining projects. This equipment leasing company is committing equipment leases worth USD 400,000 to the ASGM sector.

A second investment has been secured from a private investor who has committed to invest EUR 350,000 to enable TIF to provide equipment to ASM operators.

4.1 Providing a viable leasing services tailored to ASGM

From investments that have been made over the last three years, TIF has grown to understand the qualities of a financial service that adequately address the needs of ASM operators. As highlighted in section 3.1, it is not the cost of capital that currently limits ASM operators' ability to make use of formal financial services, but the mode of repayments and the lack of flexibility needed to respond to the challenges of operating an ASGM site.

Drawing on TIF's experience from previous investments, and reflecting on



successes and failures affirmed in discussion with ASGM operator user groups across East Africa, TIF considers that LPA's will be most successful when allowing for:

- **Tailored investments.** The ASGM operator, as the customer, holds the final decision on the model and technical specification of equipment.
- **Co-financing by miners.** Requiring co-financing of 5-10% from ASGM operators, prior to procuring the lease equipment helps ensure that miners are willing to pay for the equipment in question.
- **Smart-sourcing of equipment.** Equipment is sourced from regional providers whenever possible, and internationally if beneficial, to ensure maximum value for money for the miners. This includes aspects of post-sale support, considering technical specification, built-quality and landed costs, as well as delivery periods and the availability of spare parts.
- **Lease-to-Purchase Option.** Allowing mine operators to assume ownership of the equipment at the end of the leasing period.
- **Grace Periods.** Every lease includes an optional grace period of up to three months before the first payment becomes due, to ensure that the ASGM operators can effectively start benefiting from the equipment and build a financial buffer.
- **Flexible repayment schedules.** Repayment schedules are jointly designed to accommodate production cycles, e.g., anticipating production challenges during the rainy season, allowing for lower re-payments in months with low production
- **Payment breaks.** Optional payment breaks are offered to accommodate unforeseen circumstances, such as tunnel collapses, accidents, or equipment breakdowns.
- **Regular servicing.** Undisrupted usage is ensured through regular servicing of the equipment by trained mechanics.
- **Equipment Warranties.** An (extended) manufacturer's warranty and support enforcing repair claims is included.
- **Spare Parts.** Access to and availability of spare parts is considered when sourcing equipment.



- **Technical training.** The installation of equipment and including technical training of relevant mine workers is facilitated to ensure proper usage of the equipment.
- **Theft and fire insurance.** Assisting miners in taking out 3rd party insurance to cover theft or fire damage.
- **Fast-tracked repayments.** Allowing miners to fast-track repayments whenever they can repay the machine and acquire ownership ahead of the initial leasing schedule.

4.2 The benefits of equipment leasing

As first described throughout section 3.2, equipment leasing generates value for miners beyond the mere provision of capital to finance the initial procurement of the asset in question. TIF believes that some key advantages are that:

- **Attractive financing terms.** Leasing is generally cheaper than long-term rental solutions, something currently resorted to by many ASM operators. Based on our research into common financing deals, the costs to the miners of the proposed leasing deals should be significantly lower than the costs of other informal financial offerings currently available to miners, if any.
- **High value for money.** Besides cheaper financing, it is highly likely that the actual landed cost of equipment will be lower than if the ASM operators attempted to source the equipment themselves. Connected to a broad network of OEMs, TIF and its proposed leasing partner, further introduced in a subsequent section, can offer miners access to high-quality equipment from around the world at the more competitive price point. Considering the quality, price, and delivery time, TIF and its partners facilitate the procurement and delivery of required equipment, a process that, if done incorrectly, can inflate the landed cost of equipment significantly.
- **Organic growth.** Through the advice of TIF's technical experts and the evaluation process of onboarding and assessing ASM site investment proposals, the efficiency and productivity gains expected from lease equipment should be sufficient to make timely lease payments and generate additional surpluses for the ASM operator to be approved by both TIF field staff and the investment committee.



- **Built-in flexibility.** Miners have the right to terminate their contracts prematurely, allowing them to withdraw from the contract in line with relevant provisions when their equipment needs change.

4.3 Making equipment leasing work for ASGM

To ensure the equipment selected for ASGM operators match their capacity and business model, different steps are taken to choose, assess and approve agreements. This includes co-identification of equipment with the ASM operators, a thorough onboarding, analytical review, and an approval process of investment proposals. Similarly, tiered investments are used to ensure ASM operators are incentivised to drive social and environmental improvements along the Impact Escalator framework.

4.3.1 From application to equipment ownership

To be considered for equipment leasing, an ASM operator will firstly undergo the onboarding process by TIF or one of its partners. During the onboarding process, the operator needs to pass due diligence as well as a baseline ESG assessment using the Impact Escalator Framework. This assessment results in a Continuous Improvement Plan (CIP), a mine-specific business and environmental improvement plan within an agreed timeframe which the ASM operator commits to prior to any investment. The ESG assessment also includes assessing the ASM operator's equipment needs.

Once onboarded, the ASGM operators are able to apply for investment through TIF's leasing scheme, triggering the following process:

- I. The **mine specifies the needed equipment.**
- II. **TIF's mining expert assesses the request** in conjunction with the mine site ESG and needs assessment with regards to its economic merit and expected impact, in cooperation with local partner NGOs
- III. **TIF secures a quote and prepares an investment note** for review by its investment committee. This includes a summary overview of the ASGM operators' current ESG performance, the proposed equipment, the anticipated production and ESG gains, investment duration and suggested terms.
- IV. **The TIF investment committee approves the investment note.**



- V. **TIF shares a draft contract with the ASM operators**, including a preliminary timeline for delivery and installation and a request for co-financing of 10%, payable upfront.
- VI. Upon signing of the contract and receipt of the co-financing, **TIF facilitates the procurement and delivery of the equipment.**
- VII. **TIF facilitates installations and an induction training** for relevant staff upon official handover of the equipment.
- VIII. After an optional grace period, **the ASGM operator begins lease payments.**
- IX. **TIF facilitates servicing and maintenance** in line with the terms of the specific PLA.
- X. At the end of the lease period, **the ASGM operator has the option to acquire ownership** of the equipment.

Throughout the lease period, the ASM operator is expected to achieve improvements against the mutually agreed CIPs, verified and updated by TIF staff twice a year.

4.3.2 Incentivising continuous ESG improvements

To incentivise ESG improvements and foster the development of mutual trust prior to making large lease investments, TIF promotes the gradual roll out of its leasing services factoring in the ASM operators' performance against the Impact Escalator, its repayment track record to date and their production capacity.

As a next step, TIF clearly defines and adopts eligibility requirements subject to TIF's investment committee's approval. These terms will be clearly communicated to ASM operators interested in accessing financing and so to offer a strong incentive for ESG improvements during and after they receive their first lease equipment.

In practice, such terms might be¹:

- Mines that pass due diligence but are yet to show significant ESG improvement can access financing for up to USD 20, 000 at a time, but no more than USD 25, 000 in total. To receive investment, 10% co-financing is required.

¹ please note that the following terms are illustrative only



- Mines that meet all basic requirements and are committed to addressing progressive requirements, can access equipment leasing of up to USD 25,000 and working capital loans for relevant third-party services of up to USD 10,000, assuming a positive repayment history during previous investments and co-financing of at least 10%.
- Mines that meet all intermediate requirements can access up to USD 50,000 in leases and working capital loans up to USD 20,000 and will provide a co-financing of 5%.
- Mines that demonstrate improvements on all progress requirements and boast a positive repayment history qualify for investment through leases or loans of up to USD 250,000, assuming their investment / business plan has been approved by TIF's technical staff.



4.4 The business model behind leasing

Leasing equipment to ASM operators includes multiple steps as described in 4.3.1. The success of this approach will be determined by the uptake of these offers by ASM operators, their repayment track record and the financial sustainability of the model. If successful, the leasing model will gradually contribute to increased self-sufficiency and a decreased reliance on grants, especially through margins on future capital returns.

4.4.1 The business model



To clarify the interests of various parties in a leasing business, the basic financial model underlying leasing needs to be understood. Broadly, leasing offers three avenues for generating revenue: 1) capital returns, 2) residual value and 3) servicing and maintenance

1) Capital Returns - A leasing company can finance the procurement of equipment from manufacturers (OEMs) either from its own balance sheet or through third-party financiers, such as commercial banks or investment funds. This (third-party) finance is subject to the prevailing interest rates, as a loan. The interest rate is factored into the lease fee charged to the lessor.

2) Residual Value - Basic lease agreements allow the long-term use of a piece of equipment during the lease period. At the end of the lease period, the ownership of the equipment remains with the lessor, unless otherwise specified. The value of the asset in question at the end of the lease period, is referred to as “residual value”. If lease agreements are not set up as lease to purchase agreements, the lessor assumes control over the asset at the end of the leasing period and to then sell off the machine, in line with the residual value of the asset.

In cases where the lessee opts to acquire ownership over the asset at the end of the lease period, the residual value can be factored into the lease payments or, alternatively, paid in full at the end of the lease period.

3) Servicing and Maintenance - In addition to the landed equipment costs, the lessor needs to factor in costs associated with maintenance and repair of the machine in question. The lessee usually is given a choice of which costs are factored into the service fee, and which costs to be paid as and when they occur.

Equipment that requires in-depth technical understanding is often best maintained by a trained professional, while equipment commonly used at the mines can and should be maintained by the ASM operators. The costs of installation and technical training would be factored into the landed costs of the equipment, to be repaid throughout the period of the lease.

4.4.2 Lessons learned, and risks associated with leasing services

Investing in a new frontier sector, a large portion of which remains informal, comes with risks. Pilot investments focussed on the provision of processing equipment, generators, and water pumps through investments to date, have allowed lessons to be learnt and for associated risks to be identified. These have informed the



design of TIF's proposed leasing model, described in the previous sections, as well as partnerships we needed to pursue.

When piloting the equipment leasing services, we gathered valuable insights in operational aspects that can pose bottlenecks, of not identified and mitigated:

- Delivery delays can happen when importing quality equipment, thereby potentially harming the relations with ASM operators. Therefore, working with an experienced partner with sound relationships with OEMs and experience with transport and import has been prioritised
- High import fees and tariffs can significantly inflate equipment costs, up to a 100% of cost. Expertise and existing infrastructure for procuring and importing has been a specific credential sought in TIF's business partners.
- As already mentioned, access to spare parts is critical. To enable this and to provide appropriate warranties, additional operational expertise and infrastructure are needed, which TIF has actively pursued in partnerships.
- The governance of ASM operators needs to be properly assessed as internal conflicts or the lack of a stable counterpart can cause payment disputes and delays. Inclusion of a governance assessment was subsequently including in our onboarding process as described in 4.3.1

Risk evaluation and management are a continuous process. Other risks associated with specific ASM operators, equipment or supply chains need to be evaluated when setting up leasing services as they can affect the ability of mines to repay and/or the social and environmental impact envisioned. The below overview is indicative of such specific risks but is not exhaustive. Further risk management measures may be included over time subject to recommendations and approval by both TIF's trustees and members of the investment committee (for the full risk matrix please see annex 4).

- a) A risk affecting the ASM mines' capacity to pay leasing fees, is the **inability of ASGM operators to fully utilize the equipment they lease and thus not meet production expectations**. This could have multiple causes, including equipment failure, lack of skill or knowledge to operate the equipment effectively, or the theft or destruction of the equipment.

The following mitigation measures have been put in place for future lease deals:

1. Third party theft and fire / water damage insurance are a precondition for entering into a lease agreement. To qualify, ASGM operators need to meet the insurance's eligibility criteria, including, but not limited to,



safeguarding of the equipment through adequate infrastructure and security measures.

2. An induction & standard safety training will be provided to relevant mine workers and regular servicing of the equipment ensures proper and safe use of the machines provided.
3. Where possible, extended warranties will be provided to enable replacement of faulty equipment.
4. Upon equipment selection, the availability of spare parts is taken into consideration, pre-ordering spare parts with scheduled replacements insofar practicable.
5. If equipment needs to be repaired or replaced because of the delivery of faulty equipment (i.e. cases covered by the manufacturer's warranty), leasing charges will be discontinued for the duration of the repair/ replacement period (i.e. no lease or interest payments accrue for that period of time)

b) **Payment/operational interruptions** from production issues (other than the breakdown of equipment), seasonal fluctuations, poor financial management of miners, disagreement over the equipment provided or internal management problems.

1. When production issues occur, which can be the case during the rainy season, payment breaks can be utilized by the miners to accommodate seasonality or unexpected production stops. The joint selection of equipment together with mine operators will be based on a needs assessment to ensure equipment as much as possible prevents production issues, such as submersible water pumps limiting the risk of flooding of mine tunnels during the rainy season.
2. To ensure an ASGM operator's capacity to receive and manage investment through leases, the operator's investment readiness is assessed against the Impact Escalator, leveraging financial literacy and bookkeeping training to address potential gaps (see section 4.2.1).
3. Furthermore, ASGM operators are involved in the equipment selection and every investment case is subject to approval by the TIF investment committee, who ensure that the proposed investment is in line with the immediate needs, expectations, financial capacity, and expected efficiency/ production gains of ASGM operators and ensure the benefit to miners (see section 4.2.1).



- c) In case a **mine defaults or steps back from its contract**, TIF will withdraw and service the asset prior to re-deployment at another ASM operation.
- d) ASGM operators' capacity to ensure the health and safety of workers is generally low. Therefore, **accidents at the mine sites can occur**. Gradually the performance of ASGM operators will be improved to reduce the accident rates through regular OHS and equipment usage training. Therefore, commitment to the CIP by ASGM mining operators is a crucial aspect of the onboarding process. Where possible, equipment that improves health and safety of workers will be prioritised and incentives made for health insurance coverage.
- e) If TIF experiences general **payment delays or defaults from ASGM operators**, it can affect the ability for TIF to repay investors in time. A couple of measures were taken to prevent payments delays from TIF to investors:
 - a) establishing a cash reserve as part of a first loss to act as a liquidity buffer to enable timely repayment to TIF's debtors, even if ASGM operators are delayed or defaults occur.
 - b) Negotiating grace periods and flexible repayment schedules with investors providing investment capital to TIF.
- f) **Reputation risks** can occur associated with the actions or legal non-compliance of partner organisations. Therefore, TIF would roll out a due diligence procedure on partners before entering into a formal agreement.
- g) **High costs of imports and delivery.** The procurement of equipment (including spare parts) can be subject to significant cost increases as a result of high import fees and delivery charges; beyond this, equipment delivery can be delayed by weeks, if not months, if not professionally organised. TIF manages this risk by partnering with an experienced equipment leasing company that can help streamline such operational challenges during the initial procurement and ensure timely accessibility and affordability of spare parts.

4.5 Financing and Business Partners

Having established the rationale for choosing equipment leasing as the primary strategy for the financial inclusion of ASM operators, this section introduces how TIF plans to finance the equipment investments. This follows a blended finance



approach, where the programmatic funding of (institutional) donors is leveraged to access investment capital, which, in return, is used to satisfy requirements of co-financing or investment as stipulated by the respective donors.

4.5.1 Blended finance context

Agreements with both investors are possible because TIF is engaged in two multi-year programmes that share the costs of its operation in East Africa until 2024. In Kenya and Uganda, the EPRM programme has been initiated (see Annex 2) and in Tanzania, the RVO-financed programme to realize the responsible trading potential of artisanal miners has started (see Annex 3). Both programmes have a key focus on assessing and improving the general capacity building of mining organizations, thereby ensuring their investment readiness. As such, both programmes provide a solid foundation to de-risk and allocate investments into the sector by catering for the costs associated with the initial identification and assessment of different mine sites, as well as the roll out of (non-technical) capacity building activities.

EPRM, FVO and GCT have all requested co-investment from private sector actors as a condition for accessing their respective financing. The FVO programme in Tanzania requires a co-financing, through investment, of around USD 200, 000, which will partly also come from the partner organisations through in-kind time contributions. At the same time, the EPRM expects a minimum investment of USD 650, 000 in Kenya and Uganda by the end of 2024.

4.5.2 The partnership with the Equipment leasing company

The equipment leasing company based in Nairobi, operates across East Africa, currently servicing various sectors in the provision of leasing equipment, ranging from police vehicles to tractors and large-scale mining equipment. The company proposes entering a partnership with TIF to extend their services to the artisanal and small-scale mining sector in the Lake Victoria region more generally.

Driven by the desire to enter a new sector that is seemingly untouched by other financial service providers, the company values a partnership with TIF to help them navigate a sector with which they are not yet familiar. The company views the opportunity as a corporate responsibility and communications opportunity as much as for its economic potential. An African-owned and operated entity, they hope that this diversification in its customer base and services will also open pathways to access cheaper capital from socially-minded institutional investors,



with a vision that entering the ASM sector will allow them to establish these linkages to sub-commercial rate financing for a range of sectors targeting the betterment of rural and vulnerable communities across its geographic footprint. In other words, developing a high-impact product for ASM is a first step to expanding its services across small-scale and subsistence agriculture and high-impact entrepreneurialism - a market with significant growth potential, aiming beyond mere financial returns.

The key features of the agreement are summarised below:

Equipment financing:

- Minimum committed investment capital of USD 400,000 provided by the sole owner, through a back-to-back leasing agreement with TIF.
- An expected interest for underlying loans in line with prevailing commercial interest rates (i.e. USD=10%, KES=13.5% and TZS=18%).
- The leasing company retains ownership over the equipment until the end of the lease period. This means that the mines can step back from the lease contract, in line with the terms stipulated by the contract. Should a mine complete all lease payments, the operator is offered an opportunity to acquire ownership for the asset in exchange for a final payment for the equipment's 'residual value' (this payment can be spread over the lease period).

Equipment leasing:

- Provision of technical assistance for structuring the deals with ASMG operators.
- Support Identifying and securing high-quality equipment at a competitive price. The final selection of the equipment will be controlled by TIF.
- Negotiate or broker appropriate (extended) warranties and insurance & deal with warranty claims towards the equipment manufacturers.
- Handle import and transportation as cost efficiently as possible.
- Identify, assess and mitigate risks of providing leasing equipment.
- Provide (temporary) storage in case of re-deployment of an asset.
- Arrangement of warranty and insurance claims.
- Last, the leasing company has existing and strong relations with several investors and regional commercial banks. If initial investments prove to be successful, they have committed to introducing this new



branch of investing to its commercial financiers to further scale the scope of our collaboration and the number of ASM operators. The long-term goal of TIF is to ready ASM operators to gain access to formal finance and this partnership and business ecosystem creates an exciting avenue to grow the financial facility and scale the impact of this programme to more ASM operators.

The interest on capital the leasing company charges is in line with formal commercial rates as there are no additional margins added. Their business model relies on generating a return through selling the asset at the end of the lease period. The actual residual value depends on the type of asset. In the first quotes received, the residual value for water pumps and generators has been estimated at 3% over the full duration of a three-year tenure. For LPA's this percentage would be included and paid over the duration of the lease period.

Including grace periods and insurance coverage to miners, as well as basic servicing and installation fees, the effective cost to miners would likely translate to an interest rate of 16-20%. Even discounting the additional value, beyond equipment financing (i.e., comparing it to a loan only), these rates are significantly lower than ASGM operators are able to attract currently, and it should be remembered that most ASGM are considered 'un-bankable' and unable to access credit at all.

In this partnership, TIF has the following responsibilities:

- Identification of and complete due diligence on ASM operators to assess and recommend suitability of the ASGM operator as a counterpart for TIF, type of capital equipment needed at the site, and the terms of the LPA. TIF will make a recommendation that will be approved by the investment committee.
- Installation, maintenance, and repairs to equipment
- In order to provide 100% of the financing needed, the leasing company expects TIF to provide a first loss security equivalent to 20% of the total investment, i.e. USD 80,000. Normally, the leasing company provides about 20% of the total financing, accessing capital from banks and investors to cover the remaining 80%. Tif has secured this first loss facility from one of its donors.

As per the above, the partnership includes both financing of assets as well as support in executing a successful leasing operation. As long as full asset financing is provided, the financial return for The Impact Facility will be limited - yet the value



in this partnership is significant.

Investors engaged to date were interested in the prospect of investing in ASGM but repeatedly asked for proof that investment into ASGM works, beyond the concepts presented at that point. The partnership with this leasing company allows TIF to establish this much needed track record of successfully extending financial services to ASGM operations, demonstrating general feasibility and a baseline for its social and environmental impact future investors can expect. A notable benefit of the partnership is to accelerate movement along the learning curve on leasing products and the operational aspects of equipment provision, offering TIF an opportunity to draw on their experience and expertise. Leveraging our collaboration with this leasing company to establish this much needed 6-12 month track record, TIF will be able to engage impact investors and secure competitive rates of finance, subject to below commercial interest rate. Providing its own capital to (co-)finance future lease deals, through the leasing company or independently, the leasing business will start to generate a surplus that can be used to cover overhead costs associated with the provision of these leases. Until this is the case, like many hybrid organizations investing into rural businesses, TIF relies on donor / grant financing to finance this transition and initial growth.

As well as the committed loan capital, the partnership will effectively address some key risks identified associated with procuring and providing equipment to ASGM operators. The leasing company has deep experience of equipment provision and leasing, long standing relations with equipment providers and higher volumes of equipment procurement resulting in an improved bargaining position for advantageous terms. Therefore, the proposed partnership can offer benefits related to lower prices for and access to equipment and spare parts, which would be more difficult for TIF to achieve alone.

4.5.3 The partnership with a private investor

TIF has been actively approaching potential pioneer and early adopter investors to capitalise its financing facility for artisanal and small-scale mining operators. The interest from investors in the ASGM sector has been growing steadily, but slowly. Through joint marketing efforts with TIF's strategic NGO partner Solidaridad, a private impact investor approached TIF with an interest to invest. This private investor, has previously scoped agricultural projects together with Solidaridad seeking a high social and environmental impact investment. His motivation for investment is philanthropic and he conveyed a willingness to take on the risk associated with investing into the - for him new - ASGM sector, stressing his strong



interest to reach measurable impact and work closely with the TIF team to ensure success of the model. After multiple discussions, TIF and this private investor have arrived at the following agreement, which has been codified in an MOU

The key features of the agreement are:

- Agreed to invest EUR 350,000 / USD 425,000 into TIF.
- Targets a return of 6% per annum
- The financing might be deployed until December 31st, 2024, after which point TIF is obliged to repay the money when it becomes available from the miners (no later than December 31st, 2027, three years after the end of the deployment period).
- To provide the capital for investment, it is required that:
 - None of the carried interest beyond his target return of 6% are allocated to running costs of TIF, but remain available to capitalise a revolving fund for programme financing; and
 - Investment decisions will be reviewed and approved by the investment committee, on which the private investor will serve.

The investor has stated that potentially part or all of his investment could be moved into a revolving fund to enable future project finance if the initial collaboration proves successful. Furthermore, as a first investor it provides a proof of concept useful to attract other investors. The investor has a strong business ecosystem in the Netherlands and has offered to recruit more impact investors. The Netherlands is a strong anchor for TIF, where it has support from Dutch government agencies and businesses.

4.5.4 Summary

Because TIF has already established and, to a large degree, de-risked a network of ASM operators and has guaranteed financing to cover a large share of operating costs through current donor funding, has helped to unlock the investments from a leasing company and a private investor. The potential of the impact can be estimated by considering an average investment of USD 35,000 into capital equipment at each ASM operations, generally to be repaid within 12 to 24 months. A total capital allocation of USD 825,000 made available from both financiers together would facilitate reaching over 20 ASGM sites during a first deployment of



these funds alone.

The partnership opportunities are crucial to help TIF establish viable leasing services to ASM operators. These partnerships can support building the successful track record of equipment service to miners) as they provide both access to the needed capital and to the necessary operational capacity and expertise to successfully deploy equipment. While certain key risks are already mitigated by forming the partnerships, the process of assessing and approving ASM sites' equipment investments needs, as well as other security measures, such as insurance and down payments, will ensure further viability, scalability, and impact of the leasing model.



5. Business model and continuity

As a charity, TIF is currently, and in the foreseeable future, reliant on donor financing. In addition to grant financing from institutional donors, such as GCT, RVO or the EPRM, TIF actively recruits funding from corporate entities through membership contributions, providing corporations the opportunity to contribute to a positive impact for ASM miners. As TIF's mission is to empower mining communities by, among others, providing access to capital, a fully owned subsidiary, Impact Capital, was developed to facilitate investments into mining communities and to gradually decrease reliance on grants to finance the services offered to miners. Also, local subsidiaries/ branches were established to enable executing leasing services to ASGM operators.

The partnership opportunities with the leasing company and private investor, offer TIF an opportunity to establish a solid track record. Through these partnerships, TIF can establish a firm footprint with an operationally efficient leasing service to further build upon the track record needed to engage impact investors with a request for lower cost financing of these leasing contracts. Once TIF is able to secure sub-market-rate financing, the leasing business will start to generate a surplus derived from capital returns that can be used to cover core costs associated with the provision of these leases, thereby becoming increasingly self-sustaining. TIF will actively fundraise together with its key partners, to ensure operational costs are covered by grants or other income streams.

6.1 Current partnership contributions to TIFs business model

Leasing partner business model contribution:

As described above, the leasing company specifically provides the infrastructure to source the needed equipment more efficiently and cost effectively because of their experience and expertise with imports, negotiating extended warranties, longer-term contracts with manufacturers enabling an improved pricing of equipment.

The leasing company furthermore offers an option to scale, as they set an example with going commercial financing rates. Therefore, this partnership especially is to establish a credible track record with viable terms to miners to in the future attract investors with lower interest rates of which the margin would provide viable revenue streams through the leasing services as described above.



Private Investor business model contribution:

As the current private investor charges a 6% annual interest rate, which is below going commercial rates locally, the resulting margin can be used to build up a reserve for additional programme financing. Similarly, it provides more flexibility offering more flexible terms to miners if needed.

TIF has previously been in talks with the Common Fund for Commodities (CFC), encouraging TIF to submit an investment proposal for investment of up to USD 2 million, subject to 5-10% interest p.a. Previously Ceniarth offered financing at a rate of 1-3% interest, allowing TIF to generate capital gains that can co-finance the long-term provision of such services.

6.2 Other revenue streams to ensure operations beyond 2024

To ensure that TIF can offer miners reliable services and investment with a positive impact beyond the duration of current donor programme, TIF aims to generate revenue through fee-for-services and interest, including from:

- 1. Equipment installations, servicing, and maintenance fees.**
- 2. Managing donor financing and business development grants.**
- 3. Corporate consulting on supply chain due diligence and source and connect opportunities.**
- 4. Future capital returns from loans and leases.**

1. Equipment installations, servicing, and maintenance fees

Through its local subsidiaries, TIF will be facilitating the installation, servicing, and maintenance of lease equipment as well as the provision of induction training. For larger equipment, this requires 2-3 days of initial training and another 2 days of customer support throughout the year. These costs are factored into lease contracts, effectively generating income for TIF.

In addition to obligatory service charges, TIF offers mines optional maintenance services that can serve as an additional way of generating revenue.

Priced competitively, these services will generate additional revenue to contribute to staff costs and / or build up a cash reserve.

2. Donor financing and business development grants

As a charity, TIF has always aimed at a blended finance approach. As such, we will continue to identify opportunities such as the EPRM and RVO grant to continue our work accessing suitable donor financing and / or grant financing for start-up.



In Kenya and Uganda, the PlanetGold programme under GEF is only just starting. TIF is well positioned to partner and potentially access some of the available funding in the next 2-3 years.

With costs covered for the next two to three years TIF has been granted an opportunity to set a proof of concept for a viable business case.

3. Consulting and advice related to better mining practice, sourcing, and traceability

Over the past years, our team has been involved in various side-projects that generate additional income for TIF. As we establish our capacity and expertise more firmly on the ground, additional services to provide advice to local mining organisations, government institutions as well as other organisations with an interest in strengthening ASM mining organisations can be expanded. This includes work and advice to connect downstream brands to more responsible sources. For example, our Kenya team is currently scoping out opportunities around connecting downstream brands with gem producers in Kenya.

Projects like these can help build up an internal cash reserve when our staff does not work at full capacity.

4. Future capital returns from loans and leases

TIF will be able to utilize sub-commercial rate financing (<10%) to co-invest in leases or provide direct investment to miners, generating a surplus for TIF.

TIF is currently in talks with private and institutional investors charging anywhere between 3% (Ceniarth) and 10% (Common Fund for Commodities) interest per year.

Targeting total investment of USD 1,500,000 across donor funded programmes by the end of 2024, this could result in capital returns contributing to closing the current budget gap, assuming TIF is able to access low interest capital.



ANNEX 1: Q & A

- **How can TIF ensure that the loans and other services received by ASGM operators are fair, affordable and in line with its charitable objects?**

The response to this question gets to the heart of the impact investment thesis.

Financing unbanked enterprises: TIF has identified that the inability for ASGM operators to access capital is a fundamental reason for the potential of their operations not being realised. ASGM in East Africa are rarely able to access formal finance. In other sectors, such as agriculture or services, microfinance is available but at rates about 30% to per annum. TIF's mission is to take a business-led approach to development in rural Africa by providing access to capital equipment. Currently, access to finance is unreachable, a situation that is evidently 'unfair'. TIF is therefore righting an imbalance by filling a need that has the potential to unlock the potential of ASGM and build their capacity and reputation to access formal finance locally through national banking systems. The ultimate goal of TIF is to see ASGM be recognised as a legitimate and professional sector and actively participate in the formal economy.

Substituting unjust informal finance with formal and fair social loans: ASGM operators are presently financed from informal sources. These arrangements are punitive and further tighten the noose of poverty, slowly throttling the chances of sustained success for many small and medium sized mining enterprises. Illegal operators, money lenders and investors provide ASGM operators with equipment (which is often substandard and frequently breaks) and recover their upfront investment through deep discounts - often between 40% and 60% - on the gold produced that they require is sold exclusively to them, through a share of operations profits, through high interest rates with no flexibility on repayment terms, or a combination of all of these. When evaluating the fairness of TIF's model, it is appropriate to compare it with prevailing local arrangements. Currently, given that ASGM are unable to access formal finance, and given the informal finance they might have access to is clearly made available on unfair terms, TIF's approach and terms might be considered very attractive. In the future, if alternate more attractive terms of finance become available, TIF will either adjust or find a different way to create value for ASGM operators, if it is to keep its contracts with ASGM.

Recruiting patient risk tolerant capital: It should be noted that there are no restrictions on TIF in its planned partnership with the private investor and the



leasing company to substitute their capital and terms with finance that is cheaper and can be passed on at a lower interest rate to ASGM operators. Indeed, they have made it clear that they will enable such a strategy. TIF continues to actively identify and approach investors willing to accept a more modest interest rate compared with commercial terms, in return for high social impact. Notable too is that many funds that have been established specifically to serve impact vehicles such as TIF, expect a 10% annual return - for example the Common Fund for Commodities. Therefore, although TIF expects to find more impact investors with lower expectations, it should be cautioned that the current terms being considered by many social investors does not fall much below 10% p.a.

Building track record of ASGM as a viable sector for mainstream formal finance.

Although TIF will continue to look for preferable terms from new sources of finance, we believe that it is not in the long-term interests of ASGM to become dependent on 'cheap' finance. As stated earlier, the long-term goal of TIF is to enable ASGM to stand on their feet and present their credentials to legitimate bankers in their host countries. Such banks will charge commercial rates and will expect ASGM operators to be able to absorb such rates in their business models. Indeed, not being able to do so would indicate that these ASGM businesses are not viable. TIF's mission is to build viable small and medium sized mining enterprises that can operate in the formal economy. Low interest rates in some circumstances might be needed to pump the system, but if they remain artificially low for too long, could serve to undermine the very end goal of the programme.

Finance blended with capacity development, technical assistance, and access to markets. The services and assistance received by the ASGM operators should be seen in the round, not by isolating one element, i.e the leasing agreement. As well as access to capital equipment through lease to purchase agreements, ASGM operators are also receiving a combination of technical services, capacity development, and access to fair and premium markets at no cost. Most investment products require that recipients have already the full requisite capacity or pay for it out of their own pocket. TIF, by virtue of attracting grant funds and working with specialist partners, is reducing the cost of capital for ASGM by providing pro bono services directly linked to the terms of the contract, such as systems to continually improve environmental and social operating practices, that will also leave them stronger and more resilient enterprises. This blended approach is core to TIF's impact philosophy.

Building a sustainable business model for TIF. TIF aims to build a sustainable approach that is progressively less reliant on donor funding. A part of this model is to generate sufficient interest to carry over to develop a revolving fund and to



generate fees for management. As this is managed under UK charitable law and with the compliance oversight of independent trustees, investors can be assured that such a model will be reasonable and in line with TIF's charitable objectives. This reality should be considered when reviewing the terms of agreement between ASGM operators and TIF.

The investment committee and process. There is an investment process within the TIF structure. TIF will compile and its investment committee approve every single investment memo, executing tight control over the proposed terms and conditions stipulated in the miner facing contracts. Affordability needs to always be assessed in the context of the forecasted efficiency gains, to ensure that investment results in a betterment of the miners, not just a financial obligation for the mine to attend to. TIF suggests that as a first step before rolling out any investment, the proposed terms are compared with rental or purchase offers available to the miners. Beyond this, TIF has established with investors that payment breaks would be needed to accommodate production challenges miners might be facing.

ASGM option to exit. By virtue of being a lease contract, the miners will always have the option of stepping back from the contract, should they find that they do not receive the benefit they anticipated.

- The OpCo's capacity to commission non-equipment services like geological surveys and shaft engineering

Both investors expressed willingness to finance services, such as geological data gathering or shaft reinforcement. The leasing company even discussed the option of providing working capital loans to miners, as and when we are ready to do so.

These non-equipment investments could occur either in isolation or in conjunction with a physical investment.

- What is TIF's capacity to raise and deploy third-party funding and non-lease financing models in future?

The engagement with the private investor is the first example of 3rd party financing that could be deployed through our partnership with the leasing company. From the leasing company's perspective it is advantageous to co-finance any one investment with the money from other investors to spread the default risk for their capital across the widest number of investments. So technically, it is possible to



integrate money from any source, including the fund of Impact Capital Ltd, allowing investors to provide any size of investment moving forward.

As already mentioned, we believe that the initial investment commitment (totalling approximately USD 825, 000) should be sufficient to establish the track record needed to attract the interest of institutional investors and re-engage actors such as Ceniarth or Common Fund for Commodities to have them follow these first two investors, providing capital at more competitive terms.



ANNEX 2: Summary of the EPRM Programme: Kenya and Uganda

Parties:

Lead Party: The Impact Facility

Partner Partners: Chambers Federation, Fairphone, Fairtrade Foundation, Solidaridad East and Central Africa, TDi Sustainability [Administrative Lead]

Timeframe:

02/2021- 12/2024

Programme Summary:

The end goal is to enable formal ASM gold operations in Kenya and Uganda to qualify for and access formal investment for equipment, while meeting due diligence requirements of gold off-takers. Doing so will enable building strong and resilient artisanal and small-scale enterprises. The programme consortium plans to attract an investment portfolio of at least EUR 500,000 for equipment across all the partner artisanal and small-scale gold mines, aiming for an investment of EUR 1,000,000 by the end of the programme. The goal is for an average 50% production increase, or an equivalent three kilogrammes of gold per month.

Concomitant to increases in productive capacity, the LVGP aims to reduce the number of health and safety incidents reported at mines both above and below ground. This will be achieved by encouraging increases in the use of personal protective equipment. Increases in the use of helmets will reduce head injuries and normalizing the use of masks and gloves can manage the exposure to mercury for those involved in gold processing. Alongside this, the creation of environmental management plans will be implemented by ASGM operators as part of their contractual obligations to TIF. For example, the use of mercury retorts not only reduces the amount of mercury to the environment but also protects mine workers from its harmful effects.

TIF's Role the EPRM programme:

- Engaging with and assessing mine sites interested in mine investment opportunities



- Conducting due diligence on mines and developing continuous improvement plans aimed at improving environmental, social, and governance (ESG) performance
- Introducing a lease-to-purchase model to facilitate the provision of mining equipment.
- Capacity building through technical training and support.
- Monitoring mine performance and managing lease payments.

As the technical lead of the project, TIF is the ASGM operators' first point of contact. After comprehensive due diligence is conducted and ASGM operators are confirmed as investment-ready, equipment is provided through a customizable lease-to-purchase model, with built-in flexibility to accommodate periods of low productivity.



ANNEX 3: Summary of the FVO Programme: Tanzania

Parties:

Lead Party: Solidaridad Netherlands

Programme Partners: The Impact Facility, Aunexum, Fairphone, Solidaridad East and Central Africa

Timeframe:

Phase A : 02/2021- 12/2021

Phase B: 01/2022 - 01/2024

Programme Summary:

The project focuses on the adverse environmental and social impacts in artisanal gold mining. More specifically, the project will assess and address risks of illegal use of mercury, pollution to water and land, and land degradation and risks around unfair trading conditions of ASM mines. By assessing and addressing these risks, the project promotes the entry of environmentally-sound ASM gold from Tanzania in global supply chains contributing to increased traceability.

In this project, the focus is on assessing and addressing the risks and impacts. In addition, the project is contributing to realizing the responsible trading potential of ten ASM gold mines in Tanzania through:

- Designing and enabling appropriate and enduring approaches to access and apply reliable and affordable geological data for the Tanzanian artisanal and small scale mining sector.
- Introducing suitable mercury-free processing techniques in the Tanzanian artisanal and small scale mining sector.
- Creating access to the international gold market for the Tanzanian artisanal and small scale mining sector

The programme is divided in phase A, in which local research will take place that provides the input for a more detailed programme proposal and budget for phase B, which will, after donor approval, entail the practical implementation of the recommendations of phase A.



Results Phase A

Locally, an impact assessment of the 10 mine sites will provide a detailed overview of the current social, environmental, and business conditions, with an additional focus on the current management of mercury and the environmental impact. Furthermore, research will be carried out locally to assess the efficacy of the equipment currently being used and inform the possibilities for introducing mercury management techniques, as well as possibilities to access geological data needs of miners. It will also scope what data and techniques are available to improve ASGM operators' access to geological data. Last, the assessment will make an inventory of current financing arrangements to get a more detailed insight into the possibilities to improve financing and trading conditions for the mining organizations. At the global level, research will be completed to map possibilities and requirements for and viability of financing for international trade. This will include an analysis of the baseline results to determine and align the sustainability requirements of trading with the ASM organisations.

Phase B:

Phase B will comprise implementation of the programme recommendations. The implementation of phase B is contingent on the approval of the implementation plan and budget developed after phase A. Foreseen outcomes of Project B include:

- Implementation of access to geological data for ASM miners
- Implementation of mercury management and/or mercury free processing techniques
- Outreach to companies, financial institutions to enable viable (pre)-financing and offtake model
- Implement the business model for ASM miners to become an effective trading partner for international buyers (that respond to trade requirements such as volume, ESG criteria likely requiring equipment provision and capacity building) and
- Ensure scalability of solutions found by documenting and spreading the approach to other end-users as well as gold mining programmes



ANNEX 4: Risk mitigation matrix

Miner-related risk	Cause	Mitigation	Likelihood	Gravity
Trust relationship lost with miners	Wrong / inappropriate equipment	a) mine site needs' assessment b) 10% deposit and miner sign-off	low	high
	Delivery delays	a) communicate conservative estimates b) contract language (approximate delivery date) c) clear communication of timelines if changes become apparent	medium	medium
Inability to use the equipment	Faulty equipment	a) (Extended) warranties upon procurement b) no interest during repair period	medium	high
	Equipment Breakdown - or inability to use equipment	a) Obligatory induction training and standard servicing b) Thorough needs assessment and procurement of ASM mine appropriate equipment	medium	high
	Equipment theft	a) minimum security as part of lease eligibility b) insurance coverage	low	very high
	Fire / Water damage	a) standard safety training by TIF b) insurance coverage	low	high
Operational/ payment I interruptions	Production delays	a) ad-hoc optional payment breaks b) accommodating seasonality in repayment	medium	high



		<p>schedule to the leasing company</p> <p>c) Procure equipment as much as possible that prevents production issues (i.e water pumps)</p>		
	Poor financial management	<p>a) financial literacy & bookkeeping training</p> <p>b) review of records and current investment deals</p> <p>c) tiered investment (not to burden the mine)</p>	medium	high
	Payments too high	<p>a) cash flow assessment / feasibility study prior to investing</p> <p>b) Investment committee approval</p> <p>c) prioritizing cost saving equipment focussed on efficiency gains</p> <p>d) helping miners receive maximum price</p>	low	very high
Poor repayment discipline	Delayed payment	<p>a) appropriate late fees for unannounced payment delays</p> <p>b) help set up automated payments</p> <p>c) internal repayment buffer</p>	medium	medium
	Unable to reach miners	<p>a) reliable counterparts and clear accountability documented in contracts</p> <p>b) KYC on individuals</p> <p>c) requiring a 3rd-party</p>	low	High



		recommendation for new mines		
Contract Defaults	Miner withdrawing from contract	<ul style="list-style-type: none"> a) Building up Backup / waiting list / pipeline for redeployment b) 10% deposit by mines to cover costs c) Contingency plan for transport and storage (Leasing company) 	low	high
	Unable to recover asset	<ul style="list-style-type: none"> a) third party witnesses for contracts (e.g. mining officer) b) leveraging long-term relationships with partners like Solidaridad 	medium	very high
Other	Legal exposure in case of accidents	<ul style="list-style-type: none"> a) adequate and regular OHS training and equipment usage training b) prioritising equipment that increases health and safety c) encourage health insurance coverage if available d) waiver re: liability e) professional liability and business risk insurance f) contingency plan should accidents occur (e.g. fund for medical expenses) 	low	high



Partner / Donor / Investor facing risk	Issue	Mitigation	Likelihood	Gravity
Financial	Payment delays	<ul style="list-style-type: none"> a) First-Loss-Facility b) Tiered grace period (to build a repayment buffer) 	medium	medium
Legal	Legal disputes	Cash reserve for lawyer fees	low	medium
Counterparty Risk	Reputational risk by association with partner organisation	Background checks	medium	high
	Legal compliance risks	<ul style="list-style-type: none"> a) AML and KYC procedure b) Checks against relevant sanctions lists 	low	high



ANNEX 5: First loss facility

As TIF is establishing itself in a sector yet to be recognized by mainstream impact investors, the uncertainties and production risks around ASGM coupled with the lack of a track record of commercially viable / successful investment interventions create a barrier for investment. For the last few years TIF has sought a pioneer investor willing to be a first adopter and help establish a robust track record.

In order to de-risk such a first engagement, potential investors (including Ceniarth, Kenyan commercial banks and leasing companies) have requested a first-loss facility, for some of the investment we seek. A first loss facility decreases risk and encourages investors to invest in projects that they would normally consider a too high risk. If the project fails, the first-loss loan provider is the last to be repaid, making it more likely that other investors recoup some of their capital. Such first loss capital is often provided by donors to catalyse pioneer investments into high impact but high risk sectors, such as the ASGM sector.

Establishing a first loss facility, it might be possible to generate a small margin on the first loss facility to re-invest into TIF and its mission, as this guarantee could be structured in two different ways, serving two different purposes:

- 1. Co-Investment [General default risk]**
- 2. Cash Reserve [Liquidity for meeting master-lease-agreement (MLA) repayments]**

a) Co-Investment

Taking a first loss position as a co-investor would mean that TIF provides a share of the principal financing and becomes co-creditor for the loaned amount. By definition of taking a first loss position, TIF would be the last party to be paid back through the lease payments by the miner. This means that if TIF were to take a 20% first loss / co-investment position, the leasing company would effectively be paid the first 8 months of a 10-month lease and TIF the final two months, including relevant interest for the entire duration of the lease.

In practice, this means that TIF covers some of the overall default risk and would cushion losses in case an asset needs to be re-deployed and does not yield the full expected repayment. This also means that TIF stands to gain capital returns for their share of the investment, if repaid in full.



b) Cash-Reserve

An alternative first-loss setup would require that TIF holds a cash reserve, equivalent to 20% of the investment made by the leasing company. By virtue of TIF or its subsidiaries entering into a Master-Lease-Agreement, TIF commits to timely repayment against the agreed payment schedule, irrespective of the miners' performance towards TIF. A first-loss cash reserve serves as a liquidity buffer to make repayments to the leasing company on time, even if miners' repayments are delayed or leases are defaulting.

If these are mere delays and mines end up making the full lease payment, TIF stands to gain any late fees or interest accrued during this period but does not earn interest for their money which would be 'dead capital' on our balance sheet.

Offering solely a co-investment position instead might not fully work for the leasing company as repayment delays as well as defaults should also be covered to a certain extent. TIF proposes a mix of the two systems, allowing us to earn 12% interest on 10% co-financing, while providing 10%, interest-free, through the cash reserve facility. This would earn TIF a total interest of 6%, if successful, on the total 20% capital used to finance both the cash-reserve and the co-investment share.



