

MANAGEMENT BY LOSS* IN MINING

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Introduction

Without an exclusive definition of administration in business, we could propose to define it as performance by management to adopt or implement established business formulas. Administration could also be defined as a universal process that organizes people and achieves common objectives and goals through efficiency.

Humanity developed some form of this process from the beginning of civilization. To imply that something is new in administration might be considered specious or naïve. Moreover, what is new in management? Administration of business is not new to the world. To prove this statement, we need only ask this question: Does the architecture and monumental workmanship of the past civilizations of ancient Egypt, Rome, and the Incas demonstrate management without administration and without definition of objectives? The answer must be a resounding “NO!” In spite of this acknowledgment and for the purposes of this presentation, I will use the word “new” in business and hope that the reader will follow my reasoning.

The mining industry has unique characteristics in respect to other industries. It is multi-disciplinary, has a single purpose (the majority of mining is for one metal), has two players (man and nature), and it involves high risks for generating environmental imbalance. Mining exploits non-renewable and finite resources, creates an unstable job market (work hard to have no work) and a speculative economic market with unpredictable prices – a ONE-TIME PAYMENT for a finite resource with multiple recycling. On top of all that, the industry still operates within obsolete petroleum-based technology and utilizes practices that were designed two

centuries ago. Today, we confront the challenges of the millennium with outmoded practices and management.

Ordinarily, several styles of administration are standardized into a FRAGMENTED vertical system of organization. Mining has rigid objectives in production, with profitability as the focus from the beginning to the end. Citing the concept of safety, as an important facet of production is bombastic since, in truth, mining is an experimental industry that consistently reports high numbers of fatal accidents.

In mining, we designed a process to work according to our objectives, demanding attention and supervision of all levels of management with a halo of parameters that are not assimilated into the design. We continue to perform a rigid style of management in an industry that is still not responsive to variations of the market – losses in particular. The existing design process generates loss without capitalization and without response to said loss. This perception is reflected in a mindset that is only too ready to ignore mining liabilities.

The reality of the enterprise has created an immense pressure from top to bottom in the hierarchy to do more with less. It is for all of these reasons that I propose to set forth a new essence for administration that encompasses an alternative vision and style in mining: Management by Loss.

Management By Loss

Management by Loss (MBL) is a systematic, integral process organized to quality control operation and the human profitability within the industry. It permits focus on achievable goals by utilizing the best practices (Mining Open-closing). Identification and characterization of loss in the process determines how

objectives are defined and controls the time limits to execute based on constant balance of mass, energy, water, and “wastes” in each stage of the industry in order to reach final objectives.

The concept of loss can be defined by various criteria. Generally, it is the mass that could not make or arrive at its destination from a designed process or simply, it could not maintain balance. Otherwise, the design of the process describes the final point of the resource. However, those resources could not make their destination because of failure to use the best design, resources and TIME. The loss has typical characteristics such as Identifiable, classifiable, measurable, manageable, controllable, valuables, negotiable, avoidable, reportable, and monitoring. In the traditional scheme, these losses are not registered; they are excluded. We are trapped within a system, which was designed to obtain objectives of the industry in a specific timeframe.

In the present style of administration, the focus is on the total objective. Our emphasis in this treatise is in the loss. The current traditional report form contains only the most positive achievement of objectives, only the best of the exercise, humanizing numbers, without touching what we left behind or what we were waiting for to assimilate as a “surprise account”(new account of liabilities). Management by loss is a method that redefines the concept of waste (waste zero) for controlling the mine operation under the equilibrium of the ecosystems. This method confronts the problems that impact our industry in this millennium.

