GENEVA CENTER FOR **BUSINESS & HUMAN RIGHTS**

CASE STUDY

Transforming the diamond value chain: HB Antwerp's model of radical transparency in Botswana

Dorothée Baumann-Pauly and Justine Nolan

UNSW Australian Human Rights Institute

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LEARNING OBJECTIVES

1.
Students will be able to identify typical supply chain structures in the extractives industry and critically reflect on the distribution of benefits across these global supply chains.

2.
Students will be able to assess market structures in the diamond industry and understand the legacy of a monopoly that shaped the industry and Botswana's economy for decades.

3.
Students will be able to analyze the critical role of technology innovations for advancing skills required in diamond processing.

4.
Students will be able to assess the role of the Botswana government to understand which factors support industry disruption and innovation.

5.
Students will be able to discuss the role of corporate leadership in developing and mainstreaming business models that align profits and human rights principles.

6.
Students will be able to develop a new vision for equitable supply chains, not only for the diamond industry in Botswana but also for other raw materials.

ABSTRACT

This case study analyses an innovative and adaptive business model that aims to disrupt the traditionally obscure diamond supply chain. HB Antwerp, and its subsidiary HB Botswana, employ a business model that is focused on providing radical transparency of the diamond production process with reliance on technological innovations and knowledge transfer to build local capacity. With its innovative approach, the company aims to 'catalyze equity for natural resources', to meet the promise of the 2030 Agenda for Sustainable Development.

INTRODUCTION
Diamond sourcing in the context of a new regulatory landscape in Europe

Diamonds are one of the hardest materials on earth, composed of pure carbon that was exposed to high geological pressure and temperatures. They are used in industrial contexts, for example in cutting and drilling tools, but the biggest demand driver is the luxury jewellery industry.[1]

The global diamond market was valued at around USD100 billion in 2023 and is projected to grow to USD150 billion by 2032.[2] However, after a post-pandemic spending boom, demand for diamonds has fallen steadily since 2022, as China's economy has slowed, and inflation has risen. The revenue of De Beers, the world's largest diamond company, sank 21% in the first half of 2024, compared with the same period last year, and that downturn came after a steep drop in 2023.[3]

The release of the movie *Blood Diamonds* in 2006 sparked global discussions about how diamonds can fuel conflict and human rights abuses. The image of the diamond industry took a hit and initiatives such as the Kimberley Process[4] and the Responsible Jewellery Council (RJC)[5] were established around this time to bolster the corporate social responsibility credentials of the industry and shift "sustainability from an afterthought to a major driving force of change".[6]

While companies have long engaged in voluntary initiatives to improve corporate respect for human rights in global supply chains, establishing responsible sourcing processes is no longer optional. On July 25, 2024, European Union (EU) institutions adopted the EU Corporate Sustainability Due Diligence Directive (CSDDD). The CSDDD requires relevant companies to assess and mitigate risks to human rights and the environment in their operations and supply chain. It also introduces liabilities for companies within scope of the directive. European companies and those beyond Europe who will be impacted by the CSDDD are now focused on understanding what is required to meet the CSDDD's mandatory human rights and environmental due diligence requirements.

The CSDDD builds on decades of voluntary corporate and multistakeholder initiatives to improve labor rights in global supply chains. Some sectors have moved more rapidly than others and companies in the apparel industry, for example, have defined standards, metrics and means of evaluation for their suppliers when governments were unable or unwilling to enforce labor rights. The implementation of the CSDDD will complement and bolster the EU's 2023 Corporate Sustainability Reporting Directive (CSRD) which requires relevant companies to disclose their environmental and social impacts.

Beyond actions such as human rights due diligence, that can help ensure decent working conditions in global supply chains, companies are also generally expected to contribute to the 2030 Agenda for Sustainable Development and its Sustainable Development Goals (SDGs). The preamble to the 2030 Agenda highlights that "eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development". It pledges that "no one will be left behind". SDGs 8 and 9 have particular relevance to this case study with a focus on the promotion of decent work, economic growth and industry, innovation and infrastructure.

Companies are coming under greater scrutiny, including whether their sourcing strategies align with the expectations of sustainable development. Sustainable sourcing strategies not only require establishing processes for human rights and environmental due diligence in fields and factories but also a critical assessment of existing supply chain structures. Companies committed to the 2030 Agenda need to examine if their sustainable sourcing strategy promotes equitable distribution of benefits across the supply chain.

