

Bonanza Model

Industrial Mining and Artisanal Mining Can and Must Work Together – 2014

The History of Mining in Bonanza

- 1880 Explorers looking for rubber find gold in the rivers of Bonanza.
- 1889 The mestizo pueblo of San Pedro de Pis Pis is founded and a mining company is formed that worked the veins of the Constanca Group.
- 1902-1906 Several large companies are founded including Chas Lobner Mining Company, Constanca Consolidated Inc., Hidden Treasure and Eden Mining Company.
- 1914-1922 Small companies and individual explorers exploited the Pioneer and Panama groups (Eden and Neptune veins). The Panama Mining Company closed their operations.
- 1928-1930 Production decreased owing to a Civil War. The Mining Triangle (Siuna-Bonanza-Rosita) functioned as an enclave (con muy poca incidencia fuera de su operacion). Relations between the artisanal miners and the community did not exist.
- 1930-1934 Rosario Mining Co. creates the subsidiary Luz Mining Co. and ASARCO forms Neptune Gold Mining Co. which bought the Pis Pis concession.
- 1953 Lead, copper and zinc polymetallic deposits were discovered.
- 1979 INMINE takes over mining exploitation. Owing to the war, industrial mining collapsed and only artisanal mining survived. MINARBON was organized as the first cooperative of artisanal miners.
- 1995 HEMCO acquired the concession. Industrial and artisanal developed independently and under tense relations. COOPEMIM was formed.
- 1997 HEMCO signed a contract with the coop to buy and sell mined product. At this time the initial parameters were established for the harmonious development of both sectors.
- 2008 The Plan of Zoning and Urban Development (PODU) was initiated as a municipal strategy based upon the desires of Bonanza's citizens and formed the basis for Plan for Ordering and Development of Artisanal Mining (PODMA).
- 2010 VESMISA was inaugurated as the first industrial plant dedicated to artisanal mining and did not contaminate the environment. It has a 100 tpd capacity and generates work for about 1,000 artisanal miners.

- 2012 HEMCO constructs La Curva, the second plant dedicated to artisanal mining. The elevated technology of this plant has allowed for the improved recovery of gold and silver. The plant processes 100 tpd and receives feed from more than 1,000 miners. The processing procedure has eliminated the use of mercury and the expulsion of industrial residues.
- 2013 Mineros, S.A., the largest gold producer in Colombia, decided to invest in Nicaragua and purchased the shares of HEMCO. This transaction will complement capabilities and support continued growth for the benefit of Nicaragua.

The Bonanza Model

Mining exploitation in Bonanza, RAAN has existed for approximately 130 years and according to geologic studies, it is estimated that the gold potential will permit continued mineral development for many decades to come.

Industrial mining represents 70% of the municipal mineral production. Relying on 1,200 employees of mostly Bonanza origin and the Caribbean region. Artisanal mining represents 52% of the Economically Active Population (PEA). Most of the miners are independent and labor in a disperse manner on HEMCO's concession.

It has been estimated that there are around 4,000 artisanal miners in Bonanza and of those only 450 belong to mining cooperatives. The great majority of the ore is processed in one of HEMCO's three plants: the primary plant with the HEMCO compound and Vesmisa and La Curva where only artisanal material is processed.

These two plants are the only of their kind in the Caribbean region and reflect HEMCO's vision that artisanal and industrial mining can and must work together if developed in an ordered manner. This vision is based upon the consideration that both activities are compatible, complementary and plan a transcendental roll in the socioeconomic development of Bonanza.

In symphony with this vision, HEMCO created a unique economic development model at the national level that contains the policies and actions needed to support mining in this municipality in an integrated fashion. The "Bonanza Model" offers more and better benefits to each sector on the basis of a just and dignified commercial relationship, action and activities conducted in coordination with the Ministry of Energy and Mines (MEM), the mayor of Bonanza and HEMCO.

ANTECEDENTS

- The infrastructural capacity and basic services of Bonanza are limited;
- The development of Artisanal Mining ought to be in an organized manner and accompany the development of the municipality's capacities;
- Artisanal Mining and Industrial Mining have developed independently from one another;

- Industrial Mining represents 80% of the metal production in Bonanza and generates 1,200 direct jobs;
- Artisanal Mining is dispersed over HEMCO's concession and includes over 4,000 persons (only 450 belong to the cooperatives). There has never been a regulatory framework nor zones of exploitation assigned in an orderly manner.
- The municipal government, in conjunction with the Ministry of Energy and Mines and HEMCO, has led an effort to give order to this activity and consequently provide an impulse to its development.
- In late 2010, the First Forum for Artisanal Mining in Bonanza was realized and focused upon the most sensitive problems in the sector. Participation in this event included:
 - Leaders from both the artisanal and industrial sectors;
 - Municipal, regional and national authorities.

The principal points considered were:

- ✓ Legal insecurity owing to the lack of structured zoning in the work areas of each sector and regulations for each activity;
- ✓ Poor environmental practices and low metal recoveries due to the lack of processing options to avoid the use of mercury and its discharge into the environment along with the technology that permits the efficient recovery of gold;
- ✓ High risks to the occupational health due to the lack of training and safety equipment;
- ✓ Lack of social development programs to help confront problems in the areas of education, health, child labor, food insecurity, housing among other things.