Understanding and quantifying losses (reserves, resources, time, energy, water, soil, materials, equipment, tasks, labor, ecosystems, etc) is a priority mandate for the industry and demands the application of a “new “ style of administration by seeking to maintain balance instead of the disequilibrium that mining now creates in nature. It is necessary to answer questions such as: How can we minimize loss? How can the loss be assimilated during the life of the mine? What is the vision of mining in respect to the generation of waste? How can we convert liabilities into assets? In addition, the control of loss is determined in the achievement of the plan. Loss occurs because of a failure of the process in the original plan. Still we do not plan to fail but we fail to plan appropriately. It is a remarkable thing to accomplish and compel those objectives described in the original plan when that plan is designed with a determined budget. If not, we lose time and, of

course, capital. Moreover, in Management by Loss (MBL), we can find answers to the following questions: What is the multiplier of productivity in mining? What are the influences of identification and characterization of loss and what is the level of efficiency of energy in order to achieve waste zero (effective cut off grade)?

The challenges of mining in this millennium validate this new style of administration. Finally, it is important to point out that mining is entering into an era that has different rules, but the industry is still run by companies functioning with objectives from two centuries ago. They are trying to confront issues with concepts that are not designed for new tasks. Therefore, I ask you to consider this new style of administration of business under a vision of how the industry should be organized and managed, with an attitude of balance toward nature and social responsibility.

Purpose and Objectives

The purpose of Management by Loss is realignment, compensation, and redefinition of anthropogenic activity not well presented to society that in the past has accumulated and generated negative impacts (socio-environmental liabilities). MBL presents to deliver environmental balance during and after mining, as a commitment of the industry, to uphold environmental and social justice and preservation of life in complete harmony with nature.

These objectives develop from accepting mining industry liabilities as our responsibility for the future and not only as a consequence of production, specifically avoiding the accumulation of waste dump and tailing (monuments of imperfection to our industry’s irresponsibility). In this arena, Management by Loss proposes to ensure a culture of EHS (environment, health & safety) with the criteria of balance in mass, energy, water, ecosystems.

Loss as an objective should not only be focused on results, but should be consistent, specific, and measurable related to time. Loss has an important relationship with reuse, recycling, reduction, and regulation, (life cycle assessment) with constant monitoring of primary objectives.

Management by Loss is also extended in administrative areas which redefine the objectives of a responsible market, technological innovation, HUMAN PROFITABILITY, socio-environmental issues, and responsible administration of finite natural resources for

controlling of reserve inventory. MBL matches the level of obsolescence of technology with identity and attitude toward the community.

Principles and Rules

The principles of Management by loss are established to create a culture of prevention and minimization of the impacts caused by mining. These principles are based on equilibrium of nature (GEOMIMIC) where loss is measured as the level of compensation, with total disclosure and participation of everyone involved. Loss as a complement factor presents a unique tool of administration through efficiency, effectiveness and assertive balance. Defining that impact is not merely a sidebar on a report; it is a reality with the future.

These principles incorporate critical thinking of the current technological process (which reaches a level of incompetence in its obsolescence) in the defined cycle of the life of mining. A human life is generally about seventy years long, but the impact of our mining goes far beyond human life span. We must begin to think beyond our own time limitations. We must imagine the long-term effects of mining and take action now to reduce and/or minimize the damage and loss for the good of future generations. For example, increasing the human activity in a jungle, like the Amazon Jungle, under the flag of “development and progress”, is harmful. We depend on oxygen to live but we continue to permit the destruction of forests that produce our oxygen with impunity. MBL organizes these principles according to goals and objectives with loss built into each stage, with full consideration of decisions for appropriate strategies, determining timeframes of each stage, evaluation of performance in each stage, changing routine as needed, allowing dynamic innovation of stages, adjusting objectives by loss through control, by monitoring and auditing performance. In other words, flexibility becomes paramount in managing operations and resources.

This style of administration considers PREVENTION as a direct function of the activity, developed in the following rules:

1. It will be a policy of the companies that those companies must prepare a plan that adheres to an annual requirement of minerals in different scales based on budget and time.