The diamond supply chain is composed of five basic stages: 1/ exploration and production, 2/ sales and distribution of rough diamonds, 3/ cutting and polishing, 4/ inspection and certification, and 5/ the manufacturing of jewellery. Typically, only the first step, the exploration and production of the rough diamonds, takes place in the countries of origin.

The diamond supply chain is the epitome of a traditional, complex and largely opaque supply chain which lacks equity in how the revenue from the extraction of a country's natural resources are distributed. For example, more than 90% of the diamonds extracted in Botswana are shipped offshore, to countries such as India, as 'rough diamonds'. This process means that the entire mid-stream of the diamond value chain and a significant part of the value creation of the diamond business, occurs outside Botswana. This not only reduces the revenue that could otherwise accrue to the government of Botswana, but also generally means lower skill mining based jobs are the primary product on offer to the people of Botswana.

Extractivism, the resource curse and global inequality[7]

The aspirations of the Sustainable Development Goals (SDGs) are particularly critical for companies that purchase raw materials, often from low- and middle-income countries. Jewellery brands, for example, rely on companies that mine precious metals and minerals and too often, these mining companies engage in "extractivism". Extractivism is the removal of natural resources for export with minimal processing in – country – which deprives countries of development potential. Extractivism underpins the so-called "resource curse" which more commonly affects countries in the Global South with rich natural resources and whose economies depend on profiting from the export of these natural resources.[8]

The resource curse, also known as the paradox of plenty or the poverty paradox, describes a phenomenon that affects countries with an abundance of natural resources (such as fossil fuels and certain minerals) yet less economic growth, less good governance and/or worse development outcomes than countries with fewer natural resources. Most countries affected by the resource curse are also subjected to extractivism of companies from the Global North, who merely source raw materials from the countries of origin without supporting the development of processing facilities for raw materials.

The disparity among countries in terms of their level of economic development and the concentration of global corporate and monopoly power are both drivers and outcomes of global inequality. According to Oxfam's 2024 Global Inequality report, it will take 230 years to end poverty, but we could have our first trillionaire in a decade.

The resource economy that developed with the focus on diamond mining in Botswana created a mismatch between the economy and the labor market. Diamond revenue has supported the government's strategy to develop a strong education sector in Botswana resulting in thousands of well-educated young Batswana looking for high skilled jobs. However, youth employment lies at around 40% and is a politically sensitive topic. Public officials in Botswana feel the pressure to offer better opportunities to their youth to prevent large scale emigration. Botswana is an "economy in transition"[9] and across party lines, policy makers express a clear vision to transition from a resource-based economy to a knowledge economy. While the mining sector dominates Botswana's private employment market, many of the jobs on offer are not catering to the well-educated next generation Batswanans.

Diamonds in Botswana

The discovery of diamonds in Botswana in the 1960s was both a blessing and a curse for the country.

On the one hand, the tax revenues from diamond mining and export enabled the country to move from being the third poorest country in the world in 1966 to an upper middle-income country. Investments in infrastructure and education ensured generally stable 3-4% GDP growth rates, and the highest GDP per capita in sub-Saharan Africa, above 7'300 USD in 2024.[10]

The country's political stability facilitated its strong economic development. Botswana is one of the most politically stable democracies in Africa. The landlocked country in Southern Africa is the approximate size of France but has only a population of 2.7 million. Despite a diversity of ethnic groups and languages, the country has never experienced a major internal conflict. "Dumela", the omnipresent greeting in Botswana in the Setswana language which expresses a deep level of acknowledgement for each other, illustrates this commitment to peacefulness.

On the other hand, the discovery of diamonds locked Botswana into a development path – for half a century – that has been almost exclusively reliant on them and created a dependent relationship with De Beers, a diamond company owned by Anglo American that dominates the extraction of diamonds globally.

The International Monetary Fund points out the dependence of Botswana on diamonds -
The Botswana economy is heavily dependent on diamonds, which account for around 80% of exports, one third of fiscal revenues, and one quarter of GDP. The country is the world's largest diamond producer, by value. But the economy is small (with total GDP in the region of 20 billion USD), hence diamonds have a very large macroeconomic and fiscal impact.[11]

Despite viable and growing opportunities in the food, tourism, and energy sectors, the diamond sector remains dominant in Botswana. The country's biggest employer, after the government, is Debswana Diamond Company, a public-private joint venture between deBeers and the government of Botswana.