PODMA

The Plan of Organizing and Development of Artisanal Mining (PODMA) is founded on the guidelines of the Plan of Zoning and Urban Development (PODU), the only strategy for municipal development in the Caribbean region that has been promoted since 2008 by the Secretary of Development of the Caribbean Coast, the mayor of Bonanza and HEMCO.

The objective of PODMA is to promote the development of mining activity resulting in increased benefits for all.

The Bonanza Model elevates the vision of working in harmony with the Artisanal Mining with increased benefits for all.

The proposal represents an act without precedent in the mining industry of Nicaragua, and for the first time establish rules and guidelines for both the Artisanal and Industrial mining industry.

The Bonanza Model is based on four axes:

1. Legal stability and zoning:
 - Defines the rights and responsibilities for their harmonic coexistence;
 - Identify the conditions that artisanal mining should fulfill;

- Grant authorization for mineral extraction to those who receive training in occupational safety and conduct environmental practices and fulfill the existing rules for each stage of the mineral extraction process;
 - Comply with the Municipal Commission of Artisanal Mining, the inter-institutional oversight organization for mining.
2. Responsible processing and recovery
- Consists of the construction of the processing plants exclusively utilized by the artisanal miners with modern technology that permits efficient mineral recovery and fair commercialization and environmental friendly practices;
 - Together with the Municipal Government and HEMCO, it is mutually declared that Bonanza is “the first mining municipality in Nicaragua free of mercury use”.
3. Occupational safety and friendly environmental practices
- Present workshops, seminars, chats and technical presentations about to implement actions and measures with increased certainty;
 - Familiarize with the use of personal safety equipment and care for the environment;
 - The seminars are a fundamental requisite in order that HEMCO their mineral and renews the permits for extraction.
4. Human development
- Within the framework of PODU, derive different social programs focused on the wellbeing of Artisanal Mining such as: microcredits, Center for Child Development for Artisanal Mining, financing for equipment, materials, trucks, lots among other things.

LEGAL STABILITY AND ZONING

- Establish a fair and ordered relationship;
- Conduct the first census of Artisanal Mining in Bonanza which will serve as the base for accreditation;
- Grant operating space and guarantee security in the work place via new programs, regulations and training;
- Grant authorization for operating within the concession. In order to provide adequate regulation and improved security, provide identification cards containing coordinates for the work site, concession number, duration of permit and photo; and
- Comply with the Municipal Commission of Artisanal Mining, the inter-institutional oversight organization for mining.

The accredited miners need to fulfill:

- Laws prohibiting child labor;
- Environmental standards;

- Occupational safety: waste management in the work area;
- Protection of water sources near their work sites; and
- Receive annual refresher courses regarding the standards.

PROCESSING PLANTS EXCLUSIVELY FOR THE ARTISINAL MINERS

Increase the installed capacity for the processing of gold ores with the construction of Vesmissa and La Curva, the first industrial plant for the exclusive use by Artisinal Mining,

- Each plant to process 100 tpd;
- Access to about 2,000 artisinal miners;
- Do not contaminate the environment;
- Investment in excess of \$7 million for both plants,

TRAINING AND INDUSTRIAL SECURITY

- Offer training in security, technology, geology, explosives, technical assistance, emergency simulations, consumables and the use of safety equipment.
- Support for orientation classes, assistance in the use of explosives, supply of materials and consumables.

HUMAN DEVELOPMENT

The Bonanza Model counts upon human development programs that consider several aspects:

- Commercialization plan for gold product at fair price in accordance with international prices;
- Access to financing for working capital, consumables and the purchase of trucks;
- Seminars in legalization and applied geology, home construction, cash management, security, eradication of alcoholism and child labor, etc.; and
- Access to Social Security, government development programs and the company store.

ENVIRONMENTALLY FRIENDLY PRACTICES

- The traditional method of gold recovery uses rastras and mercury which does not break upon contact with air and concentrates in the body, soils and water sources;
- PODMA counts on an Environmental Standard that regulated all of the process stages, including the initial prospecting and sampling through the closing of the mining site;

- The industrial processing plants used by the Artisanal Miners do not damage the environment and, at the same time, permit increased metal recovery.

ADVANTAGES OF THE BONANZA MODEL

From the Government's perspective:

- Improves the working conditions for the artisanal miner and their family;
- Directs the efforts of the artisanal miner in an organized manner to access social and economic benefits as planned in National Plan for Human Development (PNDH) and the Developmental Strategy of the Caribbean Coast and the PODU;
- Plan to transform the rastras in the small gravimetric plants in order to reduce the environmental impact;
- Contribute to the mitigation of bad environmental practices;
- Support the formalization of the artisanal sector in order to increase tax collection;
- Promote a more robust contribution to the local and regional economy.

From the Industrial Miner's perspective:

- Establish an alliance with the artisanal mining sector which favors the industry;
- Contribute to the mitigation of bad environmental practices that damage the sector's image;
- Increase production by exploiting sites not adequate for the industrial sector;
- Organize and regulate the growth of the Artisanal Mining sector;
- Design a plan of sustainable development for the Artisanal Mining sector that promotes the stability that the industrial sector needs in order to continue operating and growing over the long term.

GOALS OF THE BONANZA MODEL

- To be a successful working model that can be replicated by other mining districts in the country;
- To pioneer the development of Artisanal Mining utilizing practices friendly to the miner's union, the community and the environment;
- Achieve both sustainable and quality production so that both mining sectors obtain increased benefits;
- Declare Bonanza as the First Mining District Free of Mercury in Nicaragua,