



## **BACTECH ENVIRONMENTAL CORP.**

### **OUR ESG POLICY**

BacTech is an environmental company. **“Environmental”** is in our name and at the core of the actions we take.

BacTech applies its own proprietary technology in all that we do, using naturally occurring bacteria to break down the toxic aspects of certain minerals and waste materials to restore liveability across some of the most environmentally damaged mining and metal operations in a sustainable way. Foremost among these problem areas are Acid Rock Drainage and the leaching of Arsenic into groundwater and rivers. At the same time, our technology helps to protect artisanal miners and their communities from exposure to Mercury and its potentially fatal effects

**BacTech’s technology has environmental remediation at its core.**

BacTech provides both physical and social improvement within the mining community, benefitting the miners, their families, the food they eat, the water they drink while also increasing their efficiency and consequently their income. Mining is about geology and mineralogy; they are not always the friend of those seeking the contained metals. One of the most common mineral issues that beset the miners’ quest for economy-sustaining metals is sulphides. Sulphides are the superglue that binds sought-after metallic ores to metal. Once extracted, miners often leave residual material and tailings (still bound by sulphides) exposed to

weather and rain. These sulphides and other toxic compounds will leach out as a weak sulphuric acid (aka acid rock, or acid mine drainage). This acid seeps into groundwater, rivers, and lakes and can kill fish, their food and ultimately people.

A very common toxic mineral associated with sulphides is Arsenic. This is expressed through arsenopyrite which is made up of gold, iron, Arsenic and of course sulphur. As sulphides slowly dissolve, they create acid which can also dissolve the Arsenic in solution. In Southern Ecuador, where BacTech is currently focused, high-Arsenic gold deposits inland are surrounded by rivers flowing to Peru where extensive agriculture is threatened without the BacTech's proprietary technology and remediation planning in place.

BacTech's technology employs natural bacteria to oxidize the sulphides (our slogan: *"Our Bugs Eat Rocks"*) breaking the bond between the gold (or other valuable metals) and other elements, especially Arsenic. The Arsenic is dissolved into a solution in the acid-filled tanks and then neutralised using limestone to create a completely benign EPA-approved ferric-arsenate. This process greatly improves the environment and lives of the miners but at the same time increases the paygrade of metal to be recovered, ensuring an economic benefit commensurate with the environmental one, a win-win situation.

BacTech is dedicated to increasing and enhancing the sustainability of mining. This is especially true in the case of small mining companies who lack the resources of the global giant operators. The mineralogy of the Pacific coast of South America is such that the problems described are virtually endemic throughout every country, common as a daily problem for the tens of thousands of SME miners engaged in metal production. Where we can, we pledge to help put an end to the exploitative practices.

## **BacTech and the United Nations**

**The UN has produced a table of seventeen sustainable development goals;  
BacTech supports these completely.**

1. **No Poverty:** thanks to BacTech's technology, the economic efficiency of mining is significantly enhanced. In Ecuador, currently BacTech's main centre of operation, the return of revenue from production is projected to be double figures of percent better than currently, where the shrinking market

for their gold concentrates containing Arsenical material results in penalties up to 50%. BacTech's technology can liberate more than 96% of valuable clean metal from these toxic compounds, thus securing an almost doubling of the revenue from any given supply of feedstock. The clean and green metal output secured by the BacTech plant production will completely eliminate the punishing penalties allowing us to provide much improved revenue for the mining community as well as ensuring the plant's profitability.

2. **Zero Hunger;** BacTech is not involved with food production, but the improved revenue to the mining community will have obvious dietary benefits. The removal of the acid rock/mine drainage issue and the associated Arsenic will provide an immediate impact to the quality of agri/aquaculture.
3. **Good Health;** By removing the sulphides in minerals and neutralising Arsenic, BacTech brings immediate local health benefits as well as downstream benefits (literally). In many small-mining areas, mercury is used to leach gold from their raw mineral; mercury is exceptionally toxic, made more so by the roasting process many small producers employ. Not only is this process exceptionally inefficient (extraction rates vary around the 12% mark) - it kills. BacTech technology is 80+% more efficient economically, potentially allowing the company to buy in assayed feedstock, untainted by mercury, at levels 5-6 times that obtainable by the small producers from mercury extraction. BacTech's processing is completely benign, thus providing better income, more metal for the same effort, and much longer and healthier life. BacTech will not buy concentrates that have been pre-treated with mercury.
4. **Quality Education;** BacTech brings training and skills to those who work with and within the Company. Miners will benefit from education about processing-out those toxins currently left on the surface or using deadly primitive procedures employing mercury.
5. **Gender Equality;** BacTech employs based on skill and aptitude, not gender. We support the "*Women in Mining*" initiative and employ women in senior positions within the Company.
6. **Clean Water & Sanitation;** BacTech recycles all water used in its process technology and through its operations nullifies the problems of toxic leaching into the water table from the minerals supplied for processing.