2. Mining plans will report complete information of highest quality distributed to each level of the organizational hierarchy (not only pyramidal, but horizontal).
3. Enforcement of rules will be regulated and monitored, as a compromise and commitment by all, because complete participation is needed.
4. Energy is a principle that only is transformed; therefore, we will analyze its utilization as an operational priority. Efficiency with operational balance or equilibrium in each resource, including reserves, water, energy, materials, etc (Equilibrium Engineering).
5. Monitoring and audits are vital to keeping track of original objectives.
6. Encourage a sustainable workforce and society.
7. Keep in mind that responsibilities are nontransferable, only inherited in time with consequences.
8. Efficiency is measured by loss in quantity and quality, and not exclusively by profits. It practically eradicates the human binomial (winner- loser) for correct or incorrect with nature.
9. Identify and characterize events that produce losses. The design process takes care of the production in the objectives initially established. In contrast, the system and process need to be changed. Simplicity is a generator of alternatives appropriate to equilibrium.
10. Highest respect to the law and rules of nature (Geomimic)
11. Waste and emissions are indicators of inefficient technological applications and preclude a review of processes.
12. Do not transfer liabilities to the next generations as legacy from us
13. Transfer ownership of cultures EHS and balance in all players, making EHS FIRST, instead of Safety first. By deferring to EHS, safety will be accomplished.

Promoting the rules of Management by loss, the company achieves the benefits that:

- Each worker designs a scheme of loss in the process and assumes ownership for his part in the process.
- Constant evaluation of the process for any areas of incompetence to ensure not only the adherence to rules but also the balance under sustainable society.
- Leadership based on the vision of the company.

Information in Management By Loss

Information is the key, not strictly by its content, but also for the quality of information, field knowledge, and events to generate strategies for the operation under a PLAN. The report of loss revises the history and background of the administration. The concept of loss is a valid tool despite the fact that it may be perceived as unrealistic by traditional management.

Handling, controlling and distributing of information are also important factors for delivering QUALITY INFORMATION to the different levels of the organization without the unnecessary accumulation of voluminous information into equivocated levels. The information is analyzed, quantified, classified, transparent, and appropriate to the time of utilization and distribution.

We must always keep in mind the question: Why is the information incomplete? Why does it happen? Because it gives administration the opportunity to study constantly the balance in the process and why loss is being accumulated by design. In this task, it demands an inventory of disequilibrium in order to understand equilibrium. The quality of information is ensured at each level of the organization, in time and the capacity of assimilation with simple, clear and effective language in order to utilize and embrace the vision of the company. A plan must exist to execute this style of MBL.

Having appropriate information allows administration to manage the potential problems such as inventory of reserves, dilution, balance of mass, energy, water, ecosystem, and safety must be pursued. Bottom line: Information must have integrity and be meaningful and effective at every level in the organization.

Condition of Management By Loss

Loss is defined in each level of the organization, with the highest quality of information being the specific responsibility of each level of the administration. This style of administration requires the complete participation of all the people involved in the activity; it is designed to be inclusive,

The control of loss is established by the total objectives. How much we did we lose today, including reserves, resources, energy, water, materials, labor, and time? Performance is measured with losses being considered part of the process; the responsibility is accomplished because the loss is shared. In addition, performance is measured by its effects in areas such as the market, technology, innovation, human organization, financial resources, productivity, EHS indices, social responsibility, environmental responsibility, and equilibrium of ecosystems. Specifically in mining, we break balance; therefore, it is important to reset equilibrium. At the end of the day, we must ask the question: How much of this balance is restored?

Otherwise, our expectation and focus would be in how many things in mining or the mining companies are inefficient, without considering the fact that efficiency may be a relevant issue as a virtue or value of keeping a system that was not designed to keep balance with nature. We could answer these things with a degree of efficiency or operative sensibility or vulnerability. On the other hand, why try to optimize a wrong system knowing that optimization is only given in imperfect systems. For example, energy should be assigned in each process and stage of mining to evaluate its balance. Why not? What is the definition of success in administration? In reality, mining requires a better presentation to this civilization. For the sake of discussion about the system, we could ask: how can we avoid overproduction? A more interesting question would be how can we avoid it in the function of time to create a continuous process of solution cause-effect? MBL analyzes mining for the vulnerability with the goal of strengthening those weaknesses and developing a culture to eradicate them by having a more responsive and auto regulated industry.