De Beers in Botswana

Botswana is a De Beers country. For over 50 years, De Beers dominated the economy with their diamond mining monopoly. During a visit to some mining communities around the Lucara mine it became clear that the 'beneficiation strategy of De Beers (to create long term economic benefits for the country) has not yet been realized in many mining communities, which remain desperately poor.[12] Botswana continues to suffer from high unemployment and deep inequality.[13]

De Beers is headquartered in South Africa, employs more than 20,000 people worldwide and in 2023 generated 2.83 billion USD in revenue.[14] 85% of de Beers is owned by Anglo American, a British multinational mining company[15] and the government of Botswana owns the remaining 15%.

In 1969, De Beers paid 20 million USD for a mining lease in Botswana and gave the government of Botswana an agreed 15% equity stake in De Beers.[16] The government also received a 10% royalty on diamond sales, and income tax on the profits of the mine.[17] In 2023, the government of Botswana and De Beers announced a new 10-year Sales Agreement for Debswana's rough diamond production through to 2033 and a 25-year extension of the Debswana mining licenses through to 2054.[18] Then President of Botswana, Dr. Mokgweetsi Masisi, pressured De Beers for a greater share of the profits stating "We must not be enslaved".[19]

Debswana operates four open-pit mines in Botswana: Orapa, Damtshaa, Letlhakane and Jwaneng.[20] Botswana's diamonds are combined with rough diamonds from De Beers' mines in Canada, South Africa and Namibia and this aggregated production is then generally cut and polished, predominantly in India.[21]

> ***India's Diamond Cutting and Polishing Industry***[22]
> India is a significant player in the diamond cutting/polishing market, polishing 90% of all rough diamonds globally, of which De Beers contributes around 42 per cent of India's supply of rough diamonds.[23] Surat, in the state of Gujarat, has long been the hub of the global diamond cutting and polishing industry with around 800,000 cutters/polishers employed in the industry.[24] The working conditions of diamond industry workers in Surat have been the subject of several human rights investigations, some of which have characterized their work as a form of 'slavery and suppression'.[25] Workers' earnings have remained largely stagnant with workers polishing 500 diamonds via machines for roughly eight rupees. Workers in Surat are not provided any social benefits like pensions or subsidized medical care. In 2022, more than 40,000 diamond workers signed a petition protesting poor labor conditions.[26]

HB Antwerp's business model

HB Antwerp was established by three co-founders in 2020 with the mission "to catalyze equity for natural resources"[27]. With this goal, HB Antwerp set out to disrupt the diamond business with an innovative approach.

They set out to build a diamond company that, as they say, 'redefines the way minerals are sourced, transformed, and distributed'. The company aims to simplify the traditional complex diamond supply chain and create what they call 'radical transparency' that will allow the provenance of a diamond to be traced from the mine to the consumer and to 'catalyze equity for natural resources', ensuring benefits of natural resources are distributed more equitably and drive positive change.[28] After decades of experience with the traditional diamond business, HB Antwerp set out to challenge business as usual in the industry including with the launch of their subsidiary HB Botswana in 2023 located in Botswana's capital.[29]

HB Antwerp's revenues in 2023 were about 180 million USD and projected to rise to 200 million USD in 2024[30], but its impact may outweigh its revenue if its plans to revolutionize the mining industry come to fruition.

HB's business model is based on the premise that the country of origin should receive an equitable share of the revenue of mineral production in order "to empower people and positively impact society and the planet". The company strives to "create a better production process that tells a verifiable story"[31] that will support origin countries taking ownership of their natural resources.

This mission of creating a positive-societal impact requires making a range of changes to how diamonds are traditionally traded and processed. To achieve radical transparency, HB created a vertically integrated supply chain that incorporates all diamond processing steps in-house and creates a verifiable closed loop. HB set out to eliminate much of the 'middlemen' and in Botswana the company is training local engineers to operate, and maintain technological diamond equipment such as lasers, robots and scanning devices. Next to engineers, HB also trains craftspeople to use technology for the polishing and cutting of diamonds. By doing so, HB is bringing skilled and well-paid jobs to the local labor market. HB has further simplified its supply chain by sourcing all of its diamonds from one mine, Karowe, owned by Lucara Diamond.

In furtherance of its goal of 'catalyzing equity', HB calculates benefits for its partner mine, Lucara, based on estimates of the value of the finished stone. More common practice is to rely on the estimated value of the rough stone. With this radical change, tax benefits flowing from HB's engagements with the mining sector increased by 40% in 2023 because the value of the polished stones is significantly higher than the prices of exporting rough diamonds.

Demanding radical transparency in an industry marked by secrecy

The diamond industry is notoriously opaque and according to Shai de Toledo, in order to innovate, the diamond supply chain must lose its secrecy. HB Antwerp aims to demystify the industry. He says “what sets this company apart is the unique combination of full ownership of the diamond supply chain and the use of blockchain”. HB is using bespoke blockchain technology – developed in concert with Microsoft – to track the journey of the diamond. The company has developed the ‘HB capsule’, a device that both houses the stone and is linked to an immutable blockchain protocol, which records every move and transformation of the stone. Ultimately a diamond encased in this capsule collects more than 3000 data points tracking its lineage from rough to polished stone and each time the stone is cut into smaller diamonds, every move is tracked and recorded creating a family tree for each stone.

The idea is to introduce radical transparency into the diamond supply chain which will enable increased knowledge about both the financial value of each stone and the conditions in which it was produced. HB also has plans to offer consumers a ‘birth certificate’ which will track the provenance of the diamond from source to the point of sale. De Beers also has a proprietary tracking system TRACR which commenced in 2022.

HB states that their business model will offer *“miners and governments full insight to the post-production retail value of their resources and recap the financial benefits”*. This level of transparency is welcomed by government officials and in an interview with Joel Ramaphoi of CIPA (the government agency that regulates companies and intellectual property) he acknowledged that *“innovation starts with knowledge, and we don’t have the knowledge of the diamond sector”*. He stated that Botswana *“should be leading in innovation but the industry is secretive, and we are spectators.”*

Accelerating skill-development with technology

HB is distinctive in investing and building Botswana's cutting and polishing capacity. de Toledo says that only if the diamond mid-stream returns to Botswana, will the country have a chance to unlock value in Botswana's economy and engage in knowledge exchange that will support skill development leading to high quality jobs and innovation in the industry.

The HB process uses bespoke software to track the development of the stone. Skeptics of the HB model say that learning to cut and polish a rough diamond takes many years. HB demonstrated, however, that with the aid of HB's bespoke technical equipment and the software which guides this process, new hires can learn to cut and polish diamonds within 6 months.

To accelerate the learning, HB Antwerp has set up a mentoring and training program for HB Botswana in which each employee has one mentor and one trainee that crosses over between both companies in Belgium and Botswana.

The proprietary software breaks down the diamond processing and polishing process into seven distinct phases which all interact closely with real time market demand data, thereby producing transparent marketable diamonds. HB calls this central hub of its ecosystem approach Genesis, and it incorporates the seven stages of HB's diamond processing.

The biblical terminology for the process is used to metaphorically describe the creation of a polished diamond and while it may be perceived as hyperbolic, it reflects the deep-rooted religiousness of Botswana's society.

Stage 1 - Awakening

This marks the initial phase of the business model, encompassing diamond extraction at the mine, transportation to the sorting facility, and integration into the HB ecosystem. From this point forward, a comprehensive digital record is established for each individual stone

Stage 2 - Prophecy

This phase involves the in-depth internal evaluation of the stones through advanced proprietary technology. Numerous potential plans are analyzed, with the optimal plan selected based on a strategic decision-making process that considers factors such as complexity, resource allocation, and current market demand.

Stage 3 - Descendants
This stage encompasses the usage of all the proprietary high-tech hardware to streamline the transformation of the stones across all the stages.

Stage 4 - Exodus
The Exodus phase represents the complete transformation of the stone from rough to polished, combining state-of-the-art technology with world-class craftsmanship to maximize the intrinsic value of each stone within the ecosystem.

Stage 5 - Second Sight
Second Sight entails ongoing oversight by an expert gemologist to ensure the successful execution of the predetermined plan. This process guarantees adherence to the established plan at each stage, fostering accountability among all stakeholders involved in the diamond's transformation – from its initial processing to the final polished product. Additionally, it enables prompt corrective actions in the event of deviations or unforeseen challenges

Stage 6 - Transfer of Title
This represents the sales process and covers the transfer of physical ownership from HB to its clients.

Stage 7 - Afterlife
While physical ownership concludes upon the transfer of title, the comprehensive data collected throughout the stone's journey enables HB to establish a detailed digital footprint. This data not only facilitates the creation of a digital twin for each asset but also empowers the analytics department to assess operational efficiency and drive continuous process improvement.

Building local capacity

Investing in its employees and their training is, according to de Toledo, critical for HB's business model. Revenues from the diamond industry have long been reinvested in education by the government of Botswana, resulting in a well-educated population seeking quality employment opportunities. But with low skill jobs dominating the mining sector, there are insufficient quality jobs to cater for the highly educated graduates the country is producing. HB Botswana's workforce is currently made up of approximately 40% graduates with an engineering degree. To recruit the best talent, HB collaborates with BIUST, the top engineering university in the country. For example, during its establishment phase, HB organized a three-month workshop open to university students, which resulted in the recruitment of 15 engineering graduates who were hired into the company. This first cohort has also done a three-month two-week exchange in Antwerp to learn from the experienced team there. In an interview with the Dean of the Faculty of Engineering at BIUST, he pointed out the importance of technology and agility in preparing his students for the labor market.

HB is cognizant of the history of workplace abuses in the diamond sector, including modern slavery. de Toledo argues HB is working to transform the industry and starting with its own workers, aims to provide attractive working conditions. For example, HB employees in Botswana participate in a structured mentoring program and receive salaries that are around 30% higher than industry competitors. This, alongside continuous upskilling opportunities, makes HB Botswana an attractive employer.

Botswana at crossroads
The economic vision of the government

Botswana's government (prior to the 2024 election) has supported the business model of HB Antwerp, understanding that their continuing dependence on rough diamond exports limits their economic prospects.

The (then) Minister of Minerals & Energy, Honorable Moagi, started in an interview with the authors of this case that 'any natural resources are by definition finite'. He says that 'this truth must be the driver for diversifying Botswana's industry'. According to him, the key to this transition is 'to leverage knowledge from our people'.

At the official launch of HB Botswana on March 27, 2023, the then President of the Republic of Botswana, Dr. Mokgweetsi E.K. Masisi, emphasized that:

> *"[...] it's time for Botswana to participate not only in the process of extracting diamonds and selling them as rough stones without having processed them into value added commodities across the diamond trade value chain. And this is for the simple reason that the returns that come with having control to sell our diamonds with value addition, are much, much, higher than the returns of the sales of rough diamond stones."*

In his speech the President also pointed out that he considers the development of HB Botswana an important stepping stone in the country's transformation into a diamond knowledge center. In an interview with us, the (then) director of marketing for the government's Department of Mines and Minerals, told us that in order for Botswana to truly capitalize on its natural resources, it needs to be 'the capital of the mid-stream value chain'.

Pressure to transform the country's economy is also coming from the next generation of Batswana. The diamond industry to date is unable to provide sufficient jobs to a young and highly educated workforce that is eager to see Botswana thrive. The high youth unemployment rate leads to an exodus of skilled graduates which is politically sensitive.

The Minister of Minerals and Energy pointed out to us that 'if you want to go far, you need to look for partners'. In June 2024, the Botswana government promised to take a 24% equity share in HB Botswana. This promise underlined that they want to see more companies like HB set up shop in their country and that they see HB as a key partner for their transition to a knowledge economy, that employs local university graduates who can apply their education and learn new, transferable skills.

The national elections at the end of October 2024, however, brings uncertainty.[32]

The Botswana Democratic Party (BDP) which had governed Botswana for 58 years since independence in 1966, lost the election in a landslide.

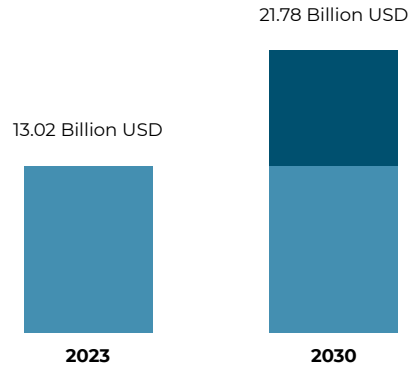
Most support was given to the party of the Umbrella for Democratic Change (UDC). Its leader, Advocate Duma Boko, replaced Dr. Mokgweetsi Masisi as the country's president. Whether Boko will offer the same support as Masisi to HB Botswana remains to be seen.

HB's challenges

Many challenges remain to achieve HB's vision of disrupting and transforming the diamond supply chain and catalyzing equity in Botswana. These relate to the market (including De Beer's global dominance of the industry and the rise of lab grown diamonds), supply chain structures (including India's dominance of the mid-stream cutting and polishing sector) alongside more recently a new political landscape in Botswana (with a new leading party and president), and significant geopolitical factors.

The traditional diamond industry is currently challenged by the rise of synthetic or lab-grown diamonds. Synthetic diamonds are identical to natural diamonds in composition, but they are made in a lab, usually by subjecting graphite to very high temperatures and pressures. The synthetic diamond market is projected to grow drastically from currently 13 billion USD to 21 billion USD by 2030. It is estimated that in 2024 nearly half (45%) of diamond engagement rings sold by US specialty retailers were lab-grown diamonds.[33]

Global Synthetic Diamond Market
Market forecast to grow a CAGR of 7.6%



With the rise of these lab-grown diamonds, the diamond market is diversifying and the long-term effects on the traditional diamond market remain unclear. Some jewellery and watchmaking companies, such as the Swiss company Breitling consider lab-grown diamonds as the only responsible option.[34] Since 2024, they exclusively use lab-grown diamonds in their watches due to concern over unavoidable and uncontrollable adverse human rights and environmental impacts in the diamond supply chain.

In addition, domestic and geopolitics play an important role in the natural resources sectors. The future of HB Botswana may be significantly influenced by whether the new political leadership will embrace the HB model like President Masisi did. Without government support it is unclear whether the HB model can be scaled further in Botswana.

Also, geopolitical shifts are currently affecting the HB model. Sanctions imposed against Russia, the world's largest diamond producer[35], in response to Russia's invasion of Ukraine, have created new global dynamics in the diamond supply chain. The sanctions imposed against Russia should have resulted in a boost for Botswana as a responsible diamond sourcing

destination but unfortunately, have had a different effect. Russian diamonds have flooded the black market and caused a drop in diamond prices which has adversely impacted Botswana's diamond trade revenues.

In this challenging business context, the radical transparency approach[36] proposed by HB should present a significant business advantage. Thanks to HB's capsule and immutable blockchain protocol of the stone's origins and all transformations, sourcing diamonds from HB could provide downstream companies that are committed to sustainable sourcing verifiable knowledge that they are not sourcing conflict diamonds or those perpetuating human rights abuses during the production process. It can also provide investors with up-to-date accurate information about the value of the diamond market and the company. And the story of the diamond's origin should be attractive to consumers who value that if done right, business can create positive socio-economic impacts and support economic development in a country like Botswana.

However, compared to other sectors, many luxury goods companies are laggards in adopting substantial sustainability strategies for sourcing precious stones and metals. Under anonymity many explain that their consumers are at best superficially interested in their sustainability engagement, and they therefore cannot monetize a more expansive restructuring of their supply chains. Without increased interest of downstream companies to support industry transformation in the diamond business, companies like HB may have difficulties growing and mainstreaming their business model. de Toledo knows that 'just to create a different product is not enough. We also need to educate the consumer'.

de Toledo says *"the aim of HB is not to be in the diamond industry. It is to show the mining world how a supply chain should look"*[37] and he considers other sectors such as copper, tantalum, gold and other minerals also vulnerable to disruption. Whether HB can replicate its business elsewhere remains an open question.

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QUESTIONS

1.
What are the key distinctive elements of the business model of HB Antwerp/ Botswana?

2.
What factors motivated this new business model in the diamond industry?

3.
In what ways does this business model disrupt the diamond industry in Botswana?

4.
What role does technology play in improving diamond processing in Botswana?

5.
What role can the Botswana government play in supporting HB's business model?

6.
What could other supply chains in the extractives industry learn from HB's approach?

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Wharton
University of Pennsylvania
Zicklin Center
for Governance and Business Ethics
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GENEVA CENTER FOR BUSINESS
AND HUMAN RIGHTS
Geneva School of Economics
and Management
Uni Mail
40, boulevard du Pont-d'Arve
1211 Geneva 4
Switzerland

gsem-gcbhr@unige.ch

UNSW
Australian
Human Rights
Institute

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