7. **Affordable & Clean Energy;** BacTech is not an energy company, but makes every effort to use the most energy efficient components (e.g., pumps, agitators, transfer mechanisms) in its operations. Most of the process technology in the plant is powered by electricity. Ecuador produces 61% of its electricity from renewable sources, mainly hydro which the company will do its utmost to support.
8. **Decent Work and Economic Growth;** BacTech trains its people to high standards; at the same time, through the application of its clean technology, we increase the revenue from miners' efforts through greater shared efficiencies.
9. **Industrial Innovation and Infrastructure;** BacTech's technology is cutting edge, especially in more remote regions in South America There is scope for multiple plants which, when constructed and brought online, will add useful new infrastructure, increase wages, and improve conditions for all associated. The plant(s) to be operated by BacTech will apply internationally approved Health & Safety policies for the workers, as well as providing proper and effective protective clothing and other personal protection equipment (PPE).
10. **Reduced Inequalities:** enhanced revenue and earnings for all in the production sector help to reduce inequality. Currently, the mining communities in BacTech's interest area are penalised by as much as half the value of the gold they produce due to the sulphide/Arsenic content and offshore processing. BacTech can process this "penalised" material in country, releasing and neutralising the sulphides/Arsenic to recover more than 96% clean and green metal thus nullifying the punishing penalties. Production output will be valued at international prices, allowing the company to be profitable while at the same time ensuring a substantially higher return for the miners.
11. **Sustainable Cities and Communities;** in the Ponce Enriquez region of Ecuador where BacTech is planning to build its initial South American plant, there are more than 90 registered mines. The access to improved technology and the increased revenue will bring undoubted community improvement as well as raising the sustainability quotient.
12. **Responsible Consumption and Production;** Access to BacTech technology will increase the effective extraction of metal and neutralise toxic elements.

BacTech will only purchase feedstock from registered miners. Where we find miners deficient in basic Health & Safety measures, we will introduce education and training. BacTech's plant design is also modular; as demand increases from the clear benefits cited, production can accommodate any desired operational increases. **Climate Action:** The BacTech plant will employ every reasonable possibility to reduce its carbon footprint using renewable energy and other efficiencies. By strategically locating the plant in the centre of the mining region, the Company is helping reduce the carbon impact of heavy transport of feedstock by the mining community. Additionally, a study of the integration of solar energy will be undertaken at the point of construction of the plant and could be applied to all roof coverings of facilities.

13. **Life Below Water:** aquaculture is a high value occupation along the Pacific and poor mining practices threaten it through water pollution. BacTech's technology neutralises any threats at source.
14. **Life on Land:** BacTech is in the process of securing land to build its plant and mineral storage area. Half of this land to be acquired is unproductive and the other half is under cocoa production. BacTech will occupy and improve the unproductive area, while working with and allowing the local farmers to continue with their cocoa cultivation.
15. **Peace, Justice and Strong Institutions:** BacTech works within the regulations and guidance of relevant ministries, usually Mining and Environment. BacTech only buys from registered miners (most of which would be classed as SME or artisanal) to ensure the highest possible standards of safety and legal compliance.
16. **Partnership for the Goals:** BacTech believes strongly in the value of local partners and will do all it can to ensure that the local partners with whom it works adhere and accede to norms defined by the UN goals.

**BacTech strives to conduct its business responsibly to the benefit of all stakeholders (especially local communities) and act in accordance with the Sustainable Development Goals set by the United Nations.**