MBL is compatible with the balance of power and empowers value and standards of performance in loss. In this manner, it creates a new strategy for balance. Its implementation for knowledge and experience would result in a system that would be very responsive to the sensibility of nature.

The concept of loss is to translate risks in knowledge or to "eliminate" risk not selected in the business. The reduction of uncertainties is given to establish the level of risks where the practices only reflect a culture of EHS, as part of prevention. It is admissible in safety that only the zero accident is acceptable because we are an industry that carves out of civilization.

Plan

In the structure of actions, the plan is vital for this style of administration. To this task, we acquire historic information well selected and validated in the knowledge of the operation. In accordance with reality, we visualize its limitations to define the strategies. As has already been stated, the plan considers communications to be a major component that should allow for distribution of the highest quality information for each level of the hierarchy in the company. The aspect of the plan has an intangible value of transformation because it creates a condition of innovation or practical wisdom. It is remarkable that we MINE NOT FOR KNOWLEDGE BUT FOR WISDOM.

Energy will be integrated in each strategy per annual Plan of mineral requirements as well as similar conditions with water, air and soils. Each event in the plan is developed with acknowledgement toward equilibrium with nature. Without interfering the short term with the long term requires that mining plans must be under the mine closure plan. Fig 1 describes the flow of this process.

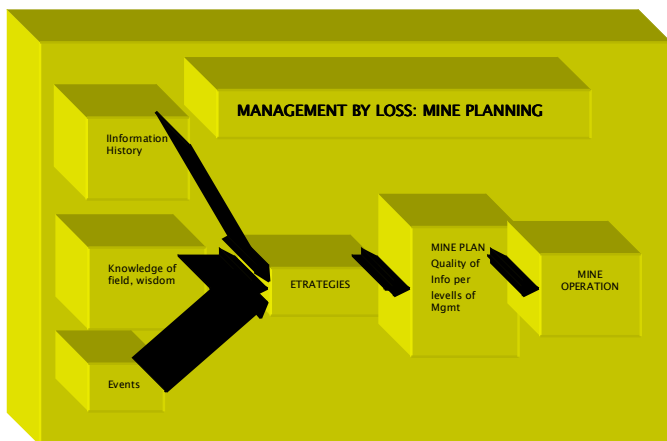


Fig 1 Management by Loss: Mine Plan

Determining the vision, we structure it in time. The plan must be clearly understood by utilizing effective communication and education of employees, converting risks in knowledge, and interpreting them in prediction (Shown in Fig 2). Prediction is the window in time, the window of the invisible, in the level of uncertainties, given the accumulation of risks. To this point, it is important to know how the company defines risks or what is the definition of risk for the company? Affirming that in

mining the only certainties are uncertainties, those uncertainties can never be eliminated but only taken to a different level, making risks instead of making decisions, for use with good judgment, which is a good combination of intuition and analysis to determine this complex system. The dominion of the natural law would give a level of ecological performance in each prediction. We must not only analyze the mining aspect but the total disequilibrium with restoration in each segment in time and space. The level of discrepancies reflects poor planning with the result that it is a divorce with original objectives. Therefore, it is important that those judgments do not violate natural law without knowing its effects before (Equilibrium Engineering). The coherency and judgment employed in each plan would provide less discrepancy in obtaining the range of prediction; moreover, measuring the uncertainties has a critical role to use in the elaboration of each mining plan. Finally, the level of uncertainties is minimized by the knowledge of stable physical, chemical, and biological conditions of the mining area or ecosystem, which force equilibrium of those losses. Fewer indices of loss and discrepancy in planning would result in minimum disturbance in the area. Also, it is necessary to plan to recover by-products from tailing or re-mining in existing mines and in a new project included as part of the complete process (control of losses).

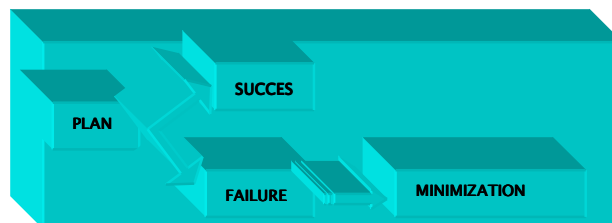


Fig 2 Minimization of loss

Constantly, it is important to ask ourselves: What is the impact of our mining on nature in the future? In addition, what is the behavior of mining wastes in time and space? What ecological footprint is left with each mining project? By answering these questions, we could achieve equilibrium in nature during and after mining.

Understanding loss would be far from the traditional way of mining. Up to now, the criterion of the winner is egocentrism. Since humans always want to be on the first page of the news, with an understanding of nature, they would develop identity in exploitation by equilibrium. How can we prevent loss? Who paid for losses? Why do those losses exist in "new" technology? It is the main task of mining engineers to make visible the invisible,

thinking globally and acting locally, and living in the effect while fixing the causes. Therefore, we present plan with less failures, flexible and dynamic. Management by loss does not exist without plan. In Fig 4 shows the content of plan.

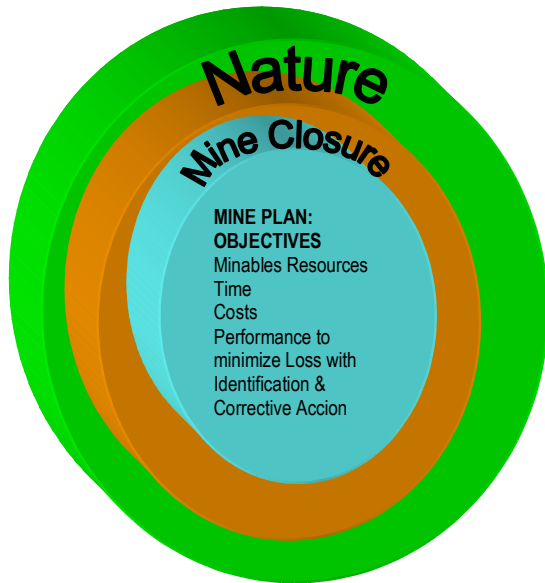


Fig.4 Mine planning

What will control of loss accomplish? What is the vision of mining? Is it waste zero? How will waste haunt you? How could the company be unprofitable? How can we transform liabilities into assets to develop constant revaluation? Actual mining is breaking the balance. At the end of the day, how much of the balance is recovered? Costs that still haven't been counted in mining: the microbial pollution, disequilibria of biological diversity, alteration of micro weather, etc. Why don't corporations knows their biggest problems, and if they do know, what are they doing to address them?

The dial of business in order to keep balance in nature, to the final days, is mine planning evaluated by its adjustment in the mine operations reflecting flexibility under the restoration plan (Mine Closure).

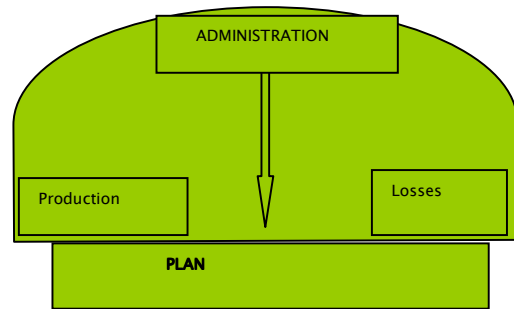


Fig 5 Pendulum Action in Management

Knowing the discrepancy between mine operation and mine planning would produce results for better finite natural resource (shown in Fig 6). Many policies were developed in this activity but without nature views or input. We must deal with this in a more responsible manner.

The discrepancy between Planning and Operation is vital to manage, e.g. if we obtain a 15% of discrepancy is it simple to ask who is paying for this? What is the weakness and vulnerability of the business? What budget is involved in the loss and time? Time is important in mining. It is viable to accumulate money but not time and because the mining in reality is an INVESTMENT OF TIME, too many ways were ignored or negligible. To determine the justification of the time frame, Fig 6 presents the reconciliation as an administration strategy.

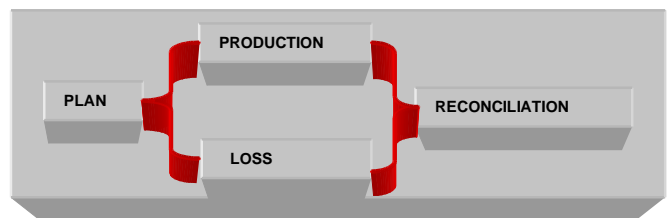


Fig. 6 Reconciliation Policy

The loss of energy in mining is given but who quantifies it? How much maximum energy do we need per ton of mineral produced? How do we use the installed capacity? If the company knows its problem, what are they doing to restore it? What is the profitable dilution? What is the significant trend and changes in the NPV/IRR of the investment? How do we justify the loss of mineral reserve in each exercise? How do we achieve oil independence? For example, we still have a massive use of internal combustion equipment in new projects. In the case of dilution, it is important to consider its effects in the project; if we increase it from 10% to 30% the effects in the NPV decrease by 37.6%. From this statement it is important to consider not only the valuation of the money in time but the resource in time,

in order to see the significance of this issue. It is remarkable that “creation” of value could be ephemeral when the most important issue in mining is sustaining the value, in spite of the fact that NPV tends to zero in time. In order to achieve that condition it is necessary to integrate time in the innovation culture (being dynamic, flexible, auto regulated, responsive, long term view, not only human views but nature view also). Mining is not an activity of short-term effects. The operation could be short term but the effects of the operation are felt for many generations to come.

Again, it makes the value of the resource an important condition in time, not only money in time, with the sole understanding that money is not a resource and natural resources are finite. Therefore, the resource is exposed to scarcity, depletion, “substitution”, recycling, and many factors of metal; hereby it must be included in equalities of valuation for being a non-renewable resource. In addition, how can we guarantee an acceptable ecological footprint? Nature only demands physical, chemical, and biological equilibrium. Within this framework, **REMEDATION BECOMES THE FIRST STAGE OF MINING** because it is important and vital to know the cure before the contracting the disease. The impact is not a comment on a report; the impact is reality. The density of industrialization is a dilemma in the planet, but without doubt, humans are not the decision-maker, neither are investments; it is nature that defines how this density or stresses in the ecosystems would determine this consideration.

Audits will find reasons why we lose in the process. It is not merely a file of the inventory. This is not the objective of an audit. Management by loss is subject to monitoring, auditing, reengineering, because they are typical challenges of this age.

Implementation of Management By Loss

Management by Loss is key in each area of mining. With the application of appropriate strategies, MBL would be able to build the best quality application in each mining process. The widest concept makes simple work if it is implemented efficiently. Inappropriate ways of managing loss could degrade the performance of its application.

In school of thought regarding management of business, it is notorious for referring to different styles of administration. Management by loss needs to be added because it leads the organization to solve the most urgent issues - the loss - in the first place in this planet. MBL is the complement of the mine plan because it’s based on “intelligently” planning and the definition of experience as an event of the future. MBL implemented in each mine operation would build proactive, auto regulated, responsive, full participation, committed in nature’s law (Geomimic), and management of the total objective of the industry. MBL is an excellent way to approach events that evaluate the degree of obsolescence of applied technology, always with the first concept of prevention when the unacknowledged is presented.

MBL not only includes efforts for EHS but for the reduction of accidents, diseases, and imbalance. Losses are products of imperfection of the process that we can avoid, plan - even measuring - to identify and characterize in order to control the potential causes existent in a time frame.

To ensure those results that MBL describes, it is important to transfer ownership of its principles, where each employee has a clear understanding of his/her role in the process of balance and keeping the responsibilities and accountability of its action at any time. This condition gives to the company a balance of power between supervisor and subordinates due to full participation in the implementation of the mining plan. Also, it will educate and develop talent in the human factor of the organization by instilling leadership with vision toward innovative culture.

Each company works better when the balance of power (authority) is in full equilibrium, consisting of:

- Identification and Characterization of losses
- Organization of the group
- Motivation and effective communications
- Measuring performance immediately and consistently
- Human development (re-education)
- Following up of the process continually
- Prevention that promotes EHS under a culture of innovation

It is remarkable the difference with traditional administration which the decision is based on believing and assuming what has occurred in contrast to a decision in MBL that measures what is happening. To make sure that MBL is not an accidental condition, it is established

in the measure of facts (losses), moreover, measuring the environmental effects and consequences of impacts preventively. Exercising critical thinking of the process in mining technology is crucial.

The results of this implementation is in:

- Increase in the productivity for better utilization of Energy (kWh/ton or Joules/ton or energy/ton)(*Productivity and Competition in Mining, M Javier 2006*) to adequate labor climate in safety and innovation for keeping equilibrium.
- Reduction of accidents, which raises the public perception of the industry.
- Prevention of irreversible consequences and effects in the process.
- A climate of innovation during the life of the mine.
- Monitoring, investigating and auditing the losses in order to clarify the causes of those losses.
- Constant education of people in each stage of the process.

The effective, efficient implementation of a prevention plan of loss is the key to success for this type of administration, not counting COMMUNICATION as an INDICATOR OF LOSS, yet.

Before implementation, it is necessary to question what style of administration your company uses. We describe that MBL is based on the premise of the information of the business, where employees are dedicating their attention to losses because of their impact in the mining business. This philosophy of management will change and make a big difference over other administration style lately treated as well as the FLOW OF ECONOMY. To illustrate losses in mining projects is shown in Fig 7.

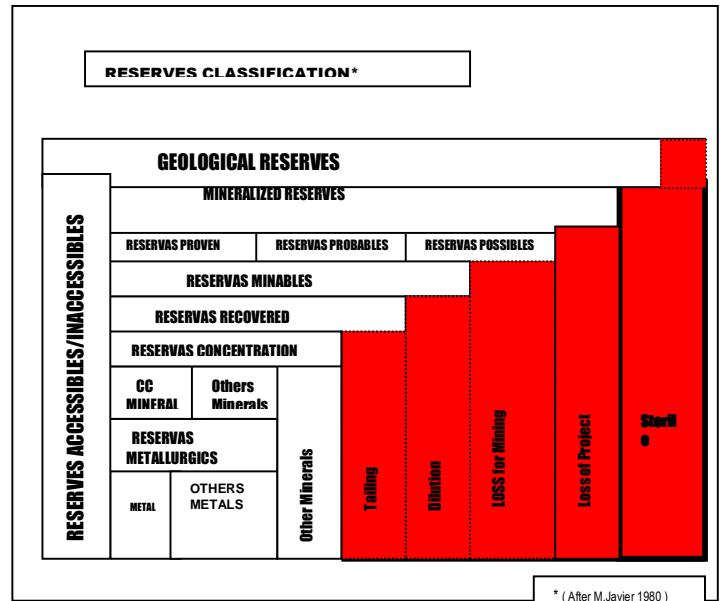


Fig 7 Losses in Reserves Classification

For example Mass Balance:

$$\text{Recoverable Reserves} + \text{Dilution} = \text{Minable Reserves}$$

$$\text{Concentrated Reserves} + \text{Tailing} = \text{Recoverable Reserves}$$

The losses start from the beginning of the project (Mining in XXII Century, M Javier 2006). This reserves classification presents the loss in mining that the project initially "ignores". Justification of those losses would be interesting to present to the next generations as they accumulate globally, without compromising the kindness of nature. From this classification shown, we could explain our level of advance in mine exploitation and style of administration of natural resources in place and time. Without a negative critique, it has the intention of inviting us to redefine mining and culture of change to present to the next generation of professionals.

MBL has the following advantages:

- Effective, balanced, equilibrium of the ecosystem and human profit.
- Reaching the total objective of the industry while creating social and environmental reputability.
- Reeducation of human factor and developing of their talent.
- Gives cultural enterprise and identity to the workers
- EHS as a culture of innovation with the highest effective communication.

- Achieving results from the challenge of this millennium within the mining industry by working toward social-environmental improvement and harmony with nature.

Some disadvantages that could be mentioned are the demand for qualified employees (reeducation of objectives), consumption of time initially for identifying and characterizing the losses, higher investment of time in observation of the process. MBL has some inconveniences depending on the objectives in the design and ways of implementation.

Conclusions

- This method to be submitted is to establish, monitor, audit, and reengineer as necessary.
- This is new thinking in business and is applicable to any industry or anthropogenic activity. It proposes a new economic flow for business. In addition, it presents the experience as an intangible value and factor of change to any future event.
- Each of the liabilities delivers a message; our mission is to decipher and restore it. MBL reveals the weakness of supervision in the process.
- Three aspects to share under this new view; first, ecosystems cannot be transported because they generate unbalance in both ends. Second, technology must adapt to nature never vice versa. Third, nature has its own rules and it requires balance and respect. We are unable to control nature, we belong to nature and we cannot ever own nature. Therefore, it would seem highly pretentious and arrogant to try to even think otherwise.
- MBL is a concept that contends that mining could be considered as a stable system with closed loop (Equilibrium Engineering).
- Energy is the multiplier of productivity in mining. The problem in mining is not the generation of energy but its storage. Besides that, any conversion of energy is inefficient (conservation of energy, thermodynamic law). Therefore, the constant balance of energy is a requirement in MBL.
- Recovery of by-products in mining will not be a matter of speculation; it is feasible and suitable to the time. Projects cannot be immersed in only one metal because the ore body is polymetallic from genesis in the majority of cases.
- MBL is an exercise of intelligence in action to “create” or perceive values. MBL improves EHS performance without conflicting with financial objectives in the long term. Losses cannot be ignored any longer.
- Valuation of resource is not only in monetary value but also in time. Losses cannot be accepted because resources are finite the same as time cannot be recovered. At the end of the day, mining is an investment of time also. Nature is not managed by the economy.
- Sustainability as a proceeding rather than its principles could be applicable to the mining industry. Sustainable Society is possible in short time.
- Management by loss will give the best utilization of resources to conserve the planet. MBL defines waste as non-existent instead of zero waste for keeping balance in the exploitation. A 5-10% increment of utilization of the resource will be a tremendous meaning in nature.
- Mining is challenged to re-design its wastes (WASTE DESIGN). Mining must be focused on commitments rather than compliances (AUTO REGULATED) with nature.
- This philosophy is to see business from the other end, for not only profits but also for the losses of what we lose and why we lose, extending the technological values to their level of incompetence, meaning once technology has reach its threshold and obsolete level we must reengineer it completely.

Finally, as an intruder to the Amazon jungle, I decided to observe a single tree, (parallel to seeing a falling apple like Sir Isaac Newton), to decipher all the messages of what and how many kinds of life exist in it. It was an epiphany and I was amazed at how life is

continuous, day and night, turning without end within its cycle, wherein lies the hidden meaning, where waste-food binominal factors were an infinite chain. With life, day and night, without any economy, with the Loud Voice of the Message of designing products with a nutrient end and repeating the cycle without interference. He/she who is the designer of such a system similar will achieve a better planet.

Sincerely,

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References

1. Javier, Mauro (2007) "*Mining in XXII Century